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Preface

The 5th International Conference on Education in Muslim Society (ICEMS) is held by Faculty of Educational Sciences (FITK) and supported by Center for Research and Community Service (LP2M) UIN Syarif Hidayatullah Jakarta. This year’s conference centers on the issue of creativity and innovation in teaching and learning, a crucial issue to be discussed to improve the teaching and learning quality which in turn ultimately raise the overall education quality. As a response to this issue, this conference is expected to serve as an academic forum where researchers and academicians of various disciplines interact, build and extend their network.

This conference is also intended to facilitate the improvement of educators’ and researchers’ scientific publications. Among these are research papers from the various fields of education, social sciences, humanities, Arabic and English linguistics. It is believed that in the future this conference would be able to consistently grow into one prestigious annual conference by actively collaborating with educators and researchers from varied different fields of study, particularly in education.

Didin Nuruddin Hidayat
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Abstract. The high school students also have matters that they have to face in writing a narrative text. The students need a strategy to handle the problems. This research aims to get the result of the implementation of Compare-Diagnose-Operate Strategy (CDO Strategy, hereafter) on students’ writing skills in narrative text. The population was the tenth-grade students of MA Annajah Jakarta. The sample was 42 students that chosen by purposive sampling technique and was divided into the controlled class and the experimental class. The instruments were writing essay test which was given before the treatment and after the treatment. The treatment was the CDO Strategy. The data of the test were analyzed by using the normality test, the homogeneity test, and T-Test. The result of the test score from both classes showed that the controlled class was higher than the experimental class. However, the gained score of the experimental was higher than the controlled class (190 > 35). In addition, t-observe value was higher than t-table value (2.52 > 1.68) in the significant 5% (0.05). The Cohen’s level of significance also displayed that the calculation of effect size is 2.7, which was higher than 1.00. Thus, the statement means that there is the effectiveness of using CDO Strategy on students’ writing skills in the narrative text at the tenth grade of MA Annajah in academic year 2018/2019.

Keywords: Writing of Narrative Text, Compare-Diagnose-Operate Strategy, CDO Strategy

1. Introduction

Writing is one of the English skills that must be learned by the tenth grade students, according to the Curriculum in 2013. One of the texts that the tenth-grade students must be mastered is narrative text. Unfortunately, writing is not easy for them because of the result of Nanda’s data analysis provided that high school students often make errors in writing [1]. The highest percentage of students’ error in writing belonged to grammatical error (51.93%). The second significant error was punctuation (16.02 %). The next one was in spelling (8.90%), word choice (8.61%), and capitalization (8.01%). Lastly, the poor organization was the least error that the students made in writing (6.53%). The highest average frequency of errors in writing a
narrative text that made by the tenth graders was in using grammar, and the lowest average frequency of errors was in selecting vocabulary.

Based on the researcher’s observation at MA Annajah, when teacher asked the tenth-grade students to create a narrative text, many of them still confuse to assemble the words in their minds and then pour them in written form. Besides problems in the pre-writing stage, the other problems also arose in post-writing stage. After the students reread their writing result and say, “This is not what I meant”. They were not satisfied with their writing result because they found some errors after they reread the text. Most of those errors were also caused by their lack of rigor in writing, mainly forgetting to change verb 1 to verb 2.

Luthfiyati et al. explains that besides problems in writing commonly, the high school students also have matters that they have to face in writing a narrative text [2]. The highest average frequency of errors in writing a narrative text that made by the tenth graders was in using grammar, and the lowest average frequency of errors was in selecting vocabulary. The narrative text has several language features and general structures that must be learned and understood by students.

Revision is the strategy that can be used to solve such issue. The revision utility is composed of three recursive mental operations that will work through self-regulated methods in phases. Each stage is named by Scardamalia and Bereiter as Compare, Diagnosis' and 'Operate', and the general strategy is called CDO [3]. Compare means compose a narrative text based on what is in the mind of students. Diagnose means students inspect errors in their narrative text by themselves, and operate means students fix the problems and write the revised text [4] [5].

Sherman (2011) describes some advantages for students to use CDO Strategy, such as:

1. Students have to consider the relation of the overall purpose of the paper, repair their sentences, then decide on and execute any necessary changes.
2. CDO Strategy created significant difference in the number and quality of revisions in students’ stories and essay.
3. CDO Strategy made revising easier for the students [6].

Golley (2015) argues that CDO Strategy will aid the students to see where they entail making revisions through their revision process. Besides using CDO Strategy individually, this revising strategy can be done in pairs. It focuses on revising the content of the piece and on editing the mechanics of the piece. With this strategy, the student switches their writing in pairs, and they revise each other’s work [7] [8].

From this explanation, we can conclude that revising is an important part of writing for students to overcome those problems because the students cannot make good writing instantly. One of the revision strategies that can be conducted based on those problems in a classroom is the CDO Strategy.

The problems that have been formulated in this study were whether the implementation of the CDO Strategy is effective to help the students produce better in writing a narrative text.

This paper has the substance about the literature review of writing narrative text and CDO Strategy, the methodology, the stages to implement the CDO Strategy in writing a narrative text, the results and the suggestions of the research, and the last is the conclusion of the research.
2. Literature review

2.1 Writing a narrative text

Rakhmi says that writing a narrative text is the activity that the writer writes about the action or the incident occurred in the chronological sequence that has a particular commencement and an inevitable ending. Other than that, the text can be in the form of written or spoken. Rakhmi also mentions that there is some necessity of writing a narrative text to fit with the goals. They are:
1. It is combined by developing a central idea.
2. It attracts the reader's into action and makes them feel as if they are at the events.
3. It acquaints about 5W+1 H into the context (what, when, where, why, who, and how).
4. It is coherent. The transitions show changes in character, place, and time.
5. The narrative follows a chronological sequence with the occurrences in a timeline.
6. It develops to a climax that is the most tenses moment when the ending is shown, or the important occurrence becomes obvious [9].

2.2 CDO Strategy

The Understanding of Compare-Diagnose-Operate (CDO) Strategy. The students certainly have some problems with writing a text. The difficulties like in describing the ideas in writing, and they are not able to write well because of poor vocabulary and wrong word choices. They are also still confused about dealing with complex English vocabulary. Chen mentions four major problems that faced by EFL students in writing, as follows:
1. Students have difficulties with vocabulary because of their lack of vocabulary, so it is difficult for them to write their ideas correctly.
2. Students find the challenges to produce and expand ideas become supporting details in writing paragraphs.
3. Students have difficulties in grammatical structure, including mistakes in word forms, parts of speech, and subject-verb agreement.
4. Students have problems in mechanics, which include the punctuation, capitalization, and spelling [10].

CDO is a strategy in writing a narrative text which has three stages. There are compare means compose a narrative text based on what is in the mind of students. Diagnose means students inspect errors in their narrative text by themselves, and operate means students fix the problems and write the revised text.

Procedure of CDO Strategy. CDO Strategy have some procedures to do; they are:

1. **Compare.** In this stage, the teacher will give the students a story map and ask them to fill it as the draft of narrative text after the teacher explained about the material of the narrative text. Then, the teacher will ask the students to write a narrative text based on what is in the students’ mind. After that, the student reads the text carefully and comprehensively. Then, the teacher will ask the students to find the differences between what the author meant to write and what was written. The teacher gave the students 11 opinions for mentioning the mismatch.

2. **Diagnose.** The students diagnose why those differences happened. The teacher asks the students to determine a clear reason for the differences that the students found in comparing step. They must check and fix the errors in the text without deleting the mistakes.
Operate. The teacher asks the students to solve the problem and evaluates whether or not the change is good for writing. The students make changes needed by using one of six opinions. Then, they will rewrite the revised text. Finally, the teacher can see the result of the students’ writing in a narrative text. During the process, the teacher will help and monitoring the students.

Thus the procedures of CDO Strategy are compare what was intended with what was written, diagnose the errors, and operate or rewrite the text as the revised text.

The advantages of CDO Strategy. Sherman describes some advantages for students to use CDO Strategy, such as:

1. Students have to consider the relation of the overall purpose of the paper, repair their sentences, then decide on and execute any necessary changes.
2. CDO procedure has created a significant difference in the number and quality of revisions in students’ stories and essay.
3. Students also indicated that the CDO Strategy made revising easier for them [11]. According to Waters and Schneider, 10 of 12 participants (85%) showed that the use of CDO is it made the process of revising easier and relieved their skills to improve their stories. Furthermore, there was an enhancement in the number of non-surface (i.e., a word, phrase, and T-unit changes) meaning-preserving revisions and non-surface revisions that generated in textual improvement.

Writing by Using CDO Strategy. In the revision section, the student is listening and following along as their peer reads their paper. The listener tells their peer what the paper was about and what they adored the most about it. Then they will read the paper on their own and make notes throughout the paper such as explication and number of detail. Afterward, they will distribute their recommendations with their peer. Whereas in editing steps, the student will check the paper, such as errors in sentences, capitals, punctuation, and spelling. Then they will share their ideas with their peer. This strategy would be a beneficial strategy for all 29 students to revise their writing. This strategy permits the students to work together in pairs and gives them a chance to talk through their writing and get feedback. Peer revising through this CDO Strategy will also aid students to learn to revise papers on their own since they will be practicing revising papers in pairs. It will also help students learn to team up with others and will let them see the advantage of working together while revising their writing.

2.3 Conceptual Framework

The high school students have problems in writing a narrative text. Revision is a good way for students to overcome those problems.

CDO Strategy
Fig. 1. Conceptual framework of the relationship between students’ writing problems and the revision strategy as the alternative solution

3. Methodology

This research was held by using quantitative research as the method and quasi-experimental as the design of the research, thus the researcher determined two groups as samples of the research; experimental class and controlled class. On the sampling technique, the researcher chose purposive sampling. The researcher used a test as the instrument of collecting the data. The form of the instrument was an essay writing test. The researcher gave a pre-test and a post-test to the experimental class and the controlled class. The test was written in the form of narrative text after the teacher treated the students how to write a narrative text by using the CDO Strategy. The population of this research was the 42 tenth grade students of MA Annajah.

4. Data Analysis and Result

From the normality test, it is shown that the standard deviation of the pre-test in the experimental class is 3.818 and the standard deviation of the post-test is 5.678. Meanwhile, the standard deviation in the pre-test of controlled class is 6.6963 and the standard deviation of the post-test is 7.304. Therefore, the data that the researcher did by using SPSS showed that both classes are distributed normally. Then, based on the homogeneity test the value of Sig. Levene’s test for equality of variances for the post-test scores is 0.001 which concluded that the variance of the post-test scores from the controlled class and the experimental class is not homogeneous.

Based on the calculation that the researcher did manually, the degree of freedom (df) is 40 and the critical value of the df 40 or t-table by using the degree of significance 5% is 1.68. Moreover, the t_{observe} is 2.52. It means that there is effectiveness of using CDO Strategy on students’ writing skills in narrative text. In addition, the Cohen’s level of significance shows that the calculation of effect size is 2.7, which is higher than 1.00.

By the result of t-test and the effect size, it indicates that the null hypothesis is rejected, and the alternative hypothesis is accepted. It stated that there is a significant difference between the students’ score who implemented the CDO Strategy in writing narrative text and the students’ score who did not implement the CDO Strategy in writing narrative text at the tenth grade of MA Annajah.

5. Discussion and Recommendation

5.1 Discussion

Based on the research findings, the researcher got the data that focused on the implementation of using CDO strategy on students’ writing skills in narrative text. Build upon what Rahmatunisa says that the students have internal problems in writing [12]. The problems are grammatical problems, word choice, and cognitive problems. Mary's statement is almost the same as Ariyanti’s statement. She said that the highest percentage of students’ error in writing belonged to grammatical error (51.93%) and the least error that the students made in writing (6.53%).

By using CDO Strategy, the students can solve those writing problems. It happened when the students finished their writing, and they reread their text repeatedly to compare whether
the text that they have written matches with the real meaning that they wanted to write. If there were a word or sentence that was not in accordance with the meaning that they intended, the students would replace the word or sentence with the correct one. After that, the students reread their text in sequence and carefully to diagnose and check the errors. In diagnosing the errors, they checked the punctuation and capitalization first. In this stage, they realized that they made mistakes in punctuation and capitalization. Then, they encircled the errors of the punctuation and capitalization. Then, they checked the errors of grammar, especially in changes from verb-1 to verb-2. They found many verb-1 that have not been changed to verb 2. The students also found errors in word changes that should be an irregular verb, but instead, they added -ed like the regular verb. Then, they encircled the errors of the grammar. Lastly, they checked the errors of the word choice. The students checked whether the words that they have used are in accordance with the usage or not. Some of them made mistakes in distinguishing ‘his’ and ‘her’. Then, they encircled those wrong words. After correcting the mistakes, the students rewrite the text based on the result of their correction as the revised text.

Furthermore, the result of this research is also in line with Sherman’s statement about the advantages of using CDO Strategy on students’ writing skills [13]. The first advantage is the students have to consider to repair their sentences, then decide on and execute any necessary changes. The second one is CDO procedure has created a significant difference in the quality of revisions in students’ writing. The last advantage is the students also indicated that the CDO Strategy made revising easier for them. It also happened when the researcher gave them a post-test. Many of them created the framework of ideas first as the draft; then they developed the ideas became to the paragraph. After they wrote the whole of the text, they reread their text again to check the errors. If they found the errors, they deleted the errors and changed them to become the right one. The researcher also checked the students’ writing result in each treatment — the quality of the students’ writing results as better at each treatment. The number of writing errors was diminishing because of they were more careful in writing. Other than that, many of the students also argue that CDO Strategy eased them to do the revision because the CDO Strategy has clear stages in revising the writing.

Besides related with Sherman’s statement, this research also corresponded with the research by Dwiprayogo (2019) who studied about CDO Strategy implemented in teaching writing skill on the descriptive text in tenth grade students at Senior High School 6 Kediri [14]. The result was that the CDO strategy had a significant effect on the students’ writing ability at tenth-grade students of SMAN 6 Kediri. The first reason is that CDO Strategy supported the students to arrange the written product, give the correction about the ideas, and choose the appropriate words by themselves. So, they can make their product in a well-written form includes content, structure, vocabulary, grammar, and mechanics. Other than that, CDO strategy helped the students to increase their writing ability, especially for their ability to write the content, structure, vocabulary, grammar, and mechanics. Dwiprayogo’s data also showed that the result of t-test was 10.003 at the degree of freedom 30 and the t_table 2.045. The t-score was higher than the t_table (10.003 > 2.045).

Meanwhile, the result of this research showed that the students who have taught by the teacher and used CDO Strategy on their writing skills in the narrative text are effective. It proves in the students’ score who have taught and applied CDO Strategy on their writing skills in the narrative text had a good increase than before using CDO Strategy. Total of the gained score in this experimental group is 190. The mean of the students’ score is 71.4, with the lowest score is 65, and the highest score is 85. The score was better than before using the CDO Strategy. The mean of the scores is 63, with the lowest score is 45, and the highest score
is 75. Further, based on the mentioned t-test result, there was a significant effect of using CDO Strategy on Students’ Writing Skills in Narrative Text.

However, the teacher must pay more attention to students when doing the treatment, especially when carrying out the treatment in pairs. The teacher must pair the students who is higher or strong in writing with the students who is lower or weak in writing. So, the stronger students will still be stronger, and weak students will come to be stronger because they are affected by learned together with the strong student. The researcher suggested that because in this researcher, the researcher paired students based on the location of their seats, not based on the level of writing skills. It made the standard deviation both classes in post-test was higher than pre-test. In the controlled class, the standard deviation in pre-test was 6.696, and it increased in post-test to 7.304. While in experimental class, the standard deviation in pre-test was 3.818, and it increased in post-test to 5.678.

5.2 Suggestion

After getting the result of the study, the researcher gives some suggestion as follows:

Students. For students, they should be more active, careful, patient, and focus on the learning process. Because in using CDO strategy, there are stages that the students have to do sequentially.

Teachers. For the teachers who want to use this strategy in teaching and learning process, they should be more pay attention to the students and must guide all the students carefully in implementing the treatment. The teacher must ensure all the students to do the CDO strategy sequentially so that there are no missed steps, especially in practicing the diagnosis the errors in their text. In addition to paying attention to students in doing the treatment individually, teachers must ensure that groups or students in pairs have different skill levels.

Further researcher. This research can also be a good reference for the next researchers who want to conduct the same research that related to teaching writing, especially about the narrative text. For the researcher who wants to conduct a similar topic, the researcher suggests the further researcher to research with another type of text such as recount text or descriptive text.

5.3 Conclusion

In accordance with the previous chapters, the researcher concludes that implementing the CDO Strategy as the strategy was effective to improve the students’ writing skills in the narrative text at the tenth-grade students of MA Annajah in the academic year 2018/2019. It can be evidenced from the total of the gained score in the experimental group or by using CDO Strategy was 190. The mean of the students’ scores was 71.4, with the lowest score was 65, and the highest score was 85. The score was better than before using the CDO Strategy. The mean of the score was 63, with lowest scores was 45, and the highest score was 75. It was a progress that was better than the controlled group who did not use the CDO Strategy. After calculating the data by using T-test manually with two means of two groups, the researcher found that t\text{observe} \text{ was } 2.52 \text{ and } t\text{table} \text{ was } 1.68, \text{ so } t\text{observe} \text{ was higher than } t\text{table}. \text{ It means that } H_0 \text{ was rejected and } H_a \text{ was accepted. In addition to calculating the effect size of the CDO Strategy by Cohen’s measurement on students writing skills in the narrative text was high effect size. However, the standard deviation of both classes from the pre-test to the post-test in the normality test by using SPSS 24 had increased. In experimental class, the normality was an increase from 3.818 to 5.678. It happened because the spread of the students' writing level was}
uneven when doing the treatment in pairs and in groups. Because of that, the students who were weaker in writing skills will be weaker, and the students who were strong in writing skills will be stronger.

References
Case Study as a Research Method for Arabic Language Education

Kisno Umbar1, Ubaid Ridlo2
{kisno_umbar18@mhs.uinjkt.ac.id1, ubaid.ridlo@uinjkt.ac.id2}

1,2UIN Syarif Hidayatullah Jakarta, Indonesia

Abstrak. The purpose of this study is to answer the minimum use of case studies approach by the Master candidates of Arabic Language Education at State Islamic Universities (PTKIN) in Indonesia. In fact, theoretically, the case study approach is said to be not only able to solve learning problems but it can also provide recommendations for solving Arabic Language Education problems in formal and informal institutions. This research is qualitative research. Data were collected in two ways. Firstly, an open-ended questionnaire distributed to the Master candidates of Arabic Language Education. Secondly, searching the research archives of four campuses, namely UIN Syarif Hidayatullah Jakarta UIN Sunan Kalijaga Yogyakarta, UIN Surabaya, IAIN Tulungagung, IAIN Surakarta, accessed at campus repository page in the period of 2008 - 2018. This research reveals two main problems. First is from the personal aspects of researchers. The level of the researchers understanding of case studies is superficial. Research using case studies requires considerable time and huge amount of costs. Second is from the aspect of methodological accuracy. There are a number of principle concept mistakes found. For example; in making problem formulations, considering the location and time of research, and a reliable research process.

Keywords: case studies, master thesis, the master candidate of Arabic Language Education, Arabic Education

1. Introduction

The existence of case studies approach among linguists is still being debated. There are experts who say, that case studies are still classified as pre-experimental research. The objectivity and accuracy of case studies are considered inadequate. Besides, the case study process takes a long time and there are no standard procedures. There is also the difficulty of generalizing it [1]. That means, case studies only have the role of reading the initial phenomena for further experimental research as a follow up action on the field findings. On the other hand, language experts say that case studies are valid and independent scientific research [2]. This means that it can be a research framework up to the verification stage for validity testing.

Among Arabic Education researchers, case studies are one of the valid research methods used in the final project, bachelor thesis, master thesis, as well as a dissertation or publication in national and international journals. Compared with other approaches, case studies are relevant to be applied in evaluating the learning and teaching process of formal and non-formal Arabic institutions. The reason, is that case studies are curative or can be also called retrospective case studies (retrospective case studies) that allow further action of a case under investigation, as it is called treatment. In addition, case studies are also prospective (prospective case study) that is used to read trends [3].

In the context of Arabic Education, case studies can make a major contribution in diagnosing cases or problems that occur in the learning process, cases from the aspect of
students, educational material, and the process of delivering material and educational facilities. Finally, teachers can take appropriate actions to overcome these problems in order to achieve the learning objectives that have been formulated in the learning design.

1.1. Research background

Based on the description above, case studies in the educational world, especially Arabic, have a strategic position. However, research trends that led to the case study approach in this decade are still minimum. The amount of research with a case study approach is not so much based on searches in several repositories or institutional repositories - a service offered by universities to community members for management and dissemination of digital material in the form of research made by institutions and community members, which aim to document and disseminate the results of an institutional campus research [4] - UIN Syarif Hidayatullah Jakarta repository, UIN Maulana Malik Ibrahim Malang repository, UIN Sunan Kalijaga repository, IAIN Tulungagung repository, and IAIN Surakarta repository. The distribution of master thesis research archives using the case study approach is as follows:

![Fig. 1. List of Publications of Arabic Education Thesis Master using case study approach 2008-2018](image)

The data is processed from 6 institutional repository sources that can be accessed openly online.

UIN Syarif Hidayatullah Jakarta. From 28 theses research of Arabic Language Education Masters Program (MPBA) Faculty of Tarbiyah and Education Science (FITK) UIN Syarif Hidayatullah Jakarta, there is only one thesis that uses case studies. It was published in 2015, namely *Ta‘lim wa Ta‘alum al-Lughah al -Arabiyyah Abra Whatsapp (dirasah halah fi muassasah)* BISA Depok. Meanwhile at the UIN Jakarta Postgraduate, which has a concentration of Arabic, there were 6 theses using case studies out of 31 theses published from 2008 to 2015.

Arabic language education research with a case study approach began to emerge in 2011, with 2 research titles. In 2012-2013 there were no researchers using this approach, only in
2014 were there two more studies. Research with a case study approach increased in 2015 with 4 research titles. Then its peak is in 2016. The amount of research with a case study approach was 17 researchs. However, the development of the graph is not stable. In 2017, the amount reduced again to two titles and in 2018 returned to four more titles.

Meanwhile, from researcher investigation through an online repository at UIN Sunan Ampel and UIN Sunan Kalijaga, there have not been found researchers who used a case study approach in the limited time period of the researcher. This does not fully claim that none of the master candidates in the institution have used this approach, but the archives may not have all been digitized and accessed. This also happened at IAIN Surakarta, as well as several other campus institutions.

In contrast to that, in IAIN Tulungagung, Arabic Language Education research with case study approach is available, but not in large numbers. In 2015 there were two titles and in 2016 there were only 1 title.

From these observations, it shows that the distribution of research with a case study approach is still dominated by UIN Maulana Malik Ibrahim Malang. However its development is not stable. If calculated using a percentage formula, it can be seen as follows:

\[ P = \frac{F}{N} \times 100 \]

Table 1. List of Publications of Master's Thesis Publications with a Case Study Approach

<table>
<thead>
<tr>
<th>No</th>
<th>Institusi</th>
<th>F</th>
<th>N</th>
<th>Persentase</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>UIN Syarif Hidayatullah Jakarta</td>
<td>6</td>
<td>59</td>
<td>10,16 %</td>
</tr>
<tr>
<td>2</td>
<td>UIN Maulana Malik Ibrahim</td>
<td>32</td>
<td>863</td>
<td>3,70 %</td>
</tr>
<tr>
<td>3</td>
<td>UIN Sunan Ampel</td>
<td>0</td>
<td>134</td>
<td>0%</td>
</tr>
<tr>
<td>4</td>
<td>UIN Yogyakarta</td>
<td>0</td>
<td>6</td>
<td>0%</td>
</tr>
<tr>
<td>5</td>
<td>IAIN Tulungagung</td>
<td>3</td>
<td>54</td>
<td>5,55%</td>
</tr>
<tr>
<td>6</td>
<td>IAIN Surakarta</td>
<td>0</td>
<td>3</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Akumulasi</td>
<td>41</td>
<td>1.119</td>
<td>3,66%</td>
</tr>
</tbody>
</table>

Based on the percentage of each campus, it shows that there is no research trends from several campus institutions that are used as the object. The percentage of case studies in Arabic Language Education research at UIN Syarif Hidayatullah Jakarta only reached 10%, at UIN Maulana Malik Ibrahim Malang only at 3.7 percent, while at IAIN Tulungagung it reached 5.55%. Accumulatively, the percentage of case study approach in Arabic research has only reached 3.66 percent. There is no tendency of a research that leads there.

In fact, the case study method in the qualitative research tradition is very calculated. John W. Creswell included it in five major methods in qualitative research, including biography studies (character studies), phenomenology, grounded theory, case studies and ethnography. In fact, Adelman explained that case studies have a strong advantage in reading a reality or case; it can generalize even if it is difficult; represent various points of view and can offer alternative interpretations; and, the results of the case studies can be a feedback for the institution and formative evaluation [5].

1.2. Problem statement
Based on the lack of publications in Arabic Language Education master thesis research with a case study approach, researchers formulated two problem questions. First, how do Arabic language education researchers understand how to apply the case study method in their research? This question is used to measure the methodological accuracy used. Second, what are the factors that make Arabic researchers do not really use case studies so much? This question will be seen from the side of the weaknesses of case studies directly related to researchers.

1.3. Research objective

Based on the formulation of the problem, the purpose of this research is to find out the understanding of Arabic Language Education researchers on case studies methodologically by referring to how the method is applied to the researchers research. Furthermore, this research is aimed to uncover the reasons of why Arabic researchers do not use case studies so much.

1.4. Significance of the study

Theoretically, this research is used to measure the extent of understanding of the master candidates of Arabic Language Education in understanding and implementing case study approach in research accurately and validly. Being a reference for language researchers in the midst of the debate over the use of case studies of a research approach in linguistics. Practically, this research is expected to be a critique of Arabic Language Education research that has not directly touched the aspects of Arabic learning. Moreover, if we look at the advantages of case study approach in describing and answering a problem; opening the insight that the case study approach is still rarely used in Arabic research, most field studies are still focused on experimental studies.

1.5. Scope of the study

This research topic is directly related to case studies as an approach in Arabic Language Education research. The researcher reviews how the case study is based on a conceptual framework, the principles that must be followed, and the procedures that must be taken in a case study. Researchers used data collected from online research sourced from six campus repositories that were used as random samples, namely UIN Syarif Hidayatullah Jakarta, UIN Maulana Malik Ibrahim, UIN Sunan Ampel, UIN Sunan Kalijaga, IAIN Tulungagung, and IAIN Surakarta. The researcher’s investigation will focus on analyzing errors in the case study approach on a sample determined from 37 studies using case studies from 1.119 master theses on the six campuses. Researcher also distributed questionnaires to Arabic Language Education master candidates to gather their responses in a case study approach.

2. Literature review

2.1. Conceptual framework of case study approach

Etymologically, case studies are derived from the English translation "a case study" or "case studies". The term "case" in the Oxford Advented Learner's Dictionary is interpreted as 1) "a particular situation or a situation of a particular type, in some cases people have had to wait several weeks for an appointment" meaning a certain situation or type of situation for example in one case people must waiting a few weeks for an appointment, 2) "actual state of
affairs” actual state,” 3) "a situation that relates to a particular person or thing” means a situation related to a particular person or thing [6].

Terminologically, according to Johansson, case studies are interpreted as studies that are expected to capture the complexity of a case that has developed in social science [7]. Moreover, a similar definition is also conveyed by Rowley. He says the case study method is the ability to investigate a phenomenon in its context. Employing this approach, he claims that there is no need to replicate phenomena or experiment settings to find out the phenomenon [8]. Fox-Wolframmm explains the case study quite simply; he calls it a research approach based on qualitative inquiry and collection of unstructured research in social science disciplines that emerged since the 1930s [9].

From some of the boundaries above, there is no significant difference in interpreting case studies and even relatively the same. The keywords of this definition are focused on case words, phenomena, social science, and qualitative. However, to understand in more detail the boundaries of the case studies, the authors agree with the formula proposed by John W. Creswell that case studies are explorations of “bounded systems” or cases (or multiple cases) over time through detailed and in-depth data collection involving many sources of rich contextual information. What is meant by the bounded system by Creswell is the attachment of time and place, and the object being studied can be a program, event, activity, or individual [10].

Then what cases can be said to be feasible as research objects? The case referred to in the case study can be very simple or very complex. In this case, the researcher must choose one of them, which is more specific. Mudjia underlines the case as something that is classified as “unique” to be studied because it only happens at a certain time and place. Meanwhile, to find out whether or not the object being studied is unique Mudjia cites Stake’s opinion which conveys six considerations: 1) the nature of the case; 2) background of the case; 3) the physical setting of a case; 4) the context of the case; 5) other related supporting cases; 6) the informant who mastered the case being studied [11].

2.2. Case study research questions

The formulation of research questions in case studies that are commonly asked, because they want to understand phenomena in-depth, even explore and elaborate them, according to Yin is not enough if the case study questions only ask "what, who, where and when" but must use the question "how" and "why ". The “what” question will only lead the researcher to obtain knowledge descriptively, the “who” question will only usher in the involvement of the
research object, while the question “where” will indicate the location of the case in the event, and the question “when” will answer in relation to time only. Only the use of “how” and “why” questions is considered feasible in case study research. Meanwhile, the use of other types of questions is only as support. The use of how and why questions are considered able to explain the case and provide in-depth answers about the phenomenon being studied [12].

2.3. Data collection

Various sources of information relevant to the topic in the case study are needed. The data serves to build a picture and interpret the case in depth. When referring to Yin's view, there are six forms of data collection in a case study. They are, 1) documentation consisting of letters, memorandums, agendas, reports of events, proposals, research results, evaluation results, clippings, articles; 2) archived records consisting of service records, maps, survey data, name lists, personal records such as diaries, calendars, etc.; 3) interviews are usually open-ended type; 4) direct observation; 5) participant observation and 6) physical or cultural equipment that is technological equipment, tools or instruments, artwork [13].

Meanwhile, Creswell displays data collection through a matrix of information sources for its readers. This matrix contains four types of data, which are: 1) observation, including observation as a participant or direct observation; 2) interviews, this can be done with open interviews using notes or with audiotape or structured interview with the formulation of questions that have been derived from the topic of the case being studied; 3) documents, gathering documentary evidence from the cases under study, keeping a diary during conducting research; and 4) audio-visual material, data from videos, photos or e-mails [14].

The data collection method that is presented by the two experts above is not different. The data collection, according to the researcher, is generally the most commonly used in qualitative research. Creswell also clearly states in his book, the method can be used for research on phenomenology, biography, grounded theory, and also ethnography. If mentioned earlier, case studies can also be used using qualitative and quantitative research, questionnaire data collection methods, and statistical data processing can also be said to be part of the case study data collection.

2.4. Data analysis of case study

In analyzing the case study data, the Creswell uses six stages. First, the data management process that has been collected. Second, the data reading stage and the researcher create a short message with a small note on each data collected. Third, the description stage, at this stage the researcher must explain the case and its context. Fourth, classification stage, in this phase the researcher must be able to make an effort to categorize and establish a category pattern. Fifth, the interpretation phase, in case studies can use direct interpretation and also make naturalistic generalizations. Sixth, the stage of representing or visualizing, in this section the researcher is expected to be able to present data tables, pictures or illustrations between interpretation and the narrative that is built [15].

On the other hand, Yin recommends four steps of data analysis in case studies, which are: 1) create a pattern, this step is done by using the logic of pattern matching between field facts and alternative predictions. 2) making explanations for analyzing case study data; 3) time series analysis if using an experimental approach in his research; and 4) logical model techniques, the use of logic models as analytic techniques consists of matching events that are observed empirically with theoretically predicted events [16].
2.5. The advantages of case study

There are several benefits of case studies, among them are as the main means for emic research, which is presenting the views of the subjects studied; case studies can reveal realities similar to what readers read about in real everyday life; case studies can be an effective means of showing the relationship between researchers and interviewees or informants; case studies allow readers to find internal consistency that is not only style consistency and factual consistency but also trustworthiness, case studies provide the "thick description" needed for the assessment of transferability; and case studies are open to the assessment of contexts that contribute to the meaning of phenomena in that context [17].

2.6. The disadvantages of case study

Case study as a research approach cannot be separated from the element of weakness. As for some of these weaknesses, such as the first, the case study is often seen as less scientific or pseudo-scientific because the measurement is subjective or cannot be quantified, this criticism also questions the validity of case study research. Second, due to the problem of subjective interpretation in the collection and analysis of case study data, this work is relatively difficult from quantitative research. Third, the problem of generalization, because the scope of research both the issue and the number of people targeted by case studies are very small, the ability of generalization in case studies is low. Fourth, the implementation costs are relatively expensive, and the time required is relatively long. However, it is directly proportional because of the depth of information extracted in the case study. As for the fifth disadvantage, because of the flexibility of the case study design, this allows researchers to shift focus [18].

2.7. The steps of the case study

The step of case study research according to Mudjia Rahardjo version can be divided into the following steps: theme selection, reading literature, formulation of focus, data collection, data refinement, data processing, data analysis, data analysis process, theoretical dialogue, triangulation of findings, conclusions of research findings [19].

3. Methodology

3.1. Research Design

This research is descriptive qualitative research. The researcher employed the first primary data from the book entitled "Qualitative Inquiry and Research Design: Choosing Among Five Tradition" by Creswell, John W and "Case Study Research Design and Methods" by Yin, Robert K, second, archive of master thesis research published on six selected campuses namely UIN Syarif Hidayatullah Jakarta, UIN Maulana Malik Ibrahim Malang, UIN Sunan Ampel, UIN Sunan Kalijaga, IAIN Tulungagung, and IAIN Surakarta in 2008-2018. The choice of the campus was based on the availability of the campus research archive uploaded on institutional repository page. The primary data also sourced from the results of an open digital questionnaire to Arabic language education master candidates in several related universities. Moreover, the secondary data in this study is the views of figures and reference books related to case studies. The researcher utilized descriptive analysis to read the search results for that data.
3.2. Instruments

In this research, there are several research instruments; the first is the researcher himself as the main instrument. It is because, in qualitative research, the researcher can capture the meaning implied behind information and social phenomena encountered in the field. Also, it is because there is no instrument in the form of a test or questionnaire that can capture the whole situation except humans [20]. Second, the master thesis research archives that were recorded from 2008 - 2018. Third, Researcher used in-depth interview instruments to master Arabic language education candidates to get answers directly responding related to the theoretical framework of case studies and their use in research.

3.3. Sample

To analyze the appropriateness of using the case study approach, the researcher used a random sampling approach to determine the master thesis to be analyzed for the level of accuracy from its methodological aspects. According to Sugiyono, a simple random sampling technique is a sampling technique from members of the population that is carried out randomly without regard to strata that exist in that population [21].

4. Data analysis and result

4.1. Analysis of methodological appropriateness of case studies in Arabic Language Education

4.1.1. The accuracy of the case

Sample I

The research entitled "ta'lim wa ta'alum al-lughah al-arabiyah" abra al-whatsapp (dirasah halah fi muassasah BISA al-islamiyah Depok Indonesia" written by Ana Rizkiya 2017 - UIN Syarif Hidayatullah Jakarta [22].

The study revealed a unique case applied by the BISA foundation in Depok in their way of teaching Arabic. Learning Arabic, which is usually done in classrooms, or outside, is designed to be done online through social media Whatsapp. In fact, social media is usually a place to communicate, spread information, news, videos, and photos. However, the said institution, established in 2013, in the statement of researchers took an alternative by using Whatsapp as a medium for learning and teaching Arabic which is more flexible and can be done anywhere.

In the midst of the rapid technology development as well as online learning media, the use of Whatsapp as a learning medium is an interesting case against the idea of just being a communication medium. The case can be said as an actual case by creating a new learning container with no age, space or time restrictions. Interestingly the case is also in the midst of the sluggish development of Arabic Language Education.

The object of the case study research above, according to the author, can be said to be very interesting. The research can be said to be still contemporary and relevant to developments in the world today. The narration raised is also interesting. Usually someone only uses social media for communication purposes only. This can be a learning medium that is actually quite effective, because it is not limited by space and time. Therefore, reading the basic pattern of the program becomes important and can later be developed again in various social media.
Although the case revealed by the author is interesting, the author forgets that the case in the case study has the principle of bounded system, meaning that the research is time-limited. In the study, researchers did not enter a time limit when the study was conducted.

**Sample II**


The author in this master thesis examines the communication patterns of Arabic learning with case studies in MTs Negeri 3 Kediri. The reason the author uses case studies is because the focus of the case raised is the interaction patterns between Arabic language teachers and students, and communication among the students. MTs Negeri 3 is one of the best schools in Kediri and the author conveys that students in schools are proficient in Arabic. The author builds his research argument by explaining the benefits of interaction in learning situational relationships.

If you look at the level of interest of a case, then the simple question the researcher poses to the author, is that: what underlies the research to be conducted at MTs Negeri 3 Kediri? Can the research be carried out in other cities? In the city of Malang for example? This shows that the research is not unique. In addition, the case also does not have actual and contemporary elements that can truly be revealed the aspects of its uniqueness.

In this case, the researcher assessed that the writer was trapped in the case of communication between Arabic Language teachers and their students in the class, about how the Arabic learning patterns was, so that the students were proficient in Arabic which could actually be an interesting case. Departing from the author's data, it mentions that the students MTs Negeri 3 Kediri is fluent in Arabic. For example, it is proved by the achievements of MTs Negeri 3 Kediri students who always win Arabic national to international class debates, and various other Arabic language skills.

Even so, the authors hold the principle of bounded systems in case studies by providing a limit of research conducted for two months, namely from May to June of 2014-2015 school year.

**Sample III**


This study originated from the authors' observations on the use of the multiple intelligence approach, especially in the field of Arabic education in private educational institutions, namely SDI al-Munawwar Tulungagung and MI Al-Azhar Bandung – Tulungagung, in learning Arabic. The author argued that the application of multiple intelligence is still rarely applied in early schools, even though at the early ages 6-12 is the right time to instill intelligence in children. Starting from verbal linguistic intelligence, mathematical logic, visual spatial, musicalarimatic, interpersonal, intrapersonal, kinesthetic guarantee, naturalist and spiritual extension.

If the measurement is the rarity of applying multiple intelligences, the case is quite interesting and actual to be applied in learning Arabic at the age of 6-12 years. However, the case becomes not interesting because the author does not explicitly explain where schools are applying multiple intelligence. If there are other schools that apply the multiple intelligence
method, then what are the advantages of applying *multiple intelligence* in the two schools? Researchers also have not revealed the advantages of using *multiple intelligence* methods compared to other methods in learning Arabic. Instead, the researcher presents the advantages of the method in the conclusion. Multiple cases raised also did not show any clear distinction between the two, whether the application at SDI al-Munawar was directly proportional to the increase in Arabic language proficiency, nor the application at MI Al-Azhar was not directly proportional to the increase in students' Arabic proficiency.

4.1.2. Research questions used

Table 2. Problem questions in Sample I

<table>
<thead>
<tr>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>كيف تصميم تعليم وتعلم مواد الصرف والنحو عبر واتساب لدى مؤسسة بيسا؟</td>
</tr>
<tr>
<td>كيف تطبيق تعليم وتعلم مواد الصرف والنحو عبر واتساب لدى مؤسسة بيسا؟</td>
</tr>
<tr>
<td>ما عوائق تعليم وتعلم مواد الصرف والنحو عبر واتساب في مؤسسة بيسا؟</td>
</tr>
<tr>
<td>ما مميزات تعليم وتعلم مواد الصرف والنحو عبر واتساب في مؤسسة بيسا؟</td>
</tr>
<tr>
<td>كيف محصلة تعليم وتعلم مواد الصرف والنحو عبر واتساب في مؤسسة بيسا؟</td>
</tr>
</tbody>
</table>

In the study, the authors used the كيف/how question instrument without using the why/لماذا/ماذا question. The author chose to use helpful questions in what/ما questions that can only describe a case [25]. Based on this formulation, the case why the media of what is an alternative to learning is not answered structurally, even though the writer mentions indirectly.

Table 3. Problem questions in Sample II

1. What is the pattern of interaction in the process of learning Arabic in Madrasah Aliyah Negeri 3 Kediri?
2. What is the role of teachers and students in Arabic learning interactions in Madrasah Aliyah Negeri 3 Kediri?
3. What are the problems and solutions in the interaction patterns in the process of learning Arabic in Madrasah Aliyah Negeri 3 Kediri?

In the formulation of these questions, the authors also only use the question of *how* to find out patterns of interaction in learning Arabic. Then the author use a help question that can be used to describe the problem, which is *what*

Table 3. Problem questions in Sample III

<table>
<thead>
<tr>
<th>Question</th>
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<tbody>
<tr>
<td>كيف يفهم رئيس المدرسة ونائبه الأول ومدرس اللغة العربية بنظرية مجموعة الذكاء في مدرسة &quot;المنور&quot; الإبتدائية الإسلامية تولونج أجونج ومدرسة &quot;الأزهر&quot; الإبتدائية الإسلامية باندونج – تولونج أجونج؟</td>
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<td>كيف كانت التطبيق نظرية مجموعة الذكاء في استراتيجية تدرس اللغة العربية بمدرسة &quot;المنور&quot; الإبتدائية الإسلامية تولونج أجونج ومدرسة &quot;الأزهر&quot; الإبتدائية الإسلامية باندونج – تولونج أجونج؟</td>
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<td>ما هو الأثر بتطبيق نظرية مجموعة الذكاء على كفائة أربعة المهارات في تدريس اللغة العربية بمدرسة &quot;المنور&quot; الإبتدائية الإسلامية تولونج أجونج ومدرسة &quot;الأزهر&quot; الإبتدائية الإسلامية باندونج – تولونج أجونج؟</td>
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</tbody>
</table>

Same case with sample I and sample II, the authors used the question formulation of *how*, then used the question help of *what* to describe the application of the *multiple intelligence* method and to determine its impact on the institution.
4.1.3. Data collection strategies

The three master thesis samples utilized in this study as samples have an element of similarity in data collection. It is because data collection is not much different from other types of qualitative research, which requires observation, in-depth interviews with research objects and organs related to these objects, documentation, and questionnaires if needed.

4.1.4. Application of data analysis in case studies

In Sample I, the data was analyzed by the process of analyzing the data in a case study research that was appropriate. Starting from the data selection stage, categorizing the data, doing the patterning, to the data interpretation stage. Moreover, the researcher used data triangulation and auditing methods to test the validity of the results of their research as well.

In Sample II, the researcher divided the analysis process into three parts, namely the pre-field analysis, which is in the form of preliminary observations as secondary data that will be followed up during fieldwork. Then field analysis consists of three stages, which are reducing data, presenting data, and drawing conclusions. Moreover, the researcher also used triangulation to test the truth of the research conducted.

Meanwhile, in sample III, the researcher collected data with a predetermined process, then limits the facts that occur in the field to be analyzed, then presents the facts according to the focus of the study, then the facts are obtained to formulate conclusions and suggestions in the study.

4.1.5. Strategy of conducting research

The sample collected did not describe how the research procedure was carried out to prove the openness of the research process. Meanwhile, sample II mentioned the research procedures undertaken by the writer from pre-field research, field research, presenting data and data analysis, interpreting the results of data analysis and formulating conclusions and recommendations, and writing research reports. Then the same steps were taken in sample III, starting from pre-field research, field research, gathering facts and analyzing them then writing research reports.

4.2. The level of PBA masters students understanding of case studies

From interviews conducted by the researcher, there were a variety of responses given by PBA master candidates at some of the six universities. Overall, all Arabic language education master candidates are familiar with a case study approach in Arabic research with varying degrees of understanding. It is because the case study approach has been known by them since undergraduate education and deepening in master level education.

Interviewee A, from UIN Syarif Hidayatullah Jakarta, said that conceptually he was sufficient to understand case studies. However, he did not plan to use a case study approach to work on a master's thesis for several reasons — the difficulty in looking for unique cases that deserve to be raised in the study.

Meanwhile, interviewee B, from UIN Maulana Malik Ibrahim Malang, was also familiar with the case study approach. According to him, the approach was familiar on campus, so to find previous research with case studies is quite easy. He planned to use a case study approach in his research. This was based on the profession that he worked as a teacher in one of the favorite schools in the city of Malang. It means that the long-time needed in the case study is not so heavy when he teaches, he can immediately conduct research.
In contrast to interviewee C from IAIN Tulungagung, the case study approach in the field of Arabic education is familiar. However, the application is not easy. He also stated that he was not ready to use this approach to do the master's thesis task. According to him, the case study approach is quite complex, starting from the level of the uniqueness of the case to the process of doing it, which needs a lot of time and cost a lot of money.

From the interviewee's information it is known that the constraints in the case study are not from the aspect of understanding the conceptual framework, but rather the factors outside of understanding, which is the field factor, since it requires carefulness to look at the case, requires a lot of time sacrifice and also requires more expensive funding compared to other approaches.

5. Discussion and recommendation

5.1. Discussion

The objective of this research is to find out the Arabic language researchers' understanding of methodological case studies by referring to how the method is applied to the researcher's research. Furthermore, this research is also aimed at uncovering the reasons for the less number of use of Arabic language researchers in using the case study.

5.2. Recommendation

For Arabic education master candidates who will use case studies, they can prepare their research proposals early in semester three so that in semester four, researchers have gone to the field to collect data. For PBA master candidates who have the opportunity to teach formal and non-formal educational institutions, a case study approach can be an option because research can be done by integrating educational activities in the educational institution. If the case study research has significance in the development of Arabic language education widely, researchers can try to find sponsors from the government or non-government to overcome the expensive case study costs.

5.3. Conclusion

Based on several numbers of thesis samples selected for analysis, and interviews with several candidates for the masters of Arabic language education, it can be concluded as follows:

First, the thesis shows that masters of Arabic education understand the case study approach in a conceptual framework. However, in the application, several principle errors in methodological still occur. These problems in determining the uniqueness of the case, negligent research is restricted because the case study is a bounded system, the use of research questions that are not appropriate, the formulation of the question that only describes the case but do not answers the case study.

Second, the factors that make many Arabic researchers do not use case studies as the results of interviews is because of several factors which are: the level of interest in a subjective case, the research requires expensive funding, and the sacrifice of a long time, because there is pre-field, research field, and new report writing.
5.4. Acknowledgments

The author would like to thank LPDP (Indonesia Endowment Fund for Education), The Faculty of Educational Sciences of UIN Syarif Hidayatullah Jakarta, for supporting and funding in this research.

References

Abstract. The purpose of this research is to find out how the curriculum design used by the PGMI Study Program in general and in particular the PGMI Study Program at UIN Jakarta, also, researchers want to know the curriculum design that is used as an effect on or not the competence of graduates. The method used in this study is a descriptive theoretical method, researchers take several sources of theory and relate it to everyday observations. So it can be concluded that the curriculum design used in the UIN Jakarta PGMI Study Program and in general must follow the Indonesian National Curriculum Framework (KKNI). And the competencies that must be possessed by 21st-century teachers are technological prowess, mastery of soft skills and hard skills.

Keywords: 21st Century Teachers, PGMI Curriculum Design, hard skills, and soft skills

1. Introduction

The development of 21st-century education is marked by the use of information and communication technology in all lives, including in the world of learning. Nowadays the progress of information technology has many positive impacts on the progress of the world of education. Especially computer and internet technology, both in terms of hardware and software, provides many offers and choices for the world of education to support the learning process. The advantages offered are not only the speed factor to get information but also multimedia facilities that can make learning more interesting, visual and interactive. In line with the development of internet technology, many learning activities can be carried out by utilizing this technology [1].

Many teachers have not made good use of technological developments. Though researchers see the advantages of using technology in learning. They see that learning with technology can build problem-solving skills and provide ample room for students to gather information from various disciplines [2]. Although the use of technology in Indonesia is still lagging behind other countries, in Indonesia it has already used technology in learning [3].

The application of technology in the learning process in schools has slowly begun to be applied in Indonesia. In line with the continued development of technology and advancing technology advances into the interior, despite its limitations, learning can now be done through computers that are accessed to the internet. Learning like this is also called web-based learning (web-based learning), internet learning, or also known as the term e-learning [4]. An e-learning system is a form of learning implementation utilizing the internet through the form of websites and weblogs with multimedia content which is the process of transformation and digitalization of conventional learning.
2. 21st Century Teacher Profile

21st Century society is an open society. Communication between humans in various areas of life will be free from obstacles. Life in the 21st century demands superior human beings who can survive in a life that is full of competition and demands quality of life, both in products and in the service of shared life. There are two types of superior human beings in the 21st century, namely individualistic excellence and participatory excellence [5]. Individualistic excellence is usually only for its own sake and has no implications for the wider community. Human life in the modern age is directed at the creation of a civil society, which is a society that recognizes the rights and obligations of each member and is jointly responsible for humanity, all humanity building a civil society, peace, and justice into values - the highest score. Excellence needed in the 21st century is participatory excellence, a model of excellence directed towards the common interests of others. In developing superior human participant, it is necessary to develop the following characteristics: 1) the ability to develop cooperation networks, 2) teamwork, and 3) are closely related to the principle of cooperation by upholding high-quality values [6].

To arrive at these needs, superior human beings must, of course, be supported by a value that is firmly embedded in themselves, concerning patterns of relationship with God (spiritual), society and the environment (social). These values include discipline, honesty, responsibility, innovative-creative, hard work, persevering, and resilient. Positive behavior in daily life must be formed through a process of habituation (habituation) continuously and supported by all parties, parents, families, the school environment, teachers, principals, and surrounding communities. This is because the issue of character value formation is a joint issue, not a person to a personal matter. Character values or morals (in Islam) are no longer just the business of "PAI teachers" or Civics teachers, but all teaching professions have the same responsibility in shaping student character values. As habituation, of course, the formation of character values is not in the teaching area (knowledge transfer), but rather the effort or process of learning activities that can have a positive impact or provide meaningful (meaningful) for students. For UNESCO itself there are four pillars of education that can be fulfilled to deal with 21st-century learning, namely learning to know, learning to do, learning to be, learning to live together). The concept of learning is not only for the intellectual intelligence process but the process that directs the personalities of students can work together in a broader framework.

The consequences that can arise from the demand for progress requires the existence of models and learning strategies that can accompany the life of 21st-century society. For HAR Tilaar (1998) there are three characteristics that become the distinction of 21st century society, namely (1) technological society, namely the community that can utilize technology as the basis of life interaction, including learning activities; (2) open society, a community that has a wide network and access to life activities; and (3) civil society, a civil society that is civilized, independent and democratic, capable of upholding the values, norms, laws that apply with a common purpose and culture and does not cause acts of abuse of authority [7].

3. PGMI Study Program Dilemma: Between the Domination of Religion and Science

The existence of the curriculum in higher education is very central, for several reasons as follows: 1) The source of higher education management policies to determine the direction of
the implementation of education; (2) Philosophy that will color the formation of society and the academic climate; (3) Patron or learning patterns, which reflect study material, ways of delivering and evaluating learning; (4) The atmosphere or climate formed by the results of PT managerial interaction in achieving its learning goals; (5) Quality references from the quality assurance process; and (6) a measure of the success of the university in producing graduates that are beneficial to society. From this explanation, it appears that the curriculum is not only meant as a document but is a series of very crucial processes in education [8]. The position of the curriculum becomes so important and strategic in the context of improving the quality of higher education. Efforts to improve, change, develop a curriculum based on the needs of the wider community, the development of science and technology is a must.

In the context of the MI Teacher Education Study Program, curriculum design has undergone several changes. First, 2011 was referred to as the year of "reshuffle", reduction, and even merging (merging) of courses because they were considered to be duplicating or colliding with one another. The findings made by the Melbourne Australia Team explained that the PGMI curriculum was classified as still "dense of subjects", even the existence of courses taught was still duplicated between one subject and another. The direction of curriculum development is also unclear between the preparation of "religious experts" (religious teachers) or "classroom teachers" as they were originally established. Public insecurity and the support of government policies (Ministry of Religion and Ministry of Education and Culture) which are divided have an impact on the designation of the community's image if PGMI is part of the study program that will give birth to religious teacher candidates. This condition continues to be exacerbated by the existence of the PGMI curriculum system with the dominance of Islamic Religious Education (PAI) courses, writers often call it the "PAI flavored PGMI curriculum". The form of the curriculum at the beginning was clearly wrong because it did not match the achievement of competencies as an MI Class Teacher, namely mastery of pedagogical abilities and content in five MI subjects, Mathematics, Natural Sciences, Social Sciences, Civics, and Indonesian Language at MI level.

Second, curriculum changes were made in 2013. The direction of the curriculum changes at the PGMI Study Program at that time was focused on efforts to accommodate two policies that have been set, namely the policy on the Indonesian National Qualification Framework (KKNI), and the policy of implementing the 2013 curriculum. from the KBK (Competency-Based Curriculum) to naming the Higher Education Curriculum has several important reasons, [9] including:

1. Naming the CBC is not entirely based on regulatory provisions, so it is still possible to continue to grow.
2. KBK bases its development on an agreement on the preparation of graduate competencies by representatives of study program organizers who will formulate the curriculum.
3. The absence of measurement parameters in the CBC system makes it difficult to judge whether one level of the study program is higher or lower than another.
4. The Indonesian National Qualification Framework (KKNI) provides measurement parameters in the form of qualification levels from the lowest level 1 to the highest level 9.
5. CP at each level of KKNI is described in the description of attitudes and values, abilities, knowledge, responsibilities and rights with a concise statement called generic descriptors.
6. K-DIKTI as a form of development of the KBK uses the KKNI qualification level as a measurement of CP as a curriculum compilation material for a study program. g) The main
difference between K-DIKTI and KBK is, therefore, the certainty of the level of study program because the CP obtained has a definite size.

Has the change in the curriculum of the PGMI study program considered the integration of Islam and Science? Some curriculum changes in the PGMI Study Program are still partial and have not been integrated with the vision of the university. The integration of Islam, scholarship, Indonesian-ness, modesty as echoed since 2002 is not very visible, especially regarding matters that are substantial. The pattern of integration is only seen only in the division of subjects between general science and Islamic science. For example, the 2007 curriculum as explained above there are a number of Islamic religion courses, such as Al-Quran Hadith, Moral Tasawuf, Moral Aqeedah, Tafsir, Fiqh, Islamic Cultural History, Islamic Studies complete with their respective learning designs, so that in this decade's curriculum it's hard to distinguish between PGMI and PAI. But on the other hand, PGMI study programs offer a number of courses from the fields of language, science, social sciences, social studies, Civics, and Mathematics. It's just that the portion of the course has not met the competency needs of classroom teachers.

There is a slight difference in the 2011 curriculum, the portion of the curriculum has been adjusted to meet the needs as a classroom teacher. As a result, the curriculum offered has been directed at classroom teacher competencies, by combining several general subject groups (general subjects) and Islamic subject groups. There is a scientific group that is the target of achieving class teacher competency, namely 1. Indonesian Language course groups, consisting of Indonesian Language and Literature Appreciators, Indonesian Skills Skills; 2) course groups, consisting of basic concepts of science, science learning, nutrition, and food, environmental education, Capita Selekta IPA; 3) Mathematics subject groups, consisting of Basic Mathematics, Geometry, Algebra, Opportunities and statistics, mathematics learning; 4) IPS / Civics courses group consists of Citizenship Education, basic concepts of Social Sciences, Social Studies / Civics Education, Indonesian History, World History, Pancasila, Nationalism, and globalization. There are a number of Islamic courses offered, including Fiqh, Elementary School Creed, Al-Quran Hadith, SKI, and PAI learning, the portion of credits for Islamic course groups is very small, only as a differentiator and differentiator with the Elementary Teacher Education Study Program.

Thus the pattern of conventional integration in the PGMI study program has actually been carried out, although it has not yet led to the actual implementation of integration. Policy Until now, the study program does not have the policy to connect one course to another, involving several different scientific lecturers. There is still no visible policy related to the student's obligation to write a thesis (including the submission of a title) by prioritizing patterns of scientific and Islamic integration. Policies that have been taken by study programs in the framework of implementing the integration of Islam and science are still very limited, namely: first, the circulation of study programs to all students and lecturers to conduct Al-Qur'an (especially the 30th juz) five minutes before lectures begin. Second, the circulation of study programs related to refraction dress like a teacher. All students are encouraged to always use polite clothing, good, according to the rules.

References


Analysis of Creativity and Innovation Chemistry Education Students Through Chemo-Entrepreneurship-Oriented Product Assessment Model

Dila Fairusi1, Erina Hertanti2, Nanda Saridewi1
{dila.fairusi@uinjkt.ac.id1, erina.hertanti@uinjkt.ac.id2, nanda.saridewi@uinjkt.ac.id3}

1,2,3 UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. This study aims to analyze the creativity and innovation of Chemistry Education students through chemo-entrepreneurship oriented product assessment models. The subjects in this study were all Chemistry Education students who were taking Biotechnology and Food Chemistry courses. This research used descriptive method with one-shot case study experimental design. Data collection in research used direct observation techniques. These data were analyzed using quantitative descriptive analysis. The research results obtained were the creativity and innovation of students who are given treatment got grades with very good categories. The chemo-entrepreneurship (CEP) approach was successfully applied in this study by providing project assignments in groups. This research is expected to provide information on the concept of integrating entrepreneurial spirit both in learning and assessment as an effort to increase the creativity and innovation of the nation's generation.

Keywords: creativity, innovation, chemo-entrepreneurship, product assessment

1. Introduction

Naturally, the potency of creativity and innovation is owned by everyone. But the growth and development of each person will be different, depending on each opportunity to develop it. Creativity can be developed through increasing the number and variety of inputs to the brain, especially about new things. While innovation can be developed through high creativity. Creativity without innovation will not bring numerous huge changes, since innovation is a practical application of creativity to be useful and have high value.

Creativity and innovation are two distinct things, however in every case together and need one another. Creativity according to Ted Levitt is a characteristic that is always looking for new things, while innovation is a characteristic that always implements creative solutions [1]. An individual's creativity is estimated by the ability to create, manifest, discover new forms, produce something from imaginative skills, and manifest into something new [2]. Another opinion expresses that creativity is the capacity to think new and different, while innovation is the capacity to act new and different [3]. Creativity is the initial move towards innovation.

Creativity and innovation are the main provisions for a person to empower his potential and the resources around him effectively and efficiently. However, the problem is the education system in advanced education does not provide opportunities for students to develop their creativity and innovation, subsequently, universities have not been able to produce
graduates who have a deal esteem. This can be seen from the unique phenomenon of unemployment patterns in developing countries, including Indonesia, evidently the joblessness rate is more common among those with advanced education.

The realities show that college graduates are one of the contributors to the national unemployment rate with enormous numbers. Based on data from the Badan Pusat Statistik (BPS) in February 2017, in Indonesia there were 4.98 percent (349,098 people) of the total unemployed who were college graduated class [4]. The issue of educated unemployment gives a warning that universiters have not been able to produce graduates to be independent, so that college graduates think that it is difficult to contend and have a strong dependency on government and private offices.

In Indonesia, one of the elements causing the low competitiveness is the low creativity and innovation. In fact, creativity and innovation are the 21st century skills that must be possessed. The correct solution for conquer these issues is to strive to increase creativity and innovation through integrating the spirit and soul of entrepreneurship in learning to become successful entrepreneurs [5]. In this case, creativity and innovation are enhanced through the cultivation of an entrepreneurial culture. In college, courses that can encourage this are Biotechnology and Food Chemistry.

Biotechnology is an applied science that studies the use of living things at the animal, plant, cell and gene level to produce useful goods or services [6]. Biotechnology can be classified as conventional and modern biotechnology. Distinction between the two, which is on the working principle used. In conventional biotechnology, the manipulation of the characteristics of organisms is carried out under environmental conditions and growing media. In modern biotechnology, designing is not only done on environmental conditions and growing media, but also on the arrangement of genes in chromosomes.

Meanwhile, food chemistry is the study of food chemical processes and their interactions with biological and non-biological components of food. Biological components include food products, such as vegetables, fish, meat, milk, etc., while non-biological components are food additives, such as sweeteners, colorings, preservatives, and others. This science also studies changes in food, in its processing and how to prevent these change.

In this research, students' creativity and innovation were trained and enhanced by giving project assignments in the form of food conservation based on conventional biotechnology concepts and ideas in producing new foods. Creativity and innovation of food conservation was refer to the process of adding nutritional value, improving taste, as well as the appearance of a food ingredient so that it has a higher selling value. Creativity and innovation were assessed based on the manufacturing process and the quality of the products produced. The implication of this was the need to make congruence between assessment techniques and output targets of food project assignments. Proper assessment would provide valuable feedback for the learning process.

Evaluation recommendations to these criteria were chemo-entrepreneurship (CEP) oriented product assessment models. Product assessment is an assessment of the manufacturing process and product quality [7]. While chemo-entrepreneurship is a contextual chemical learning approach, where the learning approach is directly related to real objects or phenomena around life. The CEP approach allows students to study the process of processing a material into a product that is useful, has economic value, improves soft skills, and motivates the spirit of entrepreneurship [8, 9]. In addition, the CEP approach can be applied to improve achievement in learning and life skills of students [10]. The essence of the CEP approach is creativity and innovation. This means the CEP-oriented product valuation model is very congruent to be
applied to food project assignments, since it enables students to develop and enhance their creativity and innovation.

Based on these considerations, this study intends to investigate the results of the analysis of creativity and innovation of Chemistry Education students based on chemo-entrepreneurship oriented product assessment models. The method used was descriptive quantitative method.

2. Method

This research was conducted at the Chemistry Education Program, Tarbiya and Teacher Training Faculty UIN Syarif Hidayatullah Jakarta. The sampling technique in this study used a purposive sampling technique with specific considerations. The sample were Chemistry Education students taking Biotechnology and Food Chemistry courses.

This research used a descriptive quantitative method. This method could describe the research carried out, in particular investigating student creativity and innovation through a chemo-entrepreneurship oriented product assessment model. Meanwhile, the design used in the study was a one-shot case study experiment [11]. This design was implemented by giving project assignments as a treatment then observing the results obtained.

The instrument used to collect data in the study was an observation sheet in a rating scale form. In this study, the observation sheet used was a systematic observation sheet. Systematic observations are observations that are carried out systematically, which means that all categories to be measured meet the criteria expected by the researcher [12]. The observation sheet contains 25 statements. The statements consisted of 18 statements for indicators of creativity, which its indicators were fluency, originality, flexibility, and elaboration [13]. Beside it, 7 statements for indicators of innovation which the indicators of innovation were conveying ideas, implementing creative solutions, and exploring new territory. The observation sheet was validated by two experts before being used for data collection. Observations in this study were carried out by two observers.

The rating scale used on the observation sheet refers to a Likert scale with a range of 1 - 5. Scores 1, 2, 3, 4, and 5 in a row for very less, less, enough, good, and very good criteria. Data analysis of the observation sheet was done by calculating the value obtained indicators of creativity and innovation that are measured, through (1) and (2) [11].

\[
\text{Ideal score} = \frac{(\text{number of indicators / aspects}) \times \text{maximum score}}{} \tag{1}
\]
\[
\text{Value} = \frac{\text{number of scores obtained}}{\text{ideal score}} \times 100 \tag{2}
\]

The values obtained were further classified into categories, namely 20 ≤ value <36 very less, 36 ≤ value <52 less, 52 ≤ value <68 enough, 68 ≤ value <84 good, and 84 ≤ value <100 very good [14].

3. Result and Discussion

This research was conducted on students who take Biotechnology and Food Chemistry courses. Students were given project assignments to produce new products or innovation products. This task was done in groups (cooperatively) so that the CEP approach is truly workable for students to improve collaboration and communication [15]. There were 11 groups that have done the task.
3.1 Chemo-Entrepreneurship Oriented Product Assessment

The assessment model conducted on student assignments was a chemo-entrepreneurship oriented product assessment model. This kind of assessment used an observation sheet instrument which was carried out in three stages: the preparation, product manufacturing, and product evaluation stages. The assessment system applied was an assessment of the process and results, it meant that every stage that was passed by students in the implementation of the project would have an assessment.

The first stage was the stage of preparation. The preparation stage assessment included the ability to explain ideas about the product to be made, how to make it, the tools and materials used, and the benefits of the product. Discussions between groups occur at this stage to provide advice and input for the implementation of this task well.

Second, the product manufacturing stage. Each group started an experiment to make a product. The process of making a product was tried several times to get the best results. The evaluation requirements at this stage were skills in using tools and materials, using work methods correctly, being able to modify work methods to make it easier and successful in the work process, and maintaining workplace hygiene. Product marketing was also planned at this stage.

Some groups were able to make several distinct products from the same basic ingredients. As a result, the products produced in one group become assorted.

Last, the assessment product stage. Each group presented the results of their project work. The explanation covered the process of making products, products that have been made, and the results of product marketing by displaying images or videos. Each group’s report was completed by a selling financial report.

From this project assignment, students produced 19 new products and innovations, which consist of 5 simple Biotechnology products and 14 Food Chemistry products. Simple biotechnology products were purple sweet potato donuts, moringa leaf donuts, nata de tomato, banana skin yogurt, and dragon fruit skin yogurt. Meanwhile, the Food Chemical products were mushroom meatballs (vegetarian meatballs), green bean chicken nugget, chocolate tofu pudding, purple sweet potato kelepon, purple sweet potato with fermented soybean fried dumplings, purple sweet potato pudding, spinach pastel, kembang goyang spinach, spinach sushi, moringa cilok, moringa pie, chips pumpkin with original and chocolate flavored, pumpkin brownies, and pumpkin layers cake.

3.2 Students Creativity and Innovation

Some of the characteristics of creative people mentioned by Guilford, including fluency, flexibility, originality, and elaboration [13]. These characteristics were used as indicators in observing student creativity. Observations were carried out at each stage of the project, so that student creativity could be observed in each stage. The results obtained are in Figure 1. It shows that the student creativity observation results were in very good category in each category. The flexibility indicator got the highest score.

Observation aspects on indicators of flexibility (and their value) consisted of a) capable of utilizing the devices as indicated by the techniques (100), b) using materials that were planned (94.55), c) done procedures that has been set up to complete the project (87.27), d) keep up working environment cleanliness (100), e) have confidence in selling products and serving buyers (96.36), and (f) have a solid team and work together (92.73). From the six aspects of observation, observation aspects capable of utilizing the devices as indicated by the techniques
and keep up working environment cleanliness got the best value. In the manufacture of food products, expertise in the use of tools must be had. Besides it, cleanliness of the working environment should be kept up so that the resulting food products become hygienic.

Fig. 1. Student Creativity Observation Results

Another very important observation aspect is have confidence in selling products and serving buyers. Mental capital which has the best impact in doing business, that is an optimistic attitude, willing to work hard, and dare to take risks in building a business [16].

Indicators of fluency are reflected in the delivery of many ideas and solutions quickly and logically. Observations made in this indicator were a) able to convey many ideas with confidence (78.18), b) have many strategies in product sales (85.45), and c) have the will to generate large profits (96, 36). Based on observations, at an early stage students are only able to give one or two new product ideas and how they work. After continuing to practice making products and discussing, students are able to provide many ideas or strategies to do their project work, so that the task can be done well [15].

Original skills were reflected in the following aspects of observation, a) capable to convey new ideas (83.64), b) capable of completing projects (96.36), and (c) products produced according to the proposed ideas (94, 55). Based on observations, students were able to convey new ideas and transform them into products.

Elaboration observation aspects included: a) capable to explain the benefits of the product to be made (100), b) finding ways of making the complete product (94.55), c) finding the devices and ingredients needed (96,36), d) preparing the devices and ingredients needed (94.55), e) capable to report project results in detail (94.55), and (f) the financial report of product selling were made in detail (85.45). The first four points were observed at the preparation stage, while the last two points were observed at the product assessment stage. Based on observations, all aspects got a score with a very good category. These showed that students have succeeded in detailing their ideas at the preparation stage into the next work steps that must be done in project assignments [17].

The second variable analyzed in this study is Chemistry Education student innovation. The innovation indicators used in this research were conveying ideas, implementing creative solutions, and exploring new territory. Student innovations observation results in Table 1 show that the average observation obtained a very good category.

The highest observation aspect value was seen in the aspect of looking for ingredients that are in accordance with local wisdom or utilize ingredients that have not been used before, which is 100, very good category. Almost all groups used basic ingredients in accordance with local wisdom, such as purple potato, moringa leaves, pumpkin, spinach, green beans, tofu, banana peels, tomatoes, and dragon fruit. Students were able to make these basic ingredients
into foods that have a good taste. As a result, the selling value of these basic ingredients increased after the food were made.

**Table 1. Students Innovation Observation Results**

<table>
<thead>
<tr>
<th>No.</th>
<th>Indicator</th>
<th>Observations Aspect</th>
<th>Value</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Conveying ideas</td>
<td>a) Performing updates of existing products.</td>
<td>90.91</td>
<td>Very good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) The product produced is a new product or modify an existing one.</td>
<td>90.91</td>
<td>Very good</td>
</tr>
<tr>
<td></td>
<td>Average indicator</td>
<td></td>
<td>90.91</td>
<td>Very good</td>
</tr>
<tr>
<td>2</td>
<td>Implementing creative solutions</td>
<td>c) If no devices are needed, students were able to use other alternatives (other easier devices).</td>
<td>87.27</td>
<td>Very good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>d) Providing good service to consumers so that consumers become satisfied.</td>
<td>98.18</td>
<td>Very good</td>
</tr>
<tr>
<td></td>
<td>Average indicator</td>
<td></td>
<td>92.73</td>
<td>Very good</td>
</tr>
<tr>
<td>3</td>
<td>Exploring new territory</td>
<td>e) Looking for ingredients that are in accordance with local wisdom or utilize ingredients that have not been used before.</td>
<td>100</td>
<td>Very good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>f) Capable modify the procedures in accordance with the conditions in the manufacture of the product.</td>
<td>89.09</td>
<td>Very good</td>
</tr>
<tr>
<td></td>
<td></td>
<td>g) Have unique breakthroughs in product sales.</td>
<td>74.55</td>
<td>Good</td>
</tr>
<tr>
<td></td>
<td>Average indicator</td>
<td></td>
<td>87.88</td>
<td>Very good</td>
</tr>
<tr>
<td></td>
<td>Overall average</td>
<td></td>
<td>90.51</td>
<td>Very good</td>
</tr>
</tbody>
</table>

Meanwhile, the lowest observation aspect value was found in the aspect of having unique breakthroughs in product sales, which is 74.55 in the good category. Students were still marketing and selling products using the old method, which is sold directly to consumers. Although, there was one group that has carried out marketing and sales through the latest social media. Product marketing through social media certainly made the product more well known in the wider community.

The observation creativity and innovation Chemistry Education students gain value with very good category. It means that Chemistry Education students had very good creativity and innovation. In this project, the students have provided new ideas on the preparation and the implementation process has innovated to implement ideas to the procedures, practices, and better products [18].

The products produced were marketed to the community to growth entrepreneurial interest in students. The results of product marketing got positive responses from buyers. The success of the product marketing process is due to the commitment and cooperation of the members [19]. In addition, creativity and innovation simultaneously influence entrepreneurship [20]. Creativity is also very important for the business continuity of entrepreneurs [21, 22]. Therefore, it becomes very important to bring out the creativity and innovation of students in learning. When students have good creativity and innovation, it will be very useful for their future. Later they are not job seekers, but job creators.
4. Conclusion

Based on the research results obtained, the students creativity and innovation of the Chemistry Education Program got grades in very good category. The chemo-entrepreneurship (CEPT) approach was successfully applied in this study since students carried out project assignments with enthusiasm and increased their interest in entrepreneurship.

Acknowledgments. This research was completed because of the assistance of various parties. The author would like to thank the Research and Publishing Center LP2M UIN Syarif Hidayatullah Jakarta for providing funding in the 2017 so that this research could be carried out well, students in Biotechnology and Food Chemistry courses, and all those who had assisted the implementation this research.

References


Disaster Education to Increase Family Resilience (Community Based Participatory Action Research on Post Flood Reconstruction Phase)

Ahyani Radhiani Fitri¹, Desma Husni²
{ahyani.rf@uin-suska.ac.id¹, desma.husni@uin-suska.ac.id²}

¹,²State Islamic University of Sultan Syarif Kasim Riau, Indonesia

Abstract. Flood disasters experienced by many people in Riau require the role of Community Based Participatory Action Research (CBPAR). The research focuses on: potential challenges that will be defined in the community based on Participatory Action Research (PAR), process of developing and controlling collaboration, and challenges of subject collaboration in the research process. The purpose of this research is to increase family resilience in the post-flood reconstruction phase through CBPAR based on the concept of FEAR plan. Participatory action research is used as the research methodology. Research questions include: risk and protective factors related to disasters, family belief systems, family organizing patterns, and communication processes in families during the disaster reconstruction phase. The research subjects are 30 adults who experienced major flooding because the fifth door of the PLTA (Hydroelectric) Koto Panjang in Riau, which is closed for the last 30 years, is opened due to the overflow of several lakes in West Sumatra. Data of the research are collected using family resilience scale and questionnaire with open ended questions. The data are analyzed using qualitative methods by descriptive analysis. The results of this research show that there is an actively dynamic change of family resilience. The community is more aware of the importance of active participation activities to encounter problems related to flood disaster, such as disaster response plans, and complete preparation activities. Finally, they have practiced the implementation of disaster plan. In addition, the community has initiated meetings for youth and elderly focusing on the implementation of tiered activities so when the floods occur, the management of these activities can run independently supported by all of the community members. Community leaders have carried out double-level mentoring activities and have a good communication structure. Meanwhile, they are still pioneering material through communication channels using the mosque.

Keywords: Disaster Education, Family Resilience, Reconstruction Phase, Flood.
1. INTRODUCTION

Geographically, Indonesia is one of the countries which are prone to natural disasters and human-made disasters such as floods, landslides, and drought. Flooding as a natural phenomenon associated with human activity occurs as a result of the accumulation of natural factors such as rainfall, river conditions, upstream conditions, and soil conditions (aqua culture areas and tides). The potential threat of this flood disaster can be caused by damaged river bodies, damaged water catchment areas, violations of spatial planning, high violations of law, less integrated development planning, and low community discipline [1]. Indonesia as “supermarket of disaster” with hundreds of tribes need to develop solutions coping with and/or adapting to hazards [2].

The adaptive disaster coping behaviors among Indonesians are needed since the lack of community knowledge and skills can be one of the risk factors for disasters. Stern argues that the integration of one's own experience is a system that can be a burden in an under pressure condition especially disasters [3]. So, it will have a long term impact. According to Hamka in the interpretation of Al Mu’min verse 29, the servants of God believe that the opportunities are given by God to maintain the earth well, fairly, and wisely. Allah explains the consequences if there is tyranny: "Then who will help us from disasters given by God if it comes upon us?" Then, God brings disaster and who seems to be able to fend off the disaster? It is because human and his energy are very limited [4].

Likewise, the flood disaster occurred in Riau hits the social system in twelve sub-districts in Kampar Regency. This is the worst flooding disaster during the last 40 years due to five water gates in the PLTA (Hydroelectric) Kota Panjang, West Sumatra, are opened simultaneously as the consequence thousands of residential settlements is flooded. This is because some people ignoring the notice through social media (Preliminary interview, 15 March 2016). Meanwhile, some of them didn’t get written notification and short message so they did not have any preparation for flood disasters that may be occurred [5].

As a result of lack communication in the pre-flood phase, around 400 houses are flooded with water levels reaching 1.5 meters and the SAR team evacuates residents living in Graha Kualu Payung Sekaki, Kualu, Tambang, District of Kampar using many rescue cars and sea drivers [6]. As the consequent, residents unable to carry out their daily activities such as going to schools or workplaces [7].

Moreover, due to the geographical conditions, several families living in the banks of the Kampar River need to have recovery and prepare readiness to face flooding which can be occurs any time. This requires availability of supporting resources to shape family resilience within community members. Achievement of happiness and a better quality of life for family members can be done by forming a resilient personality. This can be done through analyze the causes of problems which refers to the individual’s ability to accurately identify the causes of problems they faced [8].

The communities, especially families who became survivors, during the post-flood reconstruction phase requires further guidance so the survivors can be more resilient to regain their normal life as well as before the disaster occurred. Family members who become survivors experience different conditions of togetherness with their beloved so they need more functional adjustments to meet their daily needs and improve their happiness and quality of life [9].

Family resilience in the post-flood reconstruction phase requires psychological abilities, especially for flood victims who have suffered many losses and struggles due to flooding. Resilience in the community will grow and develop in every flood-affected community if they
supported by resources that can be accessed easily and quickly. These supporting sources are availability of mosques as places for refuge that provide emotional, material, and existential support. Meanwhile, physical supports during critical phases is also needed in the form of food, shelter or temporary shelter, as well as spiritual aspect in terms of religious values, especially Islam. This is confirmed by the results of interview with administrators of the Sabaqol Mufarridun Mosque, in Tambang, Kampar, Riau. The data show that the mosque was also used as a place for evacuation of citizens who need facilities in a critical phase (Preliminary research interview, 27 January 2016).

Disasters not only cause panic but social disorganization. In addition, psychological problems which are consist of psychological distress (anxiety, depression, and grieving reactions), general distress (general stress levels), health-related problems (somatic complaints and sleep disorders), loss of social support and normal problem solving skills (reduced psychosocial resources), and problems related to adolescents and children are also experienced by communities that face the disasters. The participation of the community can increased family resilience in the form of support, protection, assistance or encouragement given from and for the family. This is carried out as a form of business appeal, and influences the family as a form of increasing family resilience. This is done by using the 4R model (Strengthening system with Risk Reduction, Readiness, Response, and Recovery) involving practitioners (disaster experts, psychologists), professional groups, government organizations, and non-governmental groups as well as community groups and individuals who focus on risk factors, and protective [10]. Simon, Murphy, and Smith state about family resilience as family ability to respond positively to situations and conditions that damage family life. Therefore, rediscovering strong, resilient, and resistant feelings in which the family feels more empowered, and more confident than the previous situation [11]. Furthermore, education is one of the recommended way to promote family resilience skills.

Education might have specific impact on resolving disasters effects for a long term. This is because the higher education, the better skills they have to minimize spending levels after disasters. The educated people will have better psycho-social health than uneducated people. Education is associated with higher levels of resilience over the longer term that those with better education are more resilient, have a good psychosocial, and have more effective at taking on new challenges [12].

Increasing family resilience is needed for flood victims as a way to restore family functions after the flood. The role of education is needed by the family in order to survive and overcome problems in a positive way so they can rise from a stressful situation and not fall into a distress because they still have a long bright future. Families who have education to be able to rise up and fight the situation with full of various kinds of pressure are still able to survive in the future. The question of this research is: “What is the role of disaster education to increase family resilience in the post-flood reconstruction phase?”

1.1. Research Method

This research is conducted in a qualitative research using a descriptive analysis in community based participatory action research. Subjects in this research are citizens lived in Aur Sati, Tambang and Graha Kualu Payung Sekaki Housing, Kualu, Tambang, Kampar. The subjects are 77 adult who represent their family. Data of the research are collected using focus group discussion (FGD) method. The FGD are carried out in 3 times including FGD with community leaders, mothers, and youth. The research findings are organized and written descriptively based on the data found in FGD. In addition, researcher uses psychological scale
where family resilience scale consists of 46 items and open-ended questions. Research analysis is done by open coding from the results of the Focus Group Discussion.

1.2. Results and Discussion

This research shows several essential findings as follows. The need for an increasing of family resilience is identified at the level of mothers and youths so they have to own an independent working mechanism and directly focus on solving problems, especially when floods occur. Meanwhile, as the strong force addressing problems related to post-flood reconstruction is fathers. The findings of this research assume that women and youths encourage to maintain positive situation in the future while they must solve the effects of blood disasters. According to Walsh, family resilience as a type of relational resilience to identify and foster key processes enable families to cope crises or persistent stresses caused within or outside the family more effectively [13]. In addition, the participants need regular simulations so not only women who understand how active community participate during floods and post-flood situation but the youth especially the member of mosque youth group take active behavior to increase their awareness. According to ESCAP, women and girls who often have limited access to information related to disasters reduce their resilience to disasters [14].

It is important to have disaster-responsive education to anticipate disaster negative impact at pre and post disaster phase. In fact, the subjects of the research have received a letter of appeal and messages on social media from the PLTA Service Unit of Koto Panjang to be careful and increase alertness due to the high rainfall which could impact on inflow so an overflow door might be opened and will cause flood. The family which have well preparation and planning to face the flood including pre (after getting information about the hydropower door opening), while, and post the flood disaster is still need to increase the awareness of how important of concrete activities in the form of post-flood simulations. The family gets sufficient social support (information, material, financial support) from BNPB (National Board for Disaster Management) and other voluntaries society. The finding of this research is the same as Huabio which is both individual and their families had no information, financial resources, emergency supplies, as well as social and networks support sufficiently during natural. The public health professionals should address to increase the awareness of a natural disasters through delivering continuous disasters education [15]. The interactive component of education are linked to this study as research findings, linking family learning and enthusiasm with the family resilience preparedness through community based participatory action research as the educational value among families and the partnerships (head of district and staff, BNPB, other volunteers from non-government organization and society).

Most of families participating in this research can promote adaptive resilience through focused group discussion with each other. However, men are still in charge of the communicating process and will play main role as the leader if a disaster is occurred. In this case, there is a significant lack of active participation among youths because they still need emotional support from adult (women and men) who will lead them to establish social religious program using facilities in the mosque. Furthermore, the head of district as one of the research subject expresses his thought fondly:

“Families anticipate flood disasters by doing preparatory activities to make sure that there will be no victims because the funds are often not given while the problem of flooding must be solved. The district serves social services which are negotiated with the National Board for Disaster Management, and
the village officials always kept in charged. During the post disasters time, the families state there were advantages of flooding such as: clean yards, easier for fishing, natural fertilizer even though there were flood shortages such as submerged plants, child surveillance, and many infectious diseases. We have to do the cultural value to honor the nature and persuade each other to do positive activities together”.

The received support typically shows increasing mobilization pattern in post-disasters and positively correlate to the level of exposure. Meanwhile, assuming the flood disaster preparedness in the future, most of family believes that they would solve the same problems by helping each other. They do the proverb “gotong royong” (cooperation) to make job easier after solving the life problems together, helping each other. Norris state that receiving support shows a mobilization pattern after disaster have positive correlation with the level of disaster exposure [16].

2. CONCLUSION

The results of this study found that several importance stage of resilience are overcoming problems by always thinking and acting positively, maintaining communication with families and formal sources from the government (information from the hydropower), BNPB (National Board for Disaster Management) and trying to manage financial aspect so they can survive when floods occur. Currently, the participants still need to have follow up activities to increase their readiness as problem solving preparation related to disasters. The suggestions of this research are the need for concrete training efforts for research subjects as initiation formation of a disaster alert team originating from, by, and for the community. This can be done through the cooperation of the government through the village government as well as support from BNPB Kampar. The procurement of water canals from the National Board of Housing, and relevant Non-Government Organizations as well as Corporate Social Responsibility from Private Parties who have provided financial assistance when the 2014 flood occurred.

REFERENCES

Analysis of Creative Thinking Skills and Student Learning Motivation in Solving Problems

Novferma¹, Husni Sabil², Febbry Romundza³
{novfermaa@gmail.com¹, sabilmath@gmail.com², febbri_romundza@yahoo.com³}

¹,²Jambi University, ³Jakarta State University

Abstract. This study aims to see whether there is a relationship between student learning motivation with students' creative thinking skills. This research is a survey research using a qualitative approach. The subjects of this study were 34 high school students. The instruments used in data collection were tests of creative thinking skills, motivational questionnaires, and interview guides. The results showed that there is a relationship between students who have high motivation, creative thinking skills are also high, and vice versa. Data obtained that 5.9% of students who have high motivation, 32.4% of students have moderate motivation, 58.8% of students who have low motivation, and 2.94% of students who have very low motivation. While students' creative thinking skills found 29.4% of students in the fluency stage, 35.3% of students at the flexibility stage, and 23.5% of students at the Novelty stage in solving math problems were given. So, it can be concluded the need for efforts made by the teacher is to design a Math Teaching Kit that can facilitate students' motivation and creative thinking skills.

Keywords: Creativity Thinking Skills, Motivation, Mathematics Learning

Introduction

Mathematics is one of the fields of science that has a great influence on daily life. The great influence of mathematics can be seen in so many aspects of daily life that use the basic concepts of mathematics, such as in calculating the amount of money we have, calculating the amount of the price of the goods we buy, estimating how much building material is needed to make a building construction, and others. In addition, mathematics is a part of science that is useful as a tool to develop other sciences. Understanding a mathematical concept becomes very important so that mathematics can be applied in other sciences as well as possible. One application of mathematics that is very beneficial is the development of information and communication technology, for example, to develop programming languages, and data structures which are examples of the application of mathematical logic. Kids must be introduced and learn mathematics from an early age in order to equip them in developing knowledge and skills with the skill to think logically, analytically, systematically, critically, and creatively. Kids also must be able to apply mathematics in everyday life. High school students must have high-level thinking so that the objectives of the learning delivered can be achieved and implemented well [1].

The learning objectives of mathematics in the Class X Mathematics Teacher's Book are as follows: (1) Understanding mathematical concepts includes competence in explaining inter-conceptual relationships and using concepts and algorithm flexibly, accurately, efficiently, and precisely in problem-solving; (2) Communicating ideas, reasoning and being able to compile mathematical evidence using complete sentences, symbols, tables, diagrams, or other media to clarify the situation or problem; and others [2]. The learning objectives encourage students to have a high level thinking skill, to find and solve the problems given. Thinking includes the transfer of information to the brain or memory and includes manipulation. When we are thinking, we can form a concept, find reasons, think critically and creatively, make decisions, and solve the problems given. One of these thinking abilities is the creative thinking skill. The creative thinking skill is the skill to think that involves cognitive processes [3]. Cognitive processes or cognitive skills are more related to the skill to find problems and identify relevant and non-relevant data [4]. Creative thinking is a habit of thinking that is trained by paying attention to intuition and imagination, proposing new ideas that could not have been
predicted before [5]. Creativity always creates new products by combining knowledge from various aspects of science so that the process of scientific thinking results form a solution to a problem so it is clear that creativity can influence a successful learning process [6].

The indicators of creative thinking, namely: 1) Fluency (the skill to produce many ideas that come out of someone's thoughts appropriately), 2) Flexibility (the skill to produce a number of ideas), and 3) Novelty (renewal of ideas created) [7] However, in real life, high school students have low creative thinking skills, where most students cannot find solutions to solve the problems given during the learning process in class. This is also supported by the TIMSS survey results on the mathematics learning process, viewed from the reasoning, application, and knowledge aspects. The results of the survey conducted by TIMSS show that the skill of Indonesian students is at the lowest cognitive knowing level, with an average score of 378 from a maximum score of 616[8]. Most Indonesian students also have not been able to apply basic knowledge in solving the problems given (Applying), while in reasoning most students have not been able to understand and apply knowledge in complex problems. This happened because learning mathematics in schools has not been focused or emphasized the skill of students. One of these abilities is the creative thinking skill so that the learning objectives of mathematics have not been maximally reached. Even though we know that the creative thinking skill is an skill that is needed by students in the process of learning mathematics [9].

There are several factors that could affect the process of learning mathematics that make students have a low creative thinking skill, these factors are extrinsic and intrinsic factors from the students. One intrinsic factor of students is motivation. Define "motivation is the process where goal-directed activity is instigated and sustained" [10]. The definition explains that motivation is a process in which goals are directed towards ongoing activities. Motivation is the strength that comes within a person to carry out certain activities to achieve a goal.

The effort to achieve this goal has the same meaning as motivation. An individual who shows more effort is considered to have motivation, while someone who is motivated will also show more effort. Motivation comes from the word motive, which means the strength that comes from within a person, the high motive of students to achieve and avoid failure will respond more to the tasks given by the teacher. Success and appreciation from friends or from the teacher will provide a sense of satisfaction and enhance the skill of students' skill to make efforts because of the learning objectives concerning the needs of the problem; namely the need to do something to learn, the need to achieve results after learning, and the need to overcome learning difficulties [11].

The objectives of this research are 1) to see whether there is a relationship between students' motivation and students' creative thinking abilities in the mathematics learning process; 2) to analyze students' creative thinking abilities and motivation in the learning process.

Methods

This research is a survey research with a qualitative approach. The research subjects were 24 high school students with high, medium, and low categories who were all given a motivation questionnaire and a student's creative thinking skill test.

The first stage in this research is to provide a motivational questionnaire. The motivation questionnaire was arranged based on 5 aspects, namely: 1) anxiety, 2) effort, 3) interest, and 4) self-efficacy which then became 5 aspects that were developed into 13 indicators for measuring student motivation. The motivational questionnaire consists of positive and negative items with a total of 30 items/statements. The second phase of research is to provide a test of creative thinking skills. The tests (questions) are in the form of essays so that it is easy to record the students' work in their creative thinking skill. The questions given were 3 essays consisting of 3 indicators of creative thinking skill measurement, namely: 1) Fluency, 2) Flexibility, and 3) Novelty. The third stage of the research is in-depth interviews of the research sample units determined after the first and second stages are completed and the results of student work are checked.

The instruments used in data collection were tests of creative thinking skills, motivational questionnaires, and interview guidelines. The instrument was validated by three experts and was
declared valid. Students who get a score below 70 (minimum completeness) are categorized as students who have low creative thinking skills.

Data analysis is carried out during and after data collection so that the data obtained is arranged systematically and is more easily interpreted in accordance with the formulation of the problem. The steps in analyzing and interpreting the data are carried out in stages, namely first, collecting and formulating all data obtained from the research. This activity is carried out by: (1) checking the results of student motivation questionnaires in the learning process; (2) examine student test results in solving creative thinking skills questions consist of 1) Fluency, 2) Flexibility, and 3) Novelty. This research uses a student motivation questionnaire consisting of 30 items/statements using 5 Likert scales. The Likert scale used is strongly agree (= 5) until strongly disagree (= 1). Quantitative data is converted to qualitative data using table 1 as follows: [12].

<table>
<thead>
<tr>
<th>No</th>
<th>Interval</th>
<th>Score (X)</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mi+1,5Si &lt; X ≤ Mi+3Si</td>
<td>98 &lt; X ≤ 130</td>
<td>Very High</td>
</tr>
<tr>
<td>2</td>
<td>Mi+0,5Si &lt; X ≤ Mi+1,5Si</td>
<td>76 &lt; X ≤ 98</td>
<td>High</td>
</tr>
<tr>
<td>3</td>
<td>Mi-0,5Si &lt; X ≤ Mi+0,5Si</td>
<td>54 &lt; X ≤ 76</td>
<td>Medium</td>
</tr>
<tr>
<td>4</td>
<td>Mi-1,5Si &lt; X ≤ Mi-0,5Si</td>
<td>33 &lt; X ≤ 54</td>
<td>Low</td>
</tr>
<tr>
<td>5</td>
<td>Mi-3Si &lt; X ≤ Mi-1,5Si</td>
<td>0 &lt; X ≤ 33</td>
<td>Very Low</td>
</tr>
</tbody>
</table>

Results and Discussion

In this research, researchers collected information through student motivation questionnaires, creative thinking skills test, and the results of interviews given. Before being given a creative thinking skill test, students' motivation towards learning is first measured, using a questionnaire. The questionnaire consists of 30 items with each item having a score range of 0 to 5, so the range of motivational scores has a range of 0 to 130. Data on measuring student motivation is presented in table 2, as follows:

<table>
<thead>
<tr>
<th>Descriptions</th>
<th>High School</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>51.2</td>
</tr>
<tr>
<td>Highest score possible</td>
<td>130</td>
</tr>
<tr>
<td>Lowest score possible</td>
<td>30</td>
</tr>
<tr>
<td>Highest score achieved by students</td>
<td>78</td>
</tr>
<tr>
<td>Lowest score achieved by students</td>
<td>33</td>
</tr>
</tbody>
</table>

The frequency and percentage of many students on each criterion of students' mathematics learning motivation is calculated based on a predetermined score range. The frequency distribution and percentage of high school students' mathematics learning motivation is presented in Table 3, as follows:

<table>
<thead>
<tr>
<th>Score (X)</th>
<th>Criteria</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>98 &lt; X ≤ 130</td>
<td>Very High</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>76 &lt; X ≤ 98</td>
<td>High</td>
<td>2</td>
<td>5.9</td>
</tr>
<tr>
<td>54 &lt; X ≤ 76</td>
<td>Moderate</td>
<td>11</td>
<td>32.4</td>
</tr>
<tr>
<td>33 &lt; X ≤ 54</td>
<td>Low</td>
<td>20</td>
<td>58.8</td>
</tr>
<tr>
<td>0 &lt; X ≤ 33</td>
<td>Very Low</td>
<td>1</td>
<td>2.94</td>
</tr>
</tbody>
</table>

Table 3 shows that the scores of high school students' mathematics learning motivation are spread over the low criteria. The number of students in high school who have a motivation to learn, on very high
criteria is 0 (0%) of 34 students; high criteria is 2 (5.9%); moderate criteria is 11 (32.4%); low criteria is 20 (58.8%); and very low criteria is 1 (2.94%). The average of high school student motivation to learn mathematics is 50.9, that means that students' learning motivation in mathematics is still relatively low. Creative thinking skills test results were given to 34 students who were used to obtain data on students' skill in the mathematics learning process. tests (essay questions) given as many as 3 questions consisting of indicators: 1) Fluency, 2) Flexibility, and 3) Novelty. In entirety, it can be seen from the results of the student answers from all research subjects in table 4, as follows:

<table>
<thead>
<tr>
<th>Types of Answers</th>
<th>Fluency</th>
<th>Flexibility</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct (B)</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Correct but Incomplete (BL)</td>
<td>3</td>
<td>8.8</td>
<td>3</td>
</tr>
<tr>
<td>Not Completed (TS)</td>
<td>10</td>
<td>29.4</td>
<td>8</td>
</tr>
<tr>
<td>An Error Occurred (AK)</td>
<td>7</td>
<td>20.6</td>
<td>1</td>
</tr>
<tr>
<td>No Answer</td>
<td>14</td>
<td>41.2</td>
<td>22</td>
</tr>
</tbody>
</table>

Based on Table 4, information is obtained that many students have difficulty or obstacles in solving the given problem. These obstacles can be seen from the mistakes in the answers given by students, students who worked on it but are not finished, and there are even students who did not do it at all. Each question worked on by 34 students. Therefore the percentage of the tests of students' creative thinking skills can be seen from the indicator that is only 29.4% (Fluency); 35.3 (Flexibility); and 23.5% (Novelty). As for the samples of student work results (tests of creative thinking skill) of 3 questions given with the Correct but Incomplete (BL), Not Completed (TS), An Error Occurred (AK) types are as follows:

Problem 1:

This problem is to assess the aspect of flexibility because the methods used by students are more than two different methods. In this problem, students were asked to use at least 2 different ways to solve problems.
A snack food company, the production process through two stages, namely the processing and packaging process. The processing cost follows the function of \( Q_1(x) = 20,000 + 50x \) and the cost of the packaging process is \( Q_2(x) = 10,000 + 30x \). with \( x \) is the number of snack boxes. What is the total cost needed to make 800 boxes of snacks? (use two ways)

Figure 1. The S1’ Comment

Figure 1 and the S1; Comment shows that the student can solve the given problem, but there is a misconception between students. Based on interviews conducted with students that they were only looking for Q1 and Q2, when in fact they need to find the total of Q1 and Q2. Then the student cannot reproduce or give the answer in a different way. Based on the interview that the S1 student did not have an indicator of flexibility, because the answers given by the student did not show the correct answer in different ways (several ways). Flexible thinking, if students are able to 1. Produce ideas, answers, or questions that are varied 2. Able to see the problem from a different perspective 3. Look for many alternatives or different aspects 4. Able to change the way of thinking. Flexibility in problem-solving is defined as the skill of students to solve problems in the right various ways [13,14].

Problem 2:

If it is known that the form of function is \( f(x) = 4x + m \), determine the function formula that is formed if it is known \( f(x) = \{x \mid 1 \leq x \leq 3, x \in \mathbb{R}\} \) where the function \( x \) value is 2!

This problem is to assess aspects of fluency because students might give various answers:

S1’ comment:

The processing fee follows the function of \( Q_1(x) = 20,000 + 50x \) to process 800 boxes of snacks.

\[
Q_1(800) = 20,000 + 50(800) = 20,000 + 40,000 = 60,000
\]

So it costs Rp. 60,000, - for processing costs. While the cost of the packaging process follows the function \( Q_2(x) = 10,000 + 30x \), so to package 800 boxes of snacks:

\[
Q_2(800) = 10,000 + 30(800) = 10,000 + 24,000 = 34,000
\]

If it is known that the form of function is \( f(x) = 4x + m \), determine the function formula that is formed if it is known \( f(x) = \{x \mid 1 \leq x \leq 3, x \in \mathbb{R}\} \) where the function \( x \) value is 2!

S2’ comment:

\[
f(2) = 4 \cdot 2 + m = 1 \]
\[
4 \cdot 2 + m = 1
\]
\[
8 + 1 = m
\]
\[
m = -7
\]

Figure 2. The S2’ Comment

Figure 2 and the S2; The comments show that the student can solve the given problem, but the S2 made a mistake and did not fit all over. Based on interviews conducted with students that the answers given by students is the only answer, there is no any other answers. Furthermore, when interviewing, one student still did not understand the work given, student did not concentrate when
student was being asked why the results were \(8 + 1 = m\)? The answer is yes, but the student is still unaware that he is wrong, there is a mistake in the operation. Furthermore, when the student is asked to make another answer from the given problem, the student’s replied that he cannot answer it. Based on the interview that the S2 students did not have indicators/aspects of fluency, because the student gave various answers. Fluent Thinking 1. Triggering a lot of ideas, answers, problem-solving or answers 2. Providing many ways or suggestions to do various things 3. Always think of more than one answer [13] (Fluency) in problem-solving is defined as the skill of students to solve problems in the right various ways [14]. Some answers to problems might be called as various, if the answers appear different but follow a certain pattern, or have the same idea.

Problem 3:

Wheat raw material used per day is 7 tons. If the day the factory can produce 6500 kg Wheat flour. And flour produced in 3 stage using machine I, II, and III. Determine the function was the machine I and II machine functions that can satisfy the above conditions?

This problem assesses the novelty aspect because of some of the answers between students might be different.

Figure 3 and the S3 ; Comment shows that the student can solve the given problem, but the S3 makes a mistake. Based on interviews conducted with students that the answers given by students is the only actual answers, there is no other answer. Furthermore, when interviewing, 1 student still did not understand the work given, students did not concentrate, when student was being asked how many points were obtained, S3 only answered -1. Based on these interviews that the S3 did not have indicators/aspects of Novelty, because the students could not produce answers in their own way, language or ideas. Novelty in problem-solving is defined as the skill of students to answer problems that are new to students at the level of knowledge or the answers given have never been obtained before [14]. Novelty is the authenticity of ideas that is produced in giving a response to commands [15]. Interviews were conducted with students who had high, medium, and low motivation in learning mathematics, as well as students who could complete the questions (tests) of creative thinking skills. That was conducted to get more information about students’ motivation to learn mathematics and the creative thinking skill. Although the creative thinking skill only shows in the right answer even though it is not complete.

CONCLUSION

Based on the results of the research, it can be concluded that student motivation is very influential on the creative thinking skill. It can be seen that students who have high motivation will be able to solve the given problems. Vice versa, if students have low motivation, they can not solve the given problems (the creative thinking skill is also low). It shows that the number of students in high school
who have a learning motivation on the very high criteria is 0 (0%) of 34 students; high criteria is 2 (5.9%); moderate criteria is 11 (32.4%); low criteria is 20 (58.8%); and very low criteria is 1 (2.94%). The average of high school student learning motivation towards mathematics is 50.9, it means that students 'learning motivation in mathematics is still relatively low, as well as the students' creative thinking skill that is also in the low category.

REFERENCES
Learning Cycle Assisted by Physics at School Application: Optical Instruments Concept

Fathiah Alatas¹, Annisa Fitri Komariyah²
{ fathiah.alatas@uinjkt.ac.id¹, annisafitri.komariah14@uinjkt.ac.id² }
UIN Syarif Hidayatullah Jakarta¹²

Abstract. The purpose of this research is to assess learning outcome and cognitive structure of grade 11th high school students on optical instruments concept. The research aimed to reveal the influence of Learning Cycle assisted by Physics at School Application. This research was quasi-experimental research using Pre- and Posttest Design. Subject of this research was grade XI students of Senior High School Jakarta as many as 70 students. Learning outcome data were collected by test developed by researcher, meanwhile cognitive structure data collected by student worksheet. The result showed that implementation of learning cycle assisted by Physics at School Application can increase students’ learning outcome which are knowledge (C1), comprehension (C2), application (C3) and analysis (C4). And also in the experimental group found that misconception decreased after applied learning cycle assisted by Physics at School Application.

Keywords: Learning Cycle, Physics at School Application, Optic Instruments Concept.

1 Introduction

Optic instruments concept is one of the topics interest to students studied for its application in life, unfortunately in this topic students do not realize or they are aware but do not fully understand the concept [1]. Optical instrument concept studied include tools used in life such as magnifying glass, cameras, microscope and telescope [2]. Students learn how magnifying glass, camera, microscope and telescope work in form image of the object [3]. In fact, in the class students have difficulty in understanding this chapter [4]. Especially if the students still do not understand the concept of congruency, angular relationship and geometric optics concepts learned in junior high school level [5]. As a result, students finally memorize formulas of magnification different from each tools. This causes students to be passive in the learning process and student learning outcomes become incompatible expected of teachers, so that this chapter requires a complex understanding.

Physics meaningful learning must go through a learning experience that enables students to formulate their own concepts. Students often formulate a wrong conception of acquisition concept [6]. According to Flavell and Miller students build concept by obtaining information from the learning experience, and to organize and transform[7]. Learning outcomes described by the cognitive structure. During the learning process of cognitive structure is divided into three categories: understanding, misconceptions and did not understand [8].

Characteristics optical instrument, the students are expected to connect the concepts of physics studied with the phenomena that exist in everyday life by way of constructing their
own knowledge [9]. One of study model capable in facilitating students to construct knowledge through related phenomena is learning cycle [10]. This is in line with the statement of Bybee that is one of the student-centered learning model phases; students can conduct investigations, provide an explanation, apply the concept in a new situation and also evaluate the learning cycle [11].

The phases of learning cycle models continue to evolve over three phases, five phases (5E) then become seven phases (7E) [12]. Learning cycle with three phases proposed by Karplus and Their in 1967: exploration, concept and Application [13]. The next learning cycle developed into 5 phases is often called the 5E learning cycle. These steps are engagement, exploration, explanation, elaboration, and evaluation [14]. In 2003 Arthur Eisenkraft developed it to become 7E learning cycle. The phase 7E learning cycle means; elicit, engage, explore, explain, elaborate, evaluate and extend [15]. Recent research conducted by Ridwan and Rahmawati modified the process of phase model of 8E learning cycle, which stands for engage, explore, E-Search, elaborate, exchange, extend, evaluate and explain [16]. The significant difference between the 8E learning cycle and 7E learning cycle contained in the E-search phase. Based on the development of the learning model cycle that at first there are only 3-phases and continue to grow until 8 phases, indicating that the importance of learning elements. Phases of the 8E learning cycle organized in such a way that students can play an active role in learning activities such as demonstrations or experiments.

Innovation is the use of technology in learning Android smartphone to do a demonstration or experiment, in order to minimize time and effort [16]. Using smartphones in learning physics rated very important role in the understanding of the students because students can build understanding through simulation and evaluation and they can repeat every time [17]. In addition, the use of simulation as a learning tool is expected to help students in solving problems in real life [18]. Therefore it is necessary to do research on the application used of android-based virtual laboratory [19]. For Android users there is an application that consist of a good physics content that is Physics at School. The application can be downloaded for free in the Play Store. Physics at School presents the simulation of physics concepts ranging from mechanics, electricity, magnetism, relativity, optics and many more. In Optical instrument, students have difficulty in understanding the form of an image on a magnifying glass, microscopes and telescopes. Using Physics at School application in teaching instruments optics can be a solution to overcome the students’ difficulties

2 Research Methods

The method used was a quasi-experimental design [20]. The population of this study were all students of class XI Senior High School Jakarta in academic year 2018/2019. The technique sampling used was purposive. It was decided that XI MIA 1 as the control group applied the conventional learning and XI MIA 2 as the experimental group using 8E learning cycle assisted by Physics at School. The independent variable in this research was 8E learning cycle assisted by Physics at School application. The dependent variable is learning outcome of cognitive structure in the topic of optical instruments concept

Methods of data collection were tests and observation. The test method aims to obtain data on student learning outcomes of optical instrument concept. Method of observation in this study aims to obtain data on students’ attitudes during the learning with 8E-learning model assisted by Physics at School application.
This study has three phases procedure that include: (1) the preparation phase consists of, covering the literature to formulate the problem, problem formulation research, sampling, preparation of lesson plans, worksheets manufacture, test instruments and nontes. After the researchers tested the feasibility of the instrument to some experts and students who are learning the topic optical instrument. Eligible instruments will be tested to class XI to determine the experimental class and control class. (2) The data acquisition phase is planned to start by giving a pretest to determine the initial ability of students and at the same time establish an experimental class and control class, when learning observer filling the observation sheet. the posttest was done to measure student learning outcomes. (3) in the phase of analysis, researchers and analysts analyzed the data which have been obtained previously, then tested the hypothesis until the conclusion of the study.

Analysis of the early phases of this research are used to determine the control and experimental groups by giving an average pretest score of the highest pretest to a control group while the average score of the lowest pretest into the experimental group. Data analysis is the final phase of the test results of student learning outcomes in experimental and control groups before and after treatment using a different learning models. Before testing the hypothesis, the first step was to perform the prerequisite test that is test of normality and homogeneity, while to know the learning outcome after learning calculation was used N-Gain formula

3 Results and Discussion

The results were obtained in the form of data from pretest and posttest, N-gain of the experimental group and the control group and the data on the observation of students during the learning. Data pretest and posttest results are presented in the form of a score. Before getting treatment, samples are given a pretest to determine the starting conditions. The results of pre-test showed that the class XI MIA 1 got an average score of 7.2, while the class XI MIA 2 reached an average score of 5.7 out of a total score of 23, thus XI MIA 1 to a control group that applied conventional learning models and XI MIA 2 into the experimental group applied learning model 8E-aided learning cycle Physics at School application. Conditions initial ability of students to each cognitive domain are superior to the control group experimental group. In the cognitive domain C1 (knowledge) C2 (comprehension), C3 (application) and C4 (analyze) are in the average score of significant difference between the control group and the experimental group, while in the cognitive domains C1 (remember) has differences in the average score of the control group and the experimental only 0.07 adrift. The low score of students qualitatively and quantitatively is due to passive learning, because students are not interested to participate in learning.

The result of the ability of the student's final after application of different learning models is the experimental group, it was obtained a score that is superior compared to the control group. The average score of 18.28 posttest experimental group and the control group of maximum score 23.00 13.80. Lowest cognitive domain that is C3 the experimental group with a percentage of 66%, while the highest cognitive C1 with a percentage of 95%. In the control group, namely the lowest was cognitive C2, while the highest was cognitive C1. Increased N-Gain learning outcomes of students in the control group reached 0.38 was in the medium
category, while the experimental group N-Gain scores of 0.72 to a high category. Summary of pre-test and post-test scores are in Table 1 below.

**Table 1.** Table Summary of pretest and posttest scores Data Control Group and Experimental Group

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Pretest</th>
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<tr>
<td></td>
<td>Control</td>
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<td>Average</td>
<td>7.2</td>
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<td>The minimum</td>
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<td>2</td>
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<tr>
<td>score</td>
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<tr>
<td>The maximum</td>
<td>11</td>
<td>10</td>
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<tr>
<td>score</td>
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<td>median</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>modus</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>standard</td>
<td>2.5</td>
<td>1.9</td>
</tr>
<tr>
<td>deviation</td>
<td></td>
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</tr>
</tbody>
</table>

The results of the test prerequisite posttest control group and the experimental distribution data were not normal and homogeneous, then test the hypothesis by using the Mann-Whitney U test results of the hypothesis is that the alternative hypothesis accepted. The alternate hypothesis states that the experimental group had an average of higher learning outcomes than the control group. This indicates that the implementation 8E learning cycle assisted by Physics at School application effects on student learning outcomes in optical instrument. The statement is in line with research conducted by Elsa Mardika and Waskita Darmiyanti, The study found that the application of the 8E learning cycle help students understand the concepts so that the level of misconceptions in students to be decreased [7]. In addition, research conducted by Ugyen Dorji, Niwat Srisawasdi, and Patcharin Panjaburee stated that the application of the learning model learning cycle and application Education Computer Game in learning electrical energy can improve learning outcomes and student awareness of the importance of electrical energy [21].

8E learning cycle is a student centered learning, so that learning effort students to be able to understand the concepts learning through the learning experience gained at each phase of learning. The learning phase of 8E learning cycle includes eight first phases are to engage, at this phase the students were given a case study related to the concepts learned. In the explore phase, which at this phase the students gain knowledge helped by the application of Physics at School, this application helps students understand abstract concepts, such as the formation image on optical instrument. The next phase is to e-search, where students find the source references concepts learned through the internet or print book.

The next phase is elaborate, integrating the knowledge gained from the explorer and e-search. The fourth phase is to exchange, at this phase the students conduct a group discussion on the results of the elaborate phase. Next phase extend, at this phase students were given exercises in the form of an extension of concepts learned. Evaluate is seventh phase, at this phase the students were given the opportunity to ask questions and discuss with the teacher to confirm the knowledge obtained in the previous phase. The last phase is to explain or eighth phase, at this phase, the students presented the results in accordance with the answers they
wrote in the student worksheet, at this phase the students are given exercises in the form of an extension of concepts learned.

This study was conducted during two meetings, the first meeting to discuss the sub topics eye, a camera and a magnifying glass, while the second meeting to discuss the topic sub microscopes and telescope. It is important to know how students construct knowledge for the application of the 8E learning cycle assisted by Physics at School application. Based on the learning phase learning cycle models 8E, understanding the students appeared on phase engage, explore, elaborate, and extend. Student understanding can be analyzed through answers on student worksheet.

Based on the first meeting of the sub topics eye, a camera and a magnifying glass, the emergence of students' understanding of each phase of engage, explore, elaborate, and extend. Phase engage, teachers test students' comprehension by asking questions related concepts learned. Phase engage students' understanding of optical instrument are quite varied some students considered still do not understand or misconceptions. Phase explore, students construct knowledge using the application Physics at School. In the elaborate phase, the students' understanding more or less the same as in the phase more fully explore only due to the e-search phase students can search for related reference. Next phase is extend at this phase students were given about the concepts related to increasing student understanding in the following Figure 1 and 2.

![Fig. 1. Essential Topics for Engage and Explore Phase](image_url)
Based on results of student worksheets, it was found that some students had misconceptions about differences virtual and real image. At the student worksheet engage precisely at the phase of writing:

"Observations using loops produce a real image, erect and enlarged"

(Group 2 and 3, the student worksheet dated 26 April 2019)

Answers to some students on phase engage the student worksheet shows that students do not understand the difference virtual and real image. Image of an object is to be virtual in the event of an extension of the special rays. Students answer after making observations using the application Physics at School shown in Figure 3.

![Figure 3. Students Answer After Learning](image)

Seen that had not found anymore of misconceptions of form image in magnifying glass. This shows that the students are able to construct their own understanding of experiential learning as well. Before entering the elaborate phase, students must pass the e-search phase where at this phase students seeking references from various sources to answer questions on worksheets. In the elaborate phase students combine observations from the phase explore and e-search. The results of the analysis of students' answers on worksheets can not be found misconceptions. Neither the extend phase where at this phase students are required to solve
several problems. Answer at this phase is also not found misconceptions and do not understand.

The second meeting discussed the sub topic microscopes and telescope. Appearing on engage phase students' understanding, explore, elaborate, and extend. **Figures 4 and 5** is a chart of essential topics of sub topic optical instrument namely microscopes and telescope.

![Fig. 4. Essential Topics for Engage and Explore Phase](image)

![Fig. 5. Essential Topics for Elaborate and Extend](image)

Students' understanding of the concept of sub microscopes and telescope considered quite good, proven some students answered questions on phase disengagement as in **Figure 6**.
Based on these answers, the student is considered to have a good grasp on the sub concept microscopes and telescope. This can be caused because students are accustomed to using a microscope in biology lab, so that they understand the part along with the functions of the microscope. Misconception about virtual and real image, also not to be found in this second meeting, in answer student worksheets evidenced in Figure 7 below.

Phase elaborate and extend in the second meeting, there was also found misconceptions and do not understand. At this second meeting, the students became accustomed to learning to use the model of learning cycle. It is also evident from the observation time of learning which states that during learning, especially at the phase of disengagement and e-search students were able to use the sense and the facts relevant to the percentage 61% category enough. Meanwhile, on phase as much as 61% of the students explore noted the observations through the application of Physics at School in student worksheets with enough categories. On phase elaborate and exchange as much as 57% of students had a discussion related to the observations made in the previous phase. Meanwhile, as many as 63% of students participate resolve problems found in students' worksheets. During learning, especially at the phase as much as 47% Evaluate students ask questions to teachers, so students can evaluate his thoughts through dialogue with the teacher. On phase explain as much as 57% of students presented the results of his observations properly. Overall, the results of observations of students in obtaining the average percentage of 57.5% to the category enough.
4 CONCLUSION

Based on the results of the study, data analysis and discussion can be concluded that there are significant 8E-assisted learning cycle model of application Physics at School on student learning outcomes in topic optical instrument. The experimental group was applied to the model-assisted learning cycle applications 8E Physics at School has an average test score of 18.28 with 0.72 N-gain high category, while the control group who applied conventional study had an average test score of 13.80 with N 0.38 -gain medium category. The results of observations of students in the experimental group categorized enough (57.5%).

References


Abstract. This research aims to unravel Chomsky’s statement that this theory can be implemented in world languages including Arabic. The main conclusion of this thesis is generative transformation theory was carried out by Chomsky can be implemented into the Arabic Al-Qur'an in all patterns. But on Arabic grammar, especially the Arabic Al-Qur'an, these patterns are very diverse and varied. For example, there is a change in harakat, caused by the difference in position i’rab, al-ziyadah which has lots of pattern or way, so did the placement pattern (al-ihlal) and pattern i’adat al-tartib particularly at taqdim wa ta’khir and hadhf. In the matter of the application of this theory, the author brings forth Mohammad Ali Al-Khulli’s opinion that generative transformation theory can be implemented into Arabic grammar especially in the Al-Qur’an, but it’s more comprehensive.

Keywords: Al-Qur’an, Chomsky, Generative Transformation, Surface Structure, Deep Structure.

1. Introduction

Chomsky [1] is one of the linguistic characters. Full name Avram Noam Chomsky, born December 7, 1928, in Pennsylvania. Grew up in the middle of a highly educated family, the spouse of Dr. William Zev Chomsky and Elsie Simonofsky. His father was a Jewish linguist. Chomsky is very actively following a variety of linguistic activities of his father. This greatly affects the intellectual power and way up in linguistic studies. His father was known as the experts are assigned grammatical in Hebrew, called the daily New York Times as aprominent Hebrews are assigned grammatical language.

In fact, at the age of 12 years, Chomsky has already read one of his father's heavy work on the Hebrew grammar of the 13th century. The Hebrew language is still allied with the Arabic language, therefore it is also very possible for Chomsky reading and searching books related to Arabic, particularly Arabic grammar. According to Tammam Hassan, Chomsky was one linguist who admires the thought of Al-Jurjani. Therefore, Chomsky is not only master the Hebrew language but also studied al-Ajrumiyah to Franz Rosenthal [2].

According to him, the languages are mentalistic/psychological abuse, which is innate (inborn/heritage/descent), consisting of the elements of competence (competence) and performance (performance), which is contained in the structure of the outside (surface structure) and structure (deep structure) [3].

1.1 Research background
The writing of generative grammar, especially about the rules of transformation has been done by linguists, including [4]:

1. Khalil Hilmi, in his book "Nazariyah Chomsky Al-'Arabiyyah" states that the linguistic theories presented by Chomsky can essentially be applied to Arabic. The application of Chomsky's theory can be analyzed in the structure of the Arabic sentence of both the inner structure and the birth structure [5].

2. Muhammad 'Ali Al-Khulli said that Arabic as an Ilmyah and Alamiyah language has followed the generative grammatical pattern, even the pattern of transformation in Arabic more complex than other languages [6].

3. Mikhail Zakaria said generative Gramatics can be applied in Arabic to find the basic meaning of a sentence. By understanding the meaning of the inner structure and birth structures, it will help to understand a text to its standard meaning [7].

4. Dwight Bolinger is more pronounced in his book titled "Aspect of Language" stating that there are several types of transformations that are broadly differentiated into two, namely: singularly Transformation and general transformation (Generalized transformation) [8]. In a single transformation can undergo processes among others with; Addition (Addition), omission (deletion) permutation (permutation/rearrangement), replacement (substitution) [9].

5. Jos Daniel Parera in his proof "Syntactic" states that the rules of transformation can be applied in various languages in the world. By following the rules of transformation then in Bahasa Indonesia, one sentence can form at least 20 other sentences.

1.2 Problem Statement

Based on previous writes above, it can be concluded that the writing of this book is in the position of proving or even rejecting Noam Chomsky's theory of Transformational Generative Grammar and Its stated that the theory can be applied to the languages of the world including Arabic, as well as further reviewing the implementation of the Generative transformation theory in Al-Qur'an.

Associated with the implementation of this theory into Arabic, Khalil Hilmi, Mikhail Zakaria, Dwight Bolinger and Jos Daniel was agreed. According to Muhammad 'Ali Al-Khullil, he said that Arabic grammar its was very complex and comprehensive, while this theory was only able to interpreted the surface structure.

In essence, in this article the authors propose a problem statement, what extent generative transformation theory can be applied in the Qur'an?

1.3 Significance of the study

This research is about Chomsky’s theory, that generative transformation theory can be implemented into Arabic grammar especially in the Al-Qur'an, based on his statement that this theory can be implemented in world languages including Arabic. Reveal the extent to which generative transformation theory can be implemented in the Qur'an as the object of this research. It also at the same time tests the truth of the expression of linguists who argue that generative transformation grammar can be applied to world languages including Arabic. Finally, Therefore, this research is very important to do.

1.4 Scope of the study
The topic of this research is implant of generative transformation theory in the Qur'an as the object of this research. There are a change in harakat, caused by the difference in position i'rab, al-ziyadah which has lots of pattern or way, so did the placement pattern (al-ihlal) and pattern i'adat al-tartib particularly al taqdim wa ta'khir and hadhf.

2. Literature review

2.1 Transformation Generative Theory

Basically, in analyzing the language, Chomsky took the United Kingdom as the language database. In relation to the Arabic language, Jonathan Owens stated that the theory of transformational generative has been implemented by Ibn Jinni (321-392 H) through the asl’s theory/basic/base and fur‘u/branch [10]. In theory the and fur‘u, Ibn Jinni explained that the asl is an inner structure (deep structure), while fur‘u is the structure (surface structure). The asl in Arabic was the original structure before the word or the sentence was changed, while fur‘u is the result of the derivation of the word or the sentence [11].

According to Tammam Hasan [12], asl is the basic form of a word or sentence is modified in the form fur‘u, a sentence must contain musnad and musnad ilaih, therefore in a discard sentence/hadhf one, or add other elements in the sentence is fur‘ui [13]. Abduh Al-Rajihi explicitly explains that there is a correlation between the meaning of the asl with spiritual significance (deep representation) as the idea of transformation, while the theory of meaning outside (surface representation) is the meaning of fur‘u. Similarly, Ayoub and Bohras cited by Jonathan Owens, declared that the term taqdir (abstract representation) on the basis of the sentence/isl in Arabic grammar has accordingly with the term deep structure. The number of ismiyyah is the basic sentence [14].

3. Methodology

3.1 Research design

This study has applied the qualitative method. The research methods used are:

1. Analysis-Synthesis method. The method of analysis-synthesis in question is to examine and read critically the various explanations of the related figures in their writings so that later gained an in-depth understanding of the issues that are the concentration of research.

2. On the other hand, the study also used the contain analytic approach to the generative grammar of Noam Chomsky, which later resulted in generative transformation theory.

3. In the later stages, the authors will also apply the theory to the verses Al-Qur'an according to the selected cases.

4. As for the presentation, the author uses a descriptive-analysis method. The descriptive method is used, especially for the record and inventory of both figures and then analyze them according to the classification and theme of each and then present them in the form of narrative that is Descriptive.

In the process of collecting data, the authors use a representative technique that is data collection and study the two works repeatedly and cease when no longer finds new things. Then the results will be analyzed and shortened based on their respective themes and categories. This is to make it easier to work with authors to create and classify all the information and data that authors have acquired [15].
4. Research Results

For more details, the author will expose this theory application in Arabic, in which there are some elements that are experiencing the transformation or change, such as [16]:

1. Changes in harakat, caused by the difference in position i’rab [17].

In the matter of the application of this theory in the Arabic language in Al-Qur’an, there is some element that undergoes a transformation or alteration, including the harakat end of a Word. This will be certain that there are examples in the Al-Qur’an about change without vowel marks like this is very much. For example, we just take the word of God that will be found with Allahu with harakat dammah, Allaha with harakat fathah and Allahi with harakat kathrah.

According to author searches based on http://corpus.quran.com/qurandictionary, then will we get 3156 times in Al-Qur’an which peaked at i’rab are different, either in the position of rafa’, nasab as well as jar. for example which shows the change of meaning is the following paragraph very urgent QS. Al-Fatir: 28:2.

2. Hadhf this can be words, phrases in a sentence, even letters and or sentences. This can be done by way of eliminating fi’il, fa’il, mudaf, mudaf ilaih, sifat/na’t, fi’il sharat, sharat and answer and answer gasam, gasam mubtada’, khabar, ism majrur and so on.

According to inner structure analysis (deep structure/البنية الباطنية), in the verse (QS al-Jathiyah: 15) There is a discarded word/ isim that is: من عمل عملا صالحا ، فعمله لنفسه. There are two discarded words/ isim, which is the word عمله as the object and the word عمله as the subject (مبتداً).

3. The addition of (al-ziyadah/additional) Additions (al-ziyadah/additional) i.e. the addition of new elements in the sentence either by adding one or more new words to a sentence that occupies a particular position as to where that happens on the structure atf, taukid, badal, masdar mu’awwal, na’t, man’ut.

As for examples that include the structure of Taukid, as the following example:

إِذَا دُكِتِ الأَرْضُ دَكًّا دَكًّا (كَلاا 12) وَجَاءَ رَبُّكَ وَالْمَلَكُ صَفًّا صَفًّا (12)

In the paragraph (QS. Al-Fajr: 21-23) There is the addition of the word that serves as an amplifier/Taukid namely the word دَكًّا and صَفًّا.

4. Placement of (al-ihlal) in this part, the sentence pattern will undergo a change of sentence structure. It would be very possible patterns like this are very common and certainly, this kind of thing is very much. For example, for the word sīn mīm ʿ ayn (ع م س), it will be found 185 times in Al-Qur’an.

For example, such as: الله سميع علمه, the predicate is occupied by other words, thus becoming الله غفور رحيم. In this section, examples are found in both Al-Qur’an and in other expressions.

4. Compensation, namely the replacement pattern by changing the ism dahir to be ism damir. It has been very ordinary ism zahir was changed to ism damir. So also in the Al-Qur’an, very much found ism zahir changed into a pronoun. According to the author, search patterns such as these are the most widely used.
For example, the author takes the verb khalaqa, then the author finds 184 for the past verb/madhi nor the current verb/will be dating/mudari'. As for verbs that form fi'il majhul, there are 12 times in the Qur'an.

5. The repetition of the sequence (i'adah al-tartib/permutation).
   The technique of repetition of this sequence can be done by rearranging the structure of sentences, either by way of changing the position of one or more words in the sentence, including the sentence changes from a number of ismiyyah be the number of fi'liyyah.

   For example (QS. Al-Ghashiyah: 25-26):

   (إِنا إِلَيْنَا إِيَابَهُمْ) 12 (ثُما إِنا عَلَيْنَا حِسَابَهُمْ) 12

   In that verse, Isim إِنا is the word إِيَابَهُمْ while Khabar إِنا is إِلَيْنَا. As well as the next verse, the word إِنا is as Isim إِنا while the word حِسَابَهُمْ positions as the khabar إِنا. It is inversely proportional to the basic rule stating that the Mubtada' or Isim Inna is usually located before the Khabar or Khabar inna. So the sentence was originally إِنا إِيَابَهُمْ إِلَيْنَا and ثُما إِنا حِسَابَهُمْ عَلَيْنَا.

   Likewise with the following verses (QS. Al-Baqarah: 10):

   مَرَار وَلَهُم عَاَا ٌ فِي قُلُوبِهِم مارَضٌ فَزَادَهُمُ اللّاُ يَكْاِبُونَ أَلِيمٌ بِمَا كَانُوا

5. Conclusion

   This study shows a significant this theory. This is a lot of changes happening on the verbal sentence became a nominal sentence or otherwise, can also happen at taqdim wa ta'khir is more often used, in either the verbal or nominal sentences. For example (QSAl-G ashiyah: 25-26).

   The main conclusion of this reseach is a theory of generative transformation carried out by Chomsky can be implemented into the Arabic Al-Qur'an in all patterns, especially these two patterns. But on Arabic grammar, particularly the Arabic Al-Qur'an, these patterns are very diverse and varied. For example, there is a change in harakat, caused by the difference in position i'rab, al-ziyadah which has lots of pattern or way, so did the placement pattern (al-ihlal) and i'adat al-tartib particularly in hadhf and taqdim wa ta'khir.

   This proves that the language of Al-Qur'an far more Universal than any other world language. Proven by a large number of studies including the TG theory can be applied in the Arabic Al-Qur'an. But Al-Qur'an as The Holy Scripture that salah li kulli zaman wa makan even with the current from non-Muslims theory.

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A Critical Discourse Analysis of Dzawin’s Stand Up Comedy Humor

Tias Sil Romansyah, Didin Nuruddin Hidayat, Alek, Dede Puji Setiono
{tiasilromansyah@gmail.com, didin.nuruddin@uinjkt.ac.id, alek@uinjkt.ac.id, dedepujisetiono@gmail.com}
1,2,3,4UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract - This research aims to describe the critical discourse analysis, the perception of comic and audience, and the content analysis of Dzawin’s standup comedy humor discourse. Dzawin is the third winner of Indonesia Stand Up Comedy contest season 4 (SUCI 4) held by Kompas TV in 2016 and also the third winner of Maharaja Lawak Mega, one of the biggest comedy competitions in Malaysia in 2017. The qualitative descriptive method was employed in analyzing the data. The data were obtained from the video transcript of Dzawin accessed from YouTube. The data were then analyzed by using equivalent/matching method (Padan Method). Additionally, the techniques used were the connect and compare distinguishing technique (teknik hubung banding menyamakan/HBS Technique, hereafter), and connect and compare equation technique (teknik hubung banding membedakan/HBB Technique, hereafter). The results show that Dzawin comedy heavily related to social-cultural construct discourse. Dzawin’s humor discourse clearly shows negative and positive style where he humbly criticizes himself but simultaneously criticizes the society. Dzawin also appears to be a comic delivering the material not only to entertain but also to give some information to his audience. He somehow manages to deliver a moral value on his material of humor discourse. Finally, Dzawin’s humor discourse exposes social problems occurred in Indonesia and attempts to persuade people to fix bad behavior.

Keywords— Critical discourse analysis, humor discourse, stand-up comedy

1. Introduction

Humor is something that can make people laugh. Humor can be found around us; it can be found from texts and talks. Humor also can be found from social phenomena with analyzing, compiling, and then delivering it through speech and action. Humor is subjective because it depends on the context [1]. One feels that kind of humor but the other one does not feel the same. Humor is something that can tickle others to laugh by using physical/ body (slapstick) or utterances [2]. Humor also comes in many forms. It is found all over the world in ordinary conversation, novels, plays, TV shows, and movies. A humor performance could be made by group of people by creating a skit or a play or by a single person delivering the comedy through its actions only such as Charlie Chaplin’s pantomime or by delivering verbal narration such as stand-up comedy show. In other words, humor is an omnipresent phenomenon. By virtue of modern technology, humor in many formats, including a stand-up comedy is now available to the masses. Websites such as Netflix or YouTube offer large amounts of stand-up comedy from a variety of comedians twenty-four hours a day.

The term stand-up comedy usually refers to a humor show performed by a comedian in front of an audience. The contents of performances can vary greatly from one comedian to
another. For instance, one comedian might be known for political satire whereas another comedian may use seemingly vulgar or indecent language. Stand-up comedy is a style of comedy that has its roots in American culture, and it has quickly become a significant part of entertainment and popular culture. The people who do the stand-up comedy called comic.

Stand-up comedy is a natural rhetorical discourse; it is not only to entertain, but also to persuade [3]. In the Indonesian context, stand-up comedy becomes popular since 2011 when Kompas TV, a private media broadcasting company, organized the very first time televised stand-up comedy competition called Stand-Up Comedy of Indonesia (SUCI).

Stand-up comedy is part of jokes, but there is something different or uniqueness from how to deliver it. The comic communication style in stand-up comedy is not just talk like a comedian and conventional skits or plays’ joke style, but also there is critic and satire that is packed with more humorous style. In addition, besides entertaining, there is an aspiration that comes from the comic to against the phenomena that occur nowadays and it also can be new knowledge for audience who watch it. Thus, stand-up comedy could also be regarded as a form of comedy art performance. Usually, a comedian stands up in front of the audience and speaks directly to them with certain message they intend to deliver. The message could be about social or any issues and all are wrapped in a humorous verbal language.

Language in humor especially in stand-up comedy which rely on verbal communication plays a central role. Humorous utterance constitutes a significant portion of stand-up comedy performance and stands as major and universal functions of communication means along with its function to convey information funny. Despite the difficulties to construct theory explaining how language could trigger humor, linguistic approach called discourse analysis attempt to elaborate the matters. Discourse analysis is used widely in a variety of disciplines and there are many different approaches that comprise discourse analysis. In Discourse analysis, language is not only analyzed by describing from the language aspect but also relating to the context. The context means that the language is used for certain purposes and practices. There are four principles of critical discourse analysis: social and political issues, power relations, social relations, and ideologies.

Language used in humor especially stand-up comedy usually is a daily based vocabulary language. Although language in humor seems looks all similar, linguistic evidence shows that humorous language differs from other types of language [4] [5]. However, there is no current research available to support the current theories. What is more, the studies conducted by [4] and [5] solely researched humorous language as found in written texts and not found in other types of humorous language, such as stand-up comedy. Neither seem particularly interested in the workings of the language of stand-up comedy. Furthermore, there are no current studies available where the theories of [4] and [5] tested on the language of stand-up comedy to see whether this type of humorous language adheres to the same theories as written humorous language. Thus, this research trying to fill the gap by focuses on describing the critical discourse analysis, the perception of comic and audience, and the content analysis of stand-up comedian. The standup comedian chosen as the subject in this study is Dzawin as he is one of the prominent stand-up comedian figures in Indonesia. Dzawin is the third winner of Indonesia Stand-Up Comedy season 4 (SUCI 4) held by Kompas TV in 2014 and also the third winner of Maharaja Lawak Mega one of the biggest comedy competitions in Malaysia in 2017. In addition, the researchers were interested to conduct the research about Dzawin’s material as the subject of the research because it seems to indicate that some previous related studies did not concern on stand-up comedy humor in English. Hence, it is necessary to conduct the research in terms of stand-up comedy humor.
To guide this research, the following questions are imposed: 1) What are the characteristics of critical discourse analysis in Dzawin’s stand-up comedy humor? 2) How is the perception of comic and audience in interpreting the critical side of social reality of Dzawin’s humor discourse? 3) What is the classification of discourse based on the content in Dzawin’s humor discourse?

2. Literature Review

Humor such as stand-up comedy has long been gaining considerable attention form researchers. Linguists such as [4] and [5] for instance, have proposed various linguistic humor theories, which describe figurative language features of humorous language found in written texts such as novels and spoken forms such as plays. According to Attardo, humor is an “all-encompassing category, covering any event or object that elicits laughter, amuses, or is felt to be funny” (2010, p. 4). He divides humor theories into three categories: essentialist, teleological, and substantialist. The first two categories are the study of ‘sociolinguistic approaches [4]. He further explains that it is widely recognized that humor research is an interdisciplinary field and that it started with the great philosophers Plato and Aristotle. In those times humor was seen as a ‘mixed feeling of the soul’ and as a ‘stimulation of the soul’.

Similar to Attardo, Nash finds the question as to what makes language particularly funny a difficult one. He even suggests that there is no clear answer to that question. He does mention that some ‘items’ of language (words, phrases, etc.) are ‘intrinsically humorous’, but that the search for the intrinsically funny is a ‘forlorn enterprise’. [5] explains that it is safer to assume that the “properties of humorous expression are defined extrinsically” so that words and phrases seem funny because of their “contextual linkages and semantic relationships” (p. 127).

In a specific form delivery of humor such as in stand-up comedy where the trigger of the laughing from the audience is mainly caused by verbal one way communication, the creation of humor in stand-up comedy is seen as a combination of various linguistic features of joke telling such as wordplay and punning, hyperbole, repetitions, timing, and paralinguistic choices. In addition, the comedians develop a specific stage persona and create their own style of performing. Spontaneity and flexibility are shown to be two of the most important characteristics that a stand-up comedian must possess in order to give a successful performance.

Reference [6] additionally explains four humor styles that correspond to the inclusive and exclusive humor that the might come from standup comedy context. They state that in literature, humor has ‘two positive styles (affiliative and self-enhancing)’ and two ‘negative (aggressive and self-defeating)’ styles. These humor styles represent the ways that individuals use in order to cope with others, relationships and stress in everyday life. They define self-enhancing humor as encompassing personal aspects of humor and referring to a humor style that individuals use to cope with stress, change their perspective about problems or minimizing negative emotions. The other positive humor style, affiliative humor, is described as a humor style in which individuals focus on others while not ignoring their own needs, it is used in a “respectful manner (toward oneself and others)” and is often used to improve relationships and interactions among people.

The first form of negative humor is aggressive humor, a style of humor in which individuals use humor in a socially inappropriate, detrimental way in the expense other in order to satisfy their own needs about their superiority and pleasure. The last type of humor they describe is self-defeating humor or ridicule humor. This is a humor style in which individuals do not regard their own needs and constantly bash and denigrate themselves in a
humorous way’ in order to deny their true feelings and to pretend to be happy in order to make ‘others also fall into this category.

As stand-up comedy is not merely about delivering humor but have a message to deliver as well, analyzing the language used in this type of humor performance requires a discourse. Reference [7] reports that studies of discourse analysis which could be employed to investigate any utterances can be classified along two different theoretical dimensions. The first dimension deals with the significance of text versus context. The second dimension is concerned with the extent of studies that focus on power relations versus studies that focus more on processes that constitute social reality. Reference [7] identify four major perspectives that are used in empirical studies from these two axes: social linguistic analysis, interpretive structuralism, critical discourse analysis and critical linguistic analysis.

Critical discourse analysis can be used to analyze how discourses shape stereotypes and social structures. Reference [8] posits that discourse analysis and its relation to power should be an analysis of power effects. Similarly, Reference [9] asserted that critical discourse analysis is a type of discourse analytic research that primarily studies ways in which abuse, dominance, and social power inequalities are enforced, reproduced, and opposed by texts and speech in social and political context.

Additionally, the purpose of critical discourse analysis is to express some of the hidden and invisible values, positions, and perspectives and critical discourse analysis also starts with the assumption that language use is always social and that discourse both reflects and constructs the social word [10]. Discourse analysis uses language in the text to be analyzed, but the language analyzed is different from the study of language in terms of traditional linguistics.

Some studies have been conducted regarding to this humor and discourse analysis issues. Reference [11], for instance, has conducted the study of critical discourse analysis of Abdurrahim Arsyad a comic from stand-up comedy season 4 (SUCI 4) on Kompas TV. In her study, she mentions that there were three aspects to be analyzed; 1) the characteristic of critical discourse analysis in Abdur’s humor discourse; 2) the perception of comic and audience, and the last was 3) the classification of discourse based on the content of Abdur’s humor discourse. Reference [11] reveals that Abdur’s stand-up comedy is all about the use of the political power. Politicians are more concerned with the problems of elite politics and party members than the issue of public interest. Abdur also criticized the government about discrimination of eastern people and disappointment with the government in eastern people who lacked the government's attention.

In addition, in the humor discourse delivered by Abdur as [11] argues also criticized education, infrastructure, social needs, information technology, social inequality issues, Indonesians who do not care about their art and culture, low performance in sports, and lack of government assistance to social health in remote villages. The context as a comic that cannot hinder from Abdur's life background makes people express social problems. Abdur's perception and audience is that Abdur's humorous discourse has something that can arouse audience interest, not only for entertainment but also for messages that make them pay more attention to the environment around them.

3. Methods

This research discusses about critical discourse analysis of Dzawin’s stand-up comedy humor. The method used in this research was qualitative descriptive. The data were collected from video of Dzawin on YouTube. The researchers transcribed the transcript of the video in
order to make it easy to interpret the data. After transcribing and selecting the data, it was necessary to examine them thoroughly in order to identify categories for the analysis. The study applied content analysis in order to devise a cohesive description of the phenomenon in question. The data were analyzed by using equivalent/matching method (Padan Method) proposed by [12]. The equivalent used is referential equivalent, namely the determinant of the reality designated by language. The data analysis techniques used in this research is a form change technique (*teknik ubah wujud*). The data were in the form of oral discourse, and then were changed into written discourse. The data were then later paraphrased in order to clarify the discourse. Additionally, the techniques employed in this study are the connect and compare distinguishing technique (*teknik hubung banding membedakan*/HBB Technique) and the connect and compare equation technique (*teknik hubung banding menyamakan*/HBS Technique).

4. Findings

A. The characteristic of discourse analysis in Dzawin’s standup comedy humor

*Action*

The discourse that shows action in Dzawin’s stand-up comedy humor discourse can be seen from the following utterance.

“…I hope you can understand my English because sometimes I don’t really even understand what I’m saying. I write down all my materials from Indonesia into the English and memorize it even the word I write down all my materials and memorize it and memorize it.”

Based on his utterances above, it can be seen that he realized that he had to speak English in delivering his comedy humor discourse because he was in Malaysia and the audience was Malaysians in which should be considered and treated as international audience in which they do not share the same mother tongue with Dzawin.

*Context*

The discourse that shows context in Dzawin’s stand-up comedy humor discourse can be seen from the following quote.

“…I’m Indonesian. I come from Indonesia, so maybe you never see a funny Indonesian in Malaysia”

Based on his utterance above, it can be seen that there is a different humor between Indonesia and Malaysia. Something funny in Indonesia may not be funny in Malaysia because of the different contexts between the two.

Another discourse that shows context in Dzawin’s stand-up comedy humor discourse can be seen from the following quote.

“…we usually come to Malaysia not to be a funny Indonesian but to be a hard-working people”
Based on his other utterance, it can be concluded that Indonesian people who come to Malaysia are not normally to be a comedian, but they prefer to be a hard worker, for instance Indonesian labors (TKI), businesspersons, entrepreneurs, or other.

B. The perception of comic and audience in interpreting the critical side of social reality of Dzawin’s humor discourse

Perception of comic or Dzawin in interpreting the critical side of social reality of Dzawin’s humor discourse

The gist of some discourse material of Dzawin is about social-culture of Indonesian. He seems to indicate that Indonesian people when going to the mosque they will lose their slippers or shoes. It means that the Indonesians are still lack of good manner.

Perception of audience or the researcher in interpreting the critical side of social reality of Dzawin’s humor discourse

We are as audience obtain a lot of information from Dzawin’s humor discourse material. It seems not only to entertain but also to persuade us to be better people. Through stand-up comedy, all his materials consisted of moral value. For instance, as an Indonesian, he or she realizes that stealing is a bad attitude. Having said that, in Islam religion, stealing is forbidden and people who do it will get punishment (sin).

C. The classification of discourse based on the content in Dzawin’s humor discourse

Social-cultural Discourse

The discourse that shows social discourse in Dzawin’s stand-up comedy humor discourse can be seen from the following quote.

“…I always go to the mosque, I always lose my slipper, and I always go to the mosque, I always lose my shoes”.

Based on his utterance above, it can be seen that some of Indonesian have bad attitude, for instance taking other people slipper or shoes. As we know, stealing is bad attitude and people who do it will get sin in Islam.

5. Discussion

Dzawin stand-up comedy seems to combine both positive and negative styles of humor where he humbly attacked himself and as well criticize the society surrounding him. In humor theory, he appears to employ self-defeating style or “ridicule” method. Ridicule is features of the joke telling techniques that display impoliteness and aggressiveness. The ensuing laughter on the recipients' part stresses their agreement and therefore strengthens the intention of excluding a certain group. Reference [4] further distinguishes various types of ridicule and also presents "private ridicule", "shared-ridicule" and "self-ridicule". Private ridicule is distinguished by the fact that "the butt of the derision is absent and unlikely to hear of the wit, or dead and buried". This provides an opportunity to express overt hostility towards authority
and can therefore even cause a feeling of solidarity among like-minded people against the person who is the butt of the humor.

Shared ridicule is being used when the jokers deride themselves and their audience at the same time. In this study, it is found that Dzawin use shared ridicule when he addressed shared Muslim behavior that he sees is not appropriate. By ridiculing someone or something, the speaker wants to express hostility and superiority by criticizing the behavior of a specific person or group in question. In stand-up comedy, people principally encounter private and shared ridicule, the aim of which is to focus on a specific person or group by presenting them as ridiculous and silly.

As Dzawin delivered in his comedy, there are as well many joke topics that could be shown on a humor performance. Jokes can be based on, for instance, politics, entertainment, ethnic jokes, self-disparaging humor or even taboo ones, exploiting topics that are not often discussed openly or in a joking manner in society [13].

It might be easy to assume stand-up comedy to be purely a collection of jokes. Many of the jokes in stand-up comedy performances are dependent on the context that they are told in. For instance, it can be observed that comedians often use a particular broader theme for a large number of jokes such as Dzawin jokes about people and mosque. Thus, removing these jokes out of the context of the performance may result in different response from the audience.

The other features that separates Dzawin from the crowd is that he not only tells humorous stories for entertainment purposes, but that these stories actually move people. From the way Dzawin addresses his audience, one notices that he is very critical of many aspects of the Indonesia and its inhabitants. This is another characteristic of humor: it can educate as well as entertain. In his stand-up acts Dzawin also applies some political satire. Since satire is a genre of comedy that is “directed at ridiculing human foibles and vices” in order to “expose and censure such faults” ([14], p. 21), political satire specializes in exposing these faults in the realm of politics. Political satire forms a part of Dzawin’s shows, mostly when he discusses social issues.

According to the analysis above, Dzawin is a comic that delivers the material not only to entertain but also to give some information. He somehow managed to deliver a moral value on his material of humor discourse. In the research as the context as comic, Dzawin from his humor discourse tried to expose a social problem happened to Indonesian and persuade people to fix that bad attitude. Furthermore, in the audience’s point of view, the overall materials that Dzawin explained have relatable daily based comedy. That way, he was able to indirectly ask the audience to have a better attitude. All things considered, based on Dzawin performance in terms of characteristic of discourse analysis, perception of audiences, and classification of context on the content have very meaningful material to ponder.

6. Conclusion

Stand-up comedy is one of the media to expose a social phenomenon through humor discourse. In this research subject, the vision and mission of Dzawin in delivering material jokes in his standup comedy appears to fulfil that role where his humor intends to educate the society and is not just solely for entertainment purpose. On the other side, this study showed that figurative language does add to the persuasiveness of Dzawin’s message for it is the function of rhetorical devices to persuade an audience. Since Dzawin uses many of such devices in his utterances, their persuasiveness is thus enhanced. Dzawin humor discourse clearly show negative and positive style where he humbly criticizes himself but at the same time, he also criticizes the society. He seems to be doing it on purpose to create humorous
instances because when there is something incongruous, stimulating surprise, or a sense of superiority in the laughter, the audience are likely easier to receive the message of the jokes. One could thus argue that incongruity-based jokes, as Dzawin did, make up the bulk of jokes. It might play a crucial role in humor as a social phenomenon, as most humor is based on violations of socially or culturally agreed norms.

References
Ideological Path of Science and Islam Integration in The Context of University Management

Sururin1, Jejen Jaenuddin2, Edy Sanjaya3 and M. Muslim4
{sururin@uinjkt.ac.id, jejen.jaenuddin@uinjkt.ac.id, edy.sanjaya@uinjkt.ac.id, abahtaqy1963@gmail.com}

1,2,3,4 UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. This study is essentially intended to reveal more about the pattern of the right management to manage the interaction of science and Islam at the Islamic university, especially in the process of learning and studying of the natural sciences such as physics, chemistry, biology, and mathematics. This management model is important to find because there are some practices of the existing management types that offering dogmatic approach, being exclusive in the use of references, being normative, attributive and many other forms. The methodology that we use is the qualitative method, with interviews as data collection techniques with the principle of snowballing which in practice follow the advice of a previous interviewee about who is the most competent for the next interview. To add to the completeness of the study, the researchers also conducted an analysis document, especially for books or papers wrote about the integration of science, especially to explain how this concept implemented either at the level of department and universities, both at the conceptual level as well as at the curriculum formulation by faculty and students. Temporary findings show that there are complexities ontologically, epistemologically, and axiologically in determining the relationship pattern of science and Islam in the context of managing it at the Islamic university particularly in relation to the formulation of curriculum, research, teaching, and other aspects that interact with both. Ontologically, this discourse seems unfinished. Epistemologically is much less. In Axiological, or rather pragmatically, the pattern is well set. Pragmatically, there is an obvious tendency that there should be an appreciative mechanism for Muslim scientists in the past and in the present by giving priority to cite their works more than the works of non-Muslim scientists. Also there is a need for Muslim scientists now to be proportionally normative in their scientific works. These models usually require Muslim researchers to cite more Quran verses in their scientific publications, or even in their research proposals. From the flash of the above results, it appears that the urgency of this research is how the Islamic university can manage the harmony between science with its scientific method, and Islam with its dogmatic and pragmatic principles. With one goal, that any scientific discovery produced by the university can remain valid scientifically.

Keywords: The integration of natural science and Islam, Normative Islam, the State Islamic University (UIN), Islamic studies, science and Islam, Islamic University Management

1. INTRODUCTION

These topics have been selected for discourse on integration or rather the relation between science and Islam [1][2][3] in Islamic university as it has not been completed yet in detail to explain how this concept should be applied from the university level to study programs, especially those related to the natural sciences. Epistemologically, this concept also interfere/affect the substance of the science itself, especially when scientific methodology [4], or what is claimed as the scientific method, used for studies of natural science at the Islamic
university in the areas grazed pragmatism and dogmatism, or Islamic when it should be scientific. In addition, another aspect is the tendency of reducing the scientific validity by being Islamically normative and attributive in scientific work also continued. In practice, this happens when researchers and students cite Quranic verses in scientific publications, or in their research proposals [5]. The kind of citations where spirits to make claims that scientific findings today has long been mentioned in the Quran [6][7]. But there is also the nature of the new interpretation of the verses of the Koran to justify specific findings [8]. In addition, the attributive elements of the scientific work also occur in the form of including attributes of Islam in the covers of Muslim scholar scientific books, or also in scientific journals. Based on the findings like that, this study aimed to explore the appropriate management model in managing the integration of the concepts of science and Islam including the implementation in the academic activities in a more practical way.

In this context, a balance between the status of being scientific and being pragmatic for humanity is worth researching. As well as the status of positivistic and pragmatic, modern and post-modern, is not less important. The benefit of this study is to formulate the integration of science and Islam at a philosophical level (ontological, epistemological, axiological), at the level of implementation (attributive, normative, substantive), also at the level of the more practical as it should appear in the vision, mission of university, being institutionalized in science consortium, being practical in university management system and formally present at RKL. Thus, the integration of science and Islam will automatically become part of the university management. So, the existence of this concept can be clearly identified within an institution, but also has a strong philosophical basis either in the ontological, epistemological, and axiological level. However, the scope of this study will not be too detailed to the formulation of practical curriculum, although a short summary may be provided. This is because of its connection with the discussion of specific natural sciences such as Physics, Chemistry, Biology, Mathematics and others. It would be too detailed to formulate the curriculum for the study programs of these disciplines.

Here's the research question that we have formulated: What kind of guidelines of policy (management system) that is suitable to manage the differences between the principles of science with Islamic values is an Islamic university? Is the concept of the integration of science and Islam the final model in the management of science and religion in UIN? What concepts have been developed besides this integration model?

2. THEORETICAL FRAMEWORK

Historically, sacred texts before Christ have fulfilled at least three types of wisdom, namely: wisdom about justice in society (social justice), wisdom about the secret of creation (divine), and wisdom about interaction with the natural environment from plants, animals, to heavenly bodies (science) [9]. For example, in Rigveda, one of the religious texts from 1700 BC, tells the story of the efficacy of Soma mushrooms [10][11] which its truth has until now been scientifically examined. Similarly, the astronomical system invites modern scientists to examine it scientifically [12]. But of course Rigveda not only tells knowledge, but also tells about the rights of human in community life [13].

There are many repetitions of the teachings that exist in the texts substantively in the Quran. Therefore, it is not surprising that then the Quran also unites all the wisdom in its entirety. The Quran not only contains divine dogmas, but also regulates the laws of society, and provides explanations about nature including the origin of heavenly bodies.
In this context, the integration of knowledge and religious teachings has occurred in various ancient scriptures, even in pre-Christian inscriptions including texts on pyramid walls and coffins of Egyptian kings [14]. In its progress, especially in the modern era, science seems to separate itself from other aspects, such as divinity and social justice. So that there is a kind of exclusivism of science, with its slogan “science for science”. Therefore, the most strategic hypothesis of this research is that the integration of science and religious values is not new in a value system. It's difference resides on the fact that in the days before Christ and in the holy books after that, this integration occurs in a sacred text as a whole, while what is carried out now is more on a concept that wants to be applied in an Islamic higher education specifically aspects, such as divinity and social justice.

3. RESEARCH METHODOLOGY

In contrast to quantitative research that is interested in numbers, qualitative methods of research focus more on the meaning of the respondent's experience, a process of naturalistic inquiry that seeks an in-depth understanding of social phenomena in its natural environment. Therefore, this method relies on direct human experience as agents of meaning in their daily lives. This is a contradiction with quantitative methods that are very strict with statistical procedures. Qualitative research is more on the search for objective meaning by using several systems of inquiry for the study of human phenomena including biography, case studies, historical analysis, discourse analysis, ethnography, grounded theory, phenomenology and others. Ontologically, science is one of many ways to know that depends on other elements in life [15], whether objects or living things. In this context, knowing is a social construction that depends on the scientist's beliefs and values, also depends on the measurement model resides in his/her mind. In other words, what is called scientific objectivity is essentially a subjective interpretation of the natural and human environment in which a researcher lives and interacts with them [16].

In this context, this research wants to gain a deeper, subjective understanding of the scientists involved or having intersect with the initial concept of the integration of science and Islam in its various models. First, philosophically, it wants to express the ontological, epistemological and axiological foundations. Second, within the milieu of implementation, it wants to see models of its application in academic life both attributively, normatively and substantively. Third, in the context of higher education management, this study also wants to see how the concept of integration of science and Islam goes down into statute, management system, and systemized in higher education governance system in general.

The respondents to be interviewed consisted of three categories. The first category is those intellectuals who try to share the concept of integration of science and Islam as an open scientific publication that is not directly related to higher education policy. Usually, respondents of this model are the main initiators and understand their ontological and epistemological flow. Included in the category of the first respondent was the initiators of the science integration model at UIN (state Islamic university) as well as the initiators of this concept in universities other than those under the auspices of PTKIN. In principle, from this respondent, the researchers want to explore the ontological and epistemological foundations of the concept of integration of Science and Islam.

Respondents of the second category is those scientists of natural science study programs such as chairmen and secretaries of department of biology, physics, chemistry and so on. From this type of respondents, researchers want to obtain information about real practice in
academic life, how the concepts of integration of science and Islam are carried out in their study programs. What are the advantages, disadvantages? What are the criticisms, and input?

The third category of respondents are those who are practitioners with academic position who implement the concept of integration of science and Islam into university policies such as statutes, strategic plan, and in the management system of Islamic higher education. Sometimes this third group of respondents concurrently with the first and second groups of respondents. However, we tried to sort out so that the respondents really mastered what we asked because it was indeed their daily work. After all the data collected, researchers will collect interviews and categorized the results into themes such as those described above, namely, those who provide the ontological explanation, epistemological and axiological. Then there is the theme of implementation relating to the implementation of the integration concept and its character, weather they are attributive, normative, or substantive. There are also themes of the implementation of this concept in the managerial level, such as how to make them an applicable concept in a consortium of science that have an organizational structure which is not only recognized in university management but also set out clearly in the statute so that they obtain an adequate financial reward.

4. RESULT AND DISCUSSION

Doing this research is an intellectual pleasure in itself because the researchers can meet with several other researchers and thinker who have high educational background, and with experience in their field that is more than adequate. High awareness as scientists on the one hand, and by the fact that they are working in a higher education institution Islam really is a combination that makes them different scientists, particularly from other scientists in universities that do not have religious attributes. Nevertheless, every Islamic university interacts uniquely with scientists that they have recruited from the academic environment in the vicinity. This gave rise to the concept of the integration of science and Islam with different shades that are very likely influenced by the culture of the society and the academic culture of the surrounding environment.

This condition is in some measure answers the first research question that indeed there are forms of integration among Islamic universities. For example, UIN (State Islamic University) Bandung [17] has very strong elements of West Java culture where Muslims are more intense than, say, in Jakarta. The concept of the Integration of science and Islam of UIN Bandung with the slogan "Revelation is Guiding Science" really reflects strong Islamic cultures of West Java. The shape is so clear from its philosophical landscape, academic implementation, up to its management in its education administration [18].

While on the other hand, Jakarta, is more open, and its integration of science and Islam adheres the principle of coexistence. It tends to be amorphous and not freezing in any document, clearly and in detail. It's just that the concept was stated clearly in his vision, which reads: "UIN Syarif Hidayatullah Jakarta is towards a world-class university by the integration of science, Islamic values, and Indonesian-ness". The clarity of Islam and science integration in its university vision apparently not accompanied by adequate supporting documents. The works on the integration of science and Islam at UIN Jakarta still scattered as works of the lecturers and professors, and no single work legally enshrined as an authentic reference for the integration of science and Islam of UIN Jakarta. Much further than just the model that is developed, no less important is how the concept of the integration of science and Islam was apparent not only in the various works and scientific publications such as books, journals, and
From several interviews that have been conducted, established guidelines and policies like this is not easy as it relates to philosophical building and academic life. For that reason, every Islamic university is different in realizing it. UIN Jakarta as previously described does not have a clear guideline on this. The presence of the Rector Decree No. 864 Year 2017 on Guidelines for Integration Studies at Syarif Hidayatullah Jakarta actually looked simplistic and not lived up to the level of study programs. In other words, the presence of this Decree does not have much effect into its implementation.

Different from UIN Jakarta, UIN Bandung has better guidelines and policies on integration of science and Islam, much more detailed. However, as it is too detailed, to a certain degree observer can see that these policies and guidelines are in scrabble into scientific authority. In their policy, it is written that works such as theses, theses, and dissertations should refer to the works of Muslim scholars from the percentage of 30% up to above 70% [19]. Of course with clear arguments, and supported by an adequate number of publications of books. However, is this model of policies and guidelines in UIN Bandung the right model for managerial and administrative implementation, for the integration of science and Islam. It is still to be waited for quiet sometime, given the existing policies and guidelines are still in the experimentation process that has only been running for a short period of time.

Yet the next question is, whether the concept of the integration of science and Islam a dead end in the governance of science and religion in Islamic higher education? From some respondents, it is revealed an awareness that in fact, even without this model of integration, the presence of elements of science and religion is not new and does not belong to Islamic universities authentically, universities of other faiths have also remained with the same issues. And there are several models in which in a large current is allowed to flow away naturally without any Intervention. UIN Jakarta is simplistic to meet these criteria. Because despite Rector decree is governing the integration of science and Islam, in practice no detailed guideline is provided, and therefore the practice of this concept goes naturally. This reality perpetuates the birth to many models. There is a normative model of Islamization of science, for example. There were accommodating the works of Muslim scientists. And there is also a model that is mired in an effort to blindly match Quran verses with scientific findings. However, the study revealed that the integration model and Islamic Studies will not end soon and become crystallized in one model. Various forms are rolling, like Tsumul integration concept initiated by UIN Riau [20], or tree Science of UIN Malang [21]. Substantively not less interesting is how the concept of the integration of science and Islam can answer the challenges of science, especially related to major scientific discoveries. This is problematic because on the one hand, scientific discoveries are the result of academic work that is created through a process of scientific method.

However, on the other hand those discoveries are in contrary to the principles and values of Islam, especially when they relate to the divine territory such as fate, death, and the origins of living things.

Preliminary findings are that according to our respondents, applied sciences of biology is the science that is associated with the values of destiny and divinity, particularly biotechnology. Biotechnology, with the findings in the form of genetically modified products for example, raises questions among its researchers. On the one hand, Muslim scientists in this field really practice their knowledge purely based on scientific principles in their labs, but on the other hand they have a moral dilemma because they thought that they had intervened in the
destiny of divinity on living creatures. While other science, in the same field but different branches such as ecology, does not experience this moral dilemma.

5. CONCLUSION AND SUGGESTION

Ontologically, the integration of science with religious values and social justice has been a fact since the era of Ancient Roman. And is also written in other sacred books such as Torah, and the Gospel. In principle, in these texts, we found three elements of science, divinity and social justice that is incorporated in the form of laws within their society in general. Therefore, when a university adopts the value of a particular holy book like the Quran, it is not surprising that the demands to package these three values in an integrative concept continue to emerge.

Epistemologically, the integration of science and Islam should be able to harmonize the positivistic demands on the one hand, and the pragmatic demands on the other. In other words, the science, that is created in Islamic Universities, need not only to be scientifically true, but also need to be pragmatic in favor of the prosperity and well-being of humanity. The scientific discoveries should be put in the contexts of how they can have benefits for humanity when they are applied in real life.

In axiological level, the implementation of the integration of science and Islam should not be too concentrated on attributive and normative gains, but also must be able to compete substantively with the scientific works produced by non-Muslim scientists. As without substantive quality, scientific works of Muslim scholars will only be an accumulation of pseudoscience publication which would only exacerbate the image of the university and Muslim scientists.

REFERENCE

An Analysis of Basic Skills Teaching the Biology Pre-Service Teachers Based on Model Core Teaching Standards in PLP Program at an Islamic University in Jakarta

Sujiyo Miranto
{sujiyo@uinjkt.ac.id}
UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. Basic teaching skills are needed by teachers in learning. The PPL II program was designed to introduce students to real teacher assignments. The research problem of this research is how the basic skills of student teaching are in the perspective of the supervisor, while the research objective is to find out the basic skills of teaching students in the PPL II Program. This is a descriptive research with a quantitative approach. The samples of this study sample were 6 PLP II program supervisors. The research technique used is direct observation in learning activities and direct communication with the supervisors. The data were collected by using observation sheets and instruments about core teaching standards consisting of 9 standards: (1) the skills of developing learning scenarios, (2) the skills of opening lessons, (3) the skills of explaining, (4) the skills of asking questions, (5) the skills of managing learning, (6) the skills of developing variations, (7) the skills of using instructional media, (8) the skills of providing reinforcement, (9) the skills of closing the learning. The research conclusions are: (1) the lowest skill with a good category is explaining skills of 71.77%. (2) the highest skill with a very good category is the skill to use learning media at 79.58%. Overall the basic skills of teaching students have good criteria. The PPL (Profesi Pengenalan Lapangan – teaching practice) II is an apprenticeship program for students majoring at teacher training department. This study aims to identify whether or not the students who were in the PPL II program have acquired the Basic Skill namely, (1) the skills of developing learning scenarios, (2) the skills of opening lessons, (3) the skills of explaining, (4) the skills of asking questions, (5) the skills of managing learning, (6) the skills of developing variations, (7) the skills of using instructional media, (8) the skills of providing reinforcement, (9) the skills of closing the learning. This study quantitative descriptive study involved 6 teachers who supervised students at the PPL II program. Drawing on data from classroom observations and interviews, the study revealed that students at the PPL II program have an excellent competence in using learning media, but they need to enhance their in terms of explaining learning material.

Keywords: Basic Teaching Skills, Core Teaching Standards.

1. Introduction

Basic teaching skills are very important and needed by prospective Biology teachers to carry out good learning. Teaching success is determined by some factors such as ability, motivation, student activity, completeness of learning facilities and learning environment,
which is also influenced by the ability of teachers to develop various teaching skills [1]. One way that can be done to improve the teaching skills of prospective biology teachers is by practicing direct learning in schools. Each educational institution has a different way of preparing prospective teachers to be skilled in managing learning.

The Biology Education Study Program UIN Syarif Hidayatullah Jakarta has a School Environment Practice (PLP) course, which aims to prepare, foster, and improve the quality of graduate teacher candidates who meet the teacher’s professional standards. The basic teaching skills that teachers have can be used to carry out tasks according to their competencies so they can be used to develop students' potential[2].

At present, there are no data available about the basic skills of teaching students after taking these activities (PLP). The unavailability of these data causes the unknown success of learning programs related to the basic skills of teaching prospective teachers after participating in this PLP activity. Therefore, researchers are interested in examining the basic teaching skills of prospective Biology teachers who have participated in the PLP Program according to the perception of the supervisor.

Biology education students as prospective biology teachers still need guidance to possess knowledge and pedagogical skills in science content [3], [4] Meanwhile research conducted by Nurjahni et al. (2012) proves that aspects of teaching skills that are still low in prospective biology teachers are aspects of determining the appropriate form of assessments and compiling their rubrics [5]. Research by Nurasiah and Supriatno (2015) found that although biology teacher candidates already have the ability to plan and implement learning, skills in conducting assessments still need to be improved [6]. Husnawati's research (2014) shows that only a small proportion of prospective biology teachers are able to give appropriate questions and have good questioning techniques [6]. The results of these studies indicate that the education of prospective teachers still needs to be improved, because the quality of teachers is closely related to student’s achievement [6].

Teaching skills are the ability to specify performance goals, diagnose students, choose teaching strategies, interact with students and assess the effectiveness of teaching [7]. Basic teaching skills consist of explaining skills, asking questions, using variations, giving reinforcement skills, opening and closing lessons, small and individual group teaching skills, class management skills, and discussion guidance skills [1], [8].

The Council of Chief State School Officers (2010) states that in order to find out the teaching skills of prospective teachers who are professional in teaching, a core teaching standard model is found which is the development of the microteaching model. This model emphasizes more on three aspects, namely: performance, knowledge and disposition that must be possessed by the teacher [9]. This research is the first step to identify the basic skills of teaching of biology teacher candidates and efforts to overcome the problems encountered by biology teacher candidates in PLP activities.

2. Methodology

This type of research is a qualitative research study to analyze the perspective of PLP supervisor on the basic skills of teaching of prospective Biology teachers which consists of aspects of composing learning scenarios, opening skills, explaining skills, asking skills, managing the learning process, creating variety skills, using instructional media, providing reinforcement, and closing the learning.

Based on the indicators of basic teaching skills, it is then developed the learning assessment rubric. The data obtained from the assessment rubric filled by lecturers and
supervisors by giving a score of 1 to 4 with a value of 1 (very unskilled), 2 (unskilled), 3 (skilled), and 4 (very skilled). The quantitative data obtained were analyzed to see the level of basic teaching skills of the prospective biology teachers.

The sampling technique used purposive sampling. The research locations are 6 (six) partner schools in the South Tangerang area where PLP activities are carried out. The research subjects were 60 prospective biology teacher participants in PLP 2019. To find out the perceptions of supervisors regarding the basic teaching skills of students, the data were collected through a questionnaire given to 6 supervisors and 6 tutors to provide feedback on the basic teaching skills.

Data validation is done by using two types of triangulation, namely: first, the triangulation of data sources in the form of information from places, events and documents containing notes related to the intended data and secondly, triangulation of techniques or methods of data collection derived from interviews, observations, and document. The data were analyzed by qualitative descriptive by describing and presenting all problems. The data analysis in this study used the steps of the Mills and Huberman model, namely data reduction, data display, and verification.

3. Result and Discussion

3.1 Skills of Developing Learning Scenarios

The skill of developing learning scenarios is a skill that aims to arrange the steps of learning activities. The basic skills of teaching prospective biology teachers if analyzed from the aspects of the skills to compile a learning scenario included into good criteria (76.04%). The results of this study are in accordance with the study of theories that have been presented previously, that the skills of developing learning scenarios will determine success in learning. It also means that the prospective biology teachers had the skills to prepare learning scenarios with a variety of strategies and techniques in learning. With this ability, the prospective biology teachers have been able to choose what technique which was most appropriate related to the psychological development of students and the level of material difficulty faced [10]. But there were still 23.06% of the teacher candidates who had not mastered this skill or had in a less skilled condition.

3.2 Skills of Opening the Lessons

The skills indicator of opening the lesson in this study which was observed consisted of skills to provide motivation, skills to attract the attention of students and the skills to do apperception. The skills to provide motivation were categorized as unskilled conditions (16.67%), skilled conditions (65%) and very skilled (8.33%). While the skills indicators attracting the attention of students obtained the data as unskilled data (21.67%), skilled (58.33) and very skilled (20.05%). Apperception skills obtained data of prospective biology teacher as already skilled (16.67%), skilled (75%) and very skilled (8.3%) in doing apperception.

With these conditions, the prospective biology teachers had different skills in opening the lessons. Some ways that were done were checking the attendance of the students and the readiness of students, and asking about the conditions of the students. As for the indicator of apperception, it was conducted by discussion, focusing students' attention and giving students assignments.

3.3. The Skills of Explaining
The skills of prospective biology teachers in explaining the lesson were in good criteria (71.77%). When explaining, the prospective teachers did the explaining skills systematically. They were able to provide illustrations with simple drawings so the students could easily understand the lesson. The prospective biology teachers were also able to relate the lesson to the daily lives of the students. The quality of the lessons described by the prospective teachers had good qualifications.

When explaining, the teacher candidates did emphasis on certain parts to focus the attention of the students. The skills of explaining of the prospective biology teachers on the indicators of the ability to express and avoid unnecessary words are obtained by unskilled data (21.67%), skilled (58.33%) and very skilled (20.00%). The indicator of skills in compiling sentences that were easy to understand is obtained as unskilled data (26.67%), skilled (56.67%) and very skilled (16.67%).

For indicators of skills of avoiding dubious terms the data showed as unskilled (25.00%), skilled (58.33%) and highly skilled (16.67%). For indicators of clarity of sound the data indicated as unskilled (30.00%), skilled (30.00%) and highly skilled (13.33%). The results of this study are in accordance with the opinion of Marno and Idris (2014) that states when explaining, teachers must provide opportunities for students to explain their level of understanding. This explaining skill will have an impact on more directed learning activities in accordance with the expected competencies.

3.4 The Skills of Asking Questioning

Questioning skills are one of the competencies that the prospective teachers must have. From the data, it was obtained that questioning skills were categorized as the unskilled (8.33%), skilled (81.67%) and very skilled accounted for 10.00%. The indicator of paying attention to the lag time of the students in delivering answers showed percentage of unskilled (18.33%), skilled (75.00%) and very skilled (6.67%). The indicator of giving feedback after the questions are answered indicated as in the unskilled (21.67%), skilled (71.67%) and very skilled (6.67%) categories.

Questioning skills are needed to provide stimulus to the students to comment and perceive students' understanding. Questions addressed to the students are not always easy or difficult but must vary. Overall, the skills to ask for the prospective biology teachers are in the good category (73.47%). The results of the observation found that the prospective biology teacher still had difficulty in asking questions due to the lack of technical ability to ask questions. The ability to ask is the ability that will develop along with students' teaching experience. The distribution of questioning skills in learning is uneven, hence, the prospective teachers tended to ask certain students who were considered to be able to respond.

3.5 The Skills of Managing the Learning

Managing learning is an attempt by the teacher to understand the condition the classroom atmosphere in order to create an optimal learning climate to support the success of learning. These skills are some things the teachers must master in order to be able to manage the learning; understand the characteristics of students, master the material, master the strategy, understand how to divide the attention to students, manage learning activities in groups, and solve problems encountered during the learning process [11].

The skills to manage learning in term of the indicators of presenting teaching materials that are relevant to the learning objectives are in the unskilled (15.00%), skilled (15.00%) and very skilled (18.33%) categories. Skill in managing learning for the indicators of enthusiasm in
learning activities are in the category of unskilled (15.00%), skilled (63.33%) and very skilled (21.67%).

3.6 The Skills of Developing Variation

Variation skills in learning belongs to skilled categories. This conclusion is based on the results of the analysis of data trends shown in the indicators of variation in the use of instructional media in the category of unskilled (30.00%), skilled (51.67%) and highly skilled (18.33%). For indicators of sound variations, eye contacts, body movements, and expressions are in the category of unskilled (23.33%), skilled (58.33%) and very skilled (18.33%).

The results of this study are in accordance with the theoretical studies described previously. Variations made by the teacher in learning such as variations in language, movement, appearance, and media will affect learning. This is because the various types of variations developed will increase the enthusiasm of students who have an impact on increasing students' understanding.

The variations made by the teacher will convince and encourage the seriousness of students in participating in learning [11].

3.7 The Skills of Using Instructional Media

Learning media are important parts of the learning process which must be considered in learning to facilitate students in learning. The skills of using instructional media are in the unskilled (11.67%), skilled (58.33%) and very skilled categories (30.00%). The recapitulation results of closing the lessons showed good result that was equal to 73.47%. Observation results proved that the prospective teachers invited the students to make learning conclusions. Each prospective biology teacher has a different way of guiding students to conclude the learning.

There are prospective teachers who concluded the learning by guiding the students to provide arguments about the lessons they have learned. In such way, the teachers could find out whether the students have understood the lessons delivered. While other teacher candidates formulated conclusions by giving notes to the students to be developed into a sentence.

3.8 The Skills of Providing Reinforcement

Strengthening is the teacher's activity to increase the motivation of students to be more active in learning. The skills to provide reinforcement for indicators showed good attitude and attractive facial expressions when giving reinforcement which were the unskilled (6.67%), skilled (80.00%) and very skilled (13.33%) categories. The skills of strengthening for indicators in which the strengthening was given according to the ability of students belonged to the category of unskilled (21.67%), skilled (68.33%) and very skilled (10.00%). The skills indicators provides reinforcement of material that is important to be mastered by students. This skills are in the category of unskilled (20.00%), skilled (70.00%) and very skilled (10.00%). The intended reinforcement is a positive response from the prospective teachers to the students during the learning process.

Provision of reinforcement is generally conducted by the prospective teachers with the aim that students were more actively participating in learning interactions and repeating good behavior. Most biology teacher candidates are already skillful in providing reinforcement in learning through verbal and nonverbal reinforcement, intonation and voice clarity, providing opportunities for students to think, and mobility when teaching. However, the prospective
students who were in the less skilled category felt nervous when teaching that sometimes disturbed students' attention, such as scratching their heads, tidying clothes, eyes that are less focused on the students.

3.9. The Skills of Closing the Learning

The skills of closing the learning for the indicators of reviewing the lessons learned showed the following percentages unskilled (16.67%), skilled (78.33%) and very skilled (5.00%) categories. For the indicators of summarizing the learning the category showed of the following: unskilled (11.67%), skilled (81.67%) and very skilled (6.67%). In addition, the indicators of skills of informing further lessons in the category of unskilled (18.33%), skilled (68.33%) and very skilled (13.33%). The recapitulation results of the skills of closing the lessons are in good state that is equal to 73.47%. The observation results proved that the prospective teachers invited students to make learning conclusions. Each prospective biology teacher has a different way of guiding students to conclude the learning.

There are prospective teachers who conclude the learning by guiding the students to provide arguments about lessons they have learned. In this way, the teacher can find out whether the students have understood the lessons delivered or not. While other teacher candidates formulated the conclusions by giving notes to the students to be developed into a sentence.

4. Conclusion

Research conclusion (1) the lowest skill with a good category is the explaining skills which was 71.77%. (2) the highest skill with a very good category is the skill of using learning media at 79.58%. Overall, the basic skills of teaching students have good criteria.

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References


THE ROLE OF SCHOOL IN DEVELOPING SOCIAL SKILLS CHILDREN WITH DEVELOPMENT OBSTACLES

Suharsiwi 1, Weny Savitry S. Pandia2
{suharsiwi@umj.ac.id1, weny.sembiring@atmajaya.ac.id2}

1 Islamic Faculty, University Of Muhammadiyah Jakarta
2 Psychology faculty, Unika Atma Jaya, Jakarta

Abstract- The development of children's ability to adapt varies, this is also related to the character and perception of children. Children's perceptions develop in line with their social experiences that are obtained in a certain period of time. The acquisition of simple social skills has begun to be mastered by children in general in childhood, and more complex skills increase as they get older. People around children become "role models" for the development of a number of children's social skills such as interacting skills, establishing friendships, communication and independence. However for children with special needs, often simple social skills must be obtained with effort and relatively long time. This is exacerbated if the child's opportunity to practice is lacking due to lack of interaction. Descriptive qualitative research with the subjects of students with special needs consisting of 3 elementary school and 2 kindergarten in Tangerang. The result is that students can develop a number of social skills after taking education in inclusive schools. Based on the findings obtained how the role of schools in developing social skills is to make routine activities, provide guidance, positive attitude and give examples. The attitude shown by the school as an institution, and commitment will have an impact on the growth of social abilities.

Keywords: developmental barriers, formal education, role models, social skills.

1. INTRODUCTION

Children's social skills develop as they age and their opportunities to interact with their environment. The development of children's adaptability is diverse, this is also related to the child's character and perception. Children's perceptions develop in line with their social experiences gained over a certain period of time. The acquisition of simple social skills has begun to be mastered by children in general in childhood, and more complex skills increase as they grow into adolescence. Adults alongside children such as teachers, parents, and peers become "role models" for the development of a number of children's social skills such as the skills to interact, establish friendships, communication, and independence.

However, in children with special needs, requiring simple social skills must be obtained with effort and relatively long time. This is exacerbated if the child's chance to practice is lacking because of the minimum interaction. Not all schools accept children with special needs. The classic reasons for the school are: the school does not have sufficient skills and there are no teachers who understand about children with special needs in school. Based on data from the Badan Pusat Statistik (BPS) in 2017, the number of children with special needs (ABK) in Indonesia reaches 1.6 million
children. Around 115 thousand children with special needs go to SLB, while ABK who attend regular schools implementing Inclusion Schools take around 299 thousand [1]. In the records of the Data Pokok Pendidikan (Dapodik), currently there are already 31,724 inclusive schools spread throughout Indonesia. By counting, there are 23,195 elementary schools, 5,660 junior high schools and 2869 high schools [2].

So around 70% of ABK do not get proper education. Whereas in accordance with the mandate of the 1945 Constitution Article 31 Paragraph 1 and Law Number 20 of 2003 concerning the National Education System Chapter IV Article 5 Paragraph 1 is mandatory for every child with special needs to obtain quality educational services. The education services contained in the Strategic Plan of the Ministry of National Education in 2005, namely through special education and inclusive education [3].

There are 30 private schools (PAUD and Elementary School level) that have inclusion programs in the Greater Jakarta area [4]. Giving the opportunity for ABK to interact and get proper education in both inclusive and special schools, it will increase the number of ABK school participation in Indonesia. It is hoped that schools can develop a number of social skills for children with special needs, such as the ability to interact and relate to others, communicate, and independence.

Social Skills

Social skills are defined as the ability to interact both in the form of positive and negative behavior and the behavior will get reinforcement or punishments from other parties [5]. While Cotugno 2009 defines social skills as a set of complex behaviors that enable an individual to engage in mutually beneficial reciprocal positive social interactions [6]. Combs and Slaby in Lecroy and Beke define that social skills are an ability to interact with others in existing social contexts in various ways that can be valued and socially accepted, and also provide benefits for themselves, others, and both.

Another opinion states that social skills are knowledge of human behavior and interpersonal processes, the ability to understand feelings, attitudes, motivations of others about what is said and done, and the ability to communicate clearly and effectively and the ability to build effective and cooperative relationships [7]. While other opinions state that social skills are one's ability to think and behave effectively with others in social situations [8]. The example of the involvement of cognitive functions is when individuals interact and read the feelings or thoughts of other individuals and make conclusions from social cues around them.

These various opinions conclude that social skills are very important to humans as social creatures because they are the actual way to start, to get involved, to communicate, and to respond to others when involved in a relationship. Social skills provide the actual way to be done in various social situations (for example, making eye contact, saying hello, asking questions, listening and formulating answers, arranging the next meeting, saying goodbye) [9].

From the above definition it can also be concluded that social skills are behaviors that are shown to respond to existing situations, all of which are aimed at establishing relationships with others appropriately, and it is expected that the relationships / interactions will benefit each individual. Social skills also involve a person's ability to think so that he is able to see the social cues around him or understand the feelings of other individuals. Social skills themselves have a broad
scope and relate to practical ways that individuals must do in socializing with people around them.

Walker, Odom, McConnel, Holmes, Todis, Wakler, and Golden, divide social skills into five aspects, namely skills in the classroom, basic interactions, getting along, making friends, and overcoming problems. Having a variety of social skills, allows individuals to initiate, maintain, manipulate, or strengthen a social interaction, thereby creating a "social relationship." This may also have a secondary benefit from improving social status. [10].

According to Malik and Furman in Santrock, improving social skills in children under the age of 10 or younger than that will be easier. Weak social skills are often caused by the child's inability to listen and communicate with peers, take the initiative to talk and open conversation with friends, and be positive in dealing with friends. This is in line with Yulk's statement, that social skills are also mentioned as interpersonal skills. Mc Intry states that children's social skills include the following: 1) positive behavior and interactions with friends, 2) appropriate behavior in the classroom, 3) ways to overcome frustration and anger, 4) ways to resolve conflicts with others [11].

Children ASD, ADHD AND ADD

Many terms are termed in children with ASD (Autism Spectrum Disorder), ADHD, and ADD including developmental disorders and pervasive disorders. They generally have social-emotional disorders and other problems, so they are categorized as children with developmental disorders. The United States Department of Education as quoted by Slavin defines that autism (autism) as a developmental disability which greatly influences social interaction and communication both verbal and non-verbal [12]. Symptoms that appear in children with autism mainly are in the areas of social interaction, communication and behavior [13]. Three main characteristics stated in DSM IV that appear before the age of three years, namely: Disturbances in social relations that are qualitatively reciprocal, there are disturbances or delays in terms of communication and "imagination" activities, there is an interest in activities and interests that are repeated routinely [14].

ADHD and ADD children are children with attention deficit disorder which in the medical world is known as ADD (Attention - Deficit Disorder) terminology. In 1980 the United States Psychiatric Association recommended the use of ADD terminology instead of MOD (Minimal Brain Dysfunction). Previously, the terminology used was that brain injured was further divided into two types namely ADHD (Attention-Deficit Hyperactivity Disorder) and ADD (Attention Deficit Disorder Without Hyperactivity) put forward by Task Force on DSM-IV 1991 [15]. The term ADD in the Encyclopedia. Turkington & Anan is interpreted as a condition to describe someone with attention disorder but without the presence of hyperactivity. Children with ADD have the same characteristics as those with ADHD except for hyperactivity; and in addition, the various characteristics and disorders are generally mild [16].

Hyperactive children have characteristics including a tendency to move from one activity to another without being able to complete the given task, unable to concentrate properly when working on a task that requires the involvement of cognitive functions, as well as appearing activities that are not orderly, excessive and chaotic. In general, attention deficit and hyperactivity disorder (Attention-Deficit
Hyperactivity Disorder / ADHD) is a neurobiological disorder characterized by inattention, and impulsivity (hyperactivity) [17]. There are several possible causes that a child can experience ADHD. The cause of the onset of ADHD can’t be known with certainty, but some results of research scientists have raised the possibility of many cases found that cause ADHD including neurological dysfunction, heredity, and environmental factors [18].

Many researchers about learning difficulties children who see lack of attention as the most critical disorder. Ross as stated by Lerner views the ability to maintain selective attention (selective attention) is a cognitive problem that affects most children with learning difficulties (learning disabilities) [19]. Selective attention is the ability to focus attention on one of the various types of stimuli that affect our senses. Students with ADHD require a long, limited time, and difficulty in developing the ability to focus on tasks that are less stimulating, repetitive, or require a lot of attention such as when working on math problems or reading textbooks [20]. The medical world and the world of education have a great concern for the existence of children who lack the ability to focus this attention; and therefore allows the creation of a multidisciplinary approach (interdisciplinary) in the handling of children's education with ADHD and ADD [21].

Pervasive development disorder or pervasive developmental disorder (PDDs) is a behavior or function disorder in various areas of development. This disorder generally becomes apparent in the first years of life and is often associated with mental retardation. This disorder is generally classified as a form of psychosis in the initial edition of the Diagnostic and Statistical Manual of Mental Disorder (DSM). The number of sufferers of pervasive developmental disorders is still unclear, a recent community study of preschool children in the UK shows that 0.6% of all children meet the criteria for one of pervasive developmental disorders, especially autism. Autism is one of five types of disorders under the PPD (Pervasive Development Disorder) umbrella outside of ADHD (Attention Deficit Hyperactivity Disorder) and ADD (Attention Deficit Disorder). There are several types of pervasive developmental disorders with each different characteristic [22].

a. Autistic Spectrum Disorder (ASD), Appears before the age of 3 years with symptoms of barriers in social interaction, communication, and the ability to play imaginatively as well as the presence of stereotypical behavior in interests and activities.
b. Asperger’s Syndrome, a barrier to the development of social interaction, limited activity, generally does not show language and speech delays, has an average level of intelligence to above average.
c. Rett's Syndrome, is more common in girls and rarely occurs in boys. Children have experienced normal development, then there is a decline or loss of ability they have, losing the functional abilities of the hands which are replaced with repetitive hand movements in the age range 1-4 years.
d. Pervasive Developmental Disorder - Not Otherwise Specified (PDD-NOS). Referring to the term atypical autism, the diagnosis of PPD-NOS applies if a child does not show all the criteria for a particular diagnosis (Autism, Asperger or Rett's Syndrome).
e. Childhood Disintegrative Disorder (CDD), shows normal development during the first 2 years of developmental age. In the following year the child loses abilities that have been achieved before.
The term ASD in Autism Encyclopedia of Spectrum Disorder is defined as a group of disorders characterized by varying degrees of problems in communication skills, social interactions, and patterns of behavior that are limited, repetitive, and inhibited. A small proportion of people with autism have developed normally, but their development has stopped before reaching the age of three, after which setbacks have begun and symptoms of autism have begun [23]. The results of Kandou, et al showed that autism spectrum disorders were more common in male sex than female, and most were aged 7-10 years. In addition, aberrant interactions between children with autism and siblings and parents can take the form of tantrums and crying suddenly [24].

2. Research Methods

This qualitative research was conducted in kindergarten and elementary school in Tangerang, Banten. The selected TK is a private public TK, located in a middle cluster in Gading Serpong, Tangerang. While the location of the Inclusive Elementary School is in the Islamic Village area not far from the existence of its kindergarten. Not all schools around there accept and also handle children with special needs appropriately. At the elementary level, observations were made on three children with grade 3 autism aged between 9-10 years. While observations in kindergarten were done with children with autism class TK B totaling 2 children. They are around 7-8 years old. The average child with age needs is older than the age of his classmates. This happens because they enter school late, for various reasons. Observations were made when the children were doing activities in class, when playing both inside and outside the classroom, when eating activities, and also when elementary school children were visiting. In addition, interviews were also conducted with 6 teachers consisting of kindergarten / elementary school heads and kindergarten / elementary school teachers, 4 peers in kindergarten / elementary school, and 2 parents.

Documentation is done by looking at student data, videos and photos of children's activities during the study, in addition to making field notes. This is done for data triangulation. Analysis of the Miles Hubberman data model, namely the activities in qualitative data analysis are carried out interactively and continue continuously until the data is saturated. Stages of analysis include data reduction, data display and conclusion drawing and verification [25].

Research objectives are focused on related questions:
1) What is the role of the school / teacher in developing the social skills of children with special needs in school?
2) How is the acquisition of the social skills of children with special needs after attending activities in school?

3. Research Result

The age of children with special needs who are the subject of research is above the age of children. Based on interviews with teachers and parents related to this matter because of difficulties in finding schools that accept ABK, and limited acceptance of students with special needs in each class. According to the Head of
Kindergarten and Elementary School, they must refuse some children to go to school due to consideration of children's capacity. They only accept 2 to 3 children in one class. On average children with special needs received at kindergarten and elementary school inclusion experience developmental disorders with a diagnosis of autism and attention deficit disorder. In general they experience problems in interacting, communicating, and independence. Although their social development is late compared to their peers, after having attended school for 2-3 years, there have been many developments related to the acquisition of their social skills.

Research Focus 1:

The Role of Schools and Teachers in Developing Social Skills of Children with Special Needs.

Acceptance of children with special needs in school is related to school acceptance as an institution and also the attitude of teachers towards ABK in schools. Field findings show several related things: management of ABK acceptance in schools, habituation programs in schools, school activity programs, and efforts made by teachers in schools. All of these components are part of the curriculum in a broad sense, which influences the success of schools in developing a number of skills in children.

School / Teacher Admissions

The similarity between the two schools, both kindergarten and elementary school, is the admission process and how the two schools treat students with special needs. Both schools accept children with special needs well, by not distinguishing students with special needs from other children. Information of teachers in kindergarten when interviewed regarding the presence of ABK, 100% of teachers did not object to the presence of ABK in the classroom without a companion. They can share assignments with other teachers and divide their time while doing tutoring, involving them in class activities and other activities. Likewise, in elementary school, 100% accept the existence of ABK with humanitarian considerations and also a challenge, although they have to be patient and learn how to deal with ABK in class.

But in the management and accompaniment of students in class there is little difference. At the kindergarten level, schools do not facilitate children with a teacher in the classroom with costs that will be borne by parents. This is supported by the attitude of the class teacher who does not object to the existence of ABK in the classroom without a companion. Class teachers feel they can share assignments with other teachers and divide their time while doing guidance, and involve them in class activities and other activities. While in elementary school, the school facilitates children with special needs with accompanying teachers in the classroom with costs incurred by parents. The school also facilitates students with special needs through:

1) Initial assessment when admission of students with special needs, to determine the potential and strength of students with special needs as a material consideration for making individual education programs
2) The assessment is carried out by a team consisting of psychologists and teachers from UNJ PLB graduates
3) Conduct interviews with parents to find out more about the child's condition
4) Program socialization from school to parents

The ABK service coordination structure in schools is as follows:

```
Headmaster
    └── TU
        ├── Wakasek
        │    └── Koordinator LSC
        └── Teacher
            └── Student
```

Chart 1. ABK Service Structure in Primary Schools

**School / Teacher Efforts to Develop Students**

The observation found that there are several school programs that have an impact on the development of children's social abilities. The program is like:

1. **Habitual Program (Routine)**
   Habituation activities are routine activities which are school programs to shape the character of children. Habituation is done from the beginning of entering school until the child comes home from school. Routine activities undertaken by the school are: Welcoming children, lining up, praying before and after carrying out hand washing before and after eating, eating together, sharing food, tidying cutlery, doing assignments in class, tidying books / stationery, carrying out prayer in congregation, and shake hands / kiss the teacher's hand before going home.

2. **Give an example.**
Routine activities at school from beginning to end are done by the teacher by giving examples, such as greeting children, greeting, shaking hands, apologizing, asking permission, praying, washing hands, eating together, sharing, tidying cutlery, modeling class activities, tidying toys / stationery, perform prayers, invite shaking hands before returning home.
3. **Give guidance**

Activities carried out in school both in the classroom and outside the classroom are always in the teacher's watch. The teacher provides guidance on social skills to children with special needs and also all children, if it is felt the child has not been able to do it. Like greeting children, greeting, shaking hands, apologizing, asking permission, praying, washing hands, eating together, sharing, tidying cutlery, modeling class activities, tidying toys / stationery, carrying out prayer, asking to shake hands before going home. Form of guidance by giving ways, asking children to do, correcting if it is not right, asking children to repeat again, motivating and maintaining children's behavior by constantly reminding.

4. **Positive Acceptance**

How positive attitudes and behaviors towards ABK shown by foundations, teachers, parents of other students and students in schools are inseparable from the school's policy of establishing themselves as inclusive schools and from the beginning having a good dialogue with parents, teachers and students. Because the foundation makes a policy of ABK services in schools, the teacher has a positive view on its existence, this also has an impact on parents and students at school doing good / appropriate for ABK.

These attitudes and behaviors are shown in: greeting kindly, soothing if friends are upset, treating the same, not blaming, inviting play, being involved in class / school activities, helping children with special needs if necessary, inviting children to talk, making friends, guiding and motivating when not failing.

**Research Focus 2: Acquire ABK social skills in class / school.**

Children with special needs who are the subject of research, on average have been educated either in kindergarten or elementary school have undergone education for more than 2 years. This means that ABK has undergone a lengthy educational process at school. Based on the results of interviews of teachers and parents in, a lot of changes that arise related to various good behaviors that arise. The social skills acquired at ABK are summarized in the form of:

1) **Social contact**, such as shaking hands, greeting, smiling, playing, working together, sharing food.

2) **Communication** is shown in verbal language such as: greeting, conversing, thanking, apologizing, and in the form of non-verbal language such as showing expressions of pleasure, sadness, anger, shame and jealousy, and

3) **Independence**, such as: competing in competitions, performing on stage, lining up, tidying toys, going to the toilet, putting on shoelaces, eating alone, doing errands to finish, and praying.

Based on the findings obtained how children with special needs, interact, communicate and learn to adapt by doing social activities similar to what is done by friends around them. They learn to do activities without the help of others. Based on the findings in the elementary school children are more complex in the skills they acquire, and have varied to include interaction, communication and independence. This is very reasonable considering the age of those who are older than children in kindergarten. While children in kindergarten, still lack of interaction and communication development, but independence has developed.
This can be seen from behaviors that have begun to emerge, such as eating alone, washing hands, tidying toys / stationery, going to the toilet without assistance, doing the task to completion, daring to come forward, and wearing shoes without help.

Discussion

According to Kimbal and Raymond in Soekanto, social interaction is the key to all social life, because without social interaction there can be no shared life. When two people meet, social interaction begins at that moment. They exchanged greetings, shook hands, talked to each other or maybe even fought. The ongoing process of interaction is based on various factors including, imitation, suggestion, identification, and sympathy. The imitation factor, has a very important role because the imitation factor, can encourage someone to obey the rules and values that apply [26].

This is in line with the opinion of Gabriel T in Soekanto in assuming that all social life is actually based on imitation alone. In students with autism and attention disorders who are the subjects of this study, social skills are a challenge for children. Therefore, programs that can support the development of children's social skills really need to be provided [27].

Schools are institutions that enable patterns of interaction. Schools that have positive roles, inclusive institutions that embrace all differences and provide educational facilities that can build social relationships to develop a number of social skills. There is an assumption that these children need opportunities to practice, because often those opportunities are expensive to obtain.

According to Vaughn et al, the existence of assessments for children with special needs is very important to determine various decisions related to children's education. Identification of the strengths and weaknesses of children will help make the right program for children. Thus, the existence of an assessment to the socialization carried out by the school is an appropriate step for handling students with special needs at school. Making the right Individual Educational Program by paying attention to response to intervention, and involving parents in learning plans and making programs for students with special needs is needed. Monitoring of programs that are then given to children also needs to be done, so that the effectiveness of the program can be monitored [28].

Associated with the role of teachers in improving children's social skills, it appears that teachers have understood things that need to be done. According to Vaughn et al, increasing social skills in children with socialization barriers can be done by training children to start conversations with others, respond to invites friends to interact, converse, and the more complex is being able to respond to criticism. This will be developed through the school programs mentioned in the research results section. It would be very good if the increase in teacher knowledge and skills needs to be continued through various training programs [29].

The existence of various programs carried out in schools seems to have improved children's skills. In this case, teachers need to have creativity in teaching in order to facilitate and develop the skills of all students, including students with special class needs [30]. More specific programs need to be developed again. Sider, Maich, and Morvan state that the role of the principal is very important to develop a positive school culture and support teachers in implementing the principles of proper inclusion. [31].
Conclusion

Looking at the developmental differences between kindergarten and elementary school age children, this shows that children with developmental barriers such as children with autism, ADHD and ADD, can develop when they are in a formal school environment. The role of schools is very important in developing their social skills, through providing examples, guidance, and habituation which are routine school activities into behaviors that are unconsciously inherent in children. With good reception, proper assessment, and supporting programs in accordance with the results of the assessment carried out, children can be expected to develop optimally in accordance with their abilities.

This research also concludes that the role of schools is important in setting up the curriculum in a broad sense, starting from the vision, derived in the program, and the readiness of HR. Developing a positive climate and non-discriminatory acceptance will have an impact on the positive development of children with special needs. Because every child should have ample opportunities to develop their full potential. Cooperation between teachers and parents is also needed, so that what is developed at school is strengthened at home. The government is also expected to strengthen inclusive education policies in the country.

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Abstract. This study aimed to describe and analyze the implementation of information literacy in learning Islamic Religious Education at Al-Izhar Islamic High School. Information literacy is closely related to the ability to think critically. This study applied a qualitative approach, with a type of case study research. The results indicate that the implementation of information literacy in learning Islamic Religious Education at Al-Izhar Islamic High School is very good, as seen from the role of PAI teachers who were so great in the process of developing information literacy in classroom learning, encourage habituation activities to students, and support the additional lessons.

Keywords: Information Literacy, Learning, Teacher, Critical Thinking Skill.

1. Introduction

Facing the 21st century, fierce competition in welcoming the era of the industrial revolution 4.0 requires that everyone has the ability and expertise that is qualified digitally based. Globalization and modernization that occur quickly, have an impact on the swift challenges that need to be faced, in order to be able to prepare superior human resources.

The 21st Century formula states that in order to survive and adapt to transform in a global scope, special skills are needed, namely communication, collaboration, critical thinking, and creative. So educational institutions need to prepare humans with advanced human resources to be competitive in facing global competition. Quality human resources will be the main driver of development in various sectors of life.

In the era of the industrial revolution 4.0 as it is today, many people believe that the civilization of the future is the civilization of the information society with the understanding that information has become the main thing, and interaction between humans is based on information and communication technology. Sailah explained that there are new approaches to literacy, namely digital literacy, technological literacy, and human literacy [1]. The most important aspect of the three is information. With the development of technology, currently information can be obtained and published easily. But on the other hand, this convenience can also make people experience confusion in choosing which information can be trusted, or who is a source worth quoting. So that it can raise concerns about the use of information itself.

Information literacy is part of a person’s information needs. Someone who is literate will be able to search, choose, analyze, and can efficiently use the information obtained to deal with any existing problems.

Thompson explained, information literacy is knowing how to learn. It is knowing how to find information, evaluate it, and use it wisely and effectively. Information literacy skills include recognizing when information is needed, selecting appropriate sources from the overwhelming amount of available print and nonprint resources, evaluating the information
for accuracy and pertinence, organizing the facts so that they make sense, creating knowledge by associating the new information with previous knowledge and experiences, and then using this knowledge wisely [2].

Education must be able to empower all people to change information into new knowledge and useful in their lives. Schools are the main point in shaping the creation of information literacy.

The challenge that then arises is how schools can anticipate the massive impact of digital-based information dissemination, especially information related to religious aspects. The unlimited use of the internet allows students at school to access religious information anywhere and anytime, including information that cannot be justified. This is very worrying if coupled with the lack of faith and fragility of the critical power of students in understanding the information, which leads to the imitation and blind fanatics in studying religion.

Several studies have shown, as quoted by VOA Indonesia, the Indonesian Intelligence Agency (BIN) stated that at this time young Indonesians are beginning to be exposed to radicalism. So they have extreme understandings of religion, with the most obvious indicator being increasing values of intolerance [3]. The Wahid Foundation—which operates in the field of democracy—said that almost 60% of participants in Islamic religious activities (Rohis) in educational institutions were “ready to jihad by violence” [4]. The low literacy of information about religion can be a serious threat because it can affect one's credibility in his life and work which directly causes social and religious problems in society.

Information literacy requires the ability to analyze information to be used appropriately to solve problems. To be literate about religious information, students must have the critical power of the information they get. However, the ability to think critically cannot just develop, but must be accustomed. Critical thinking is the main indicator of supporting information literacy.

Educational institutions need to try to develop students' critical attitudes. So students do not fall into radical and misguided understandings. At school, critical thinking skills can be developed through the learning process that teachers do in the classroom. The teacher needs to hone the critical power of students so that students are literate to the information around them.

The American Association of School Librarians and the Association for Educational Communications and Technology established an information literacy competency standard for the school level, namely Information Literacy Standards for Student Learning: Standards and Indicators. This information literacy standard provides a concept to describe students who master information literacy. This standard consists of 3 categories, 9 standards, and 29 indicators. These standards and indicators describe the content and process of information that students must master to be able to enter the category of people who are literating information. [5].

2. Methodology

This research was conducted at Al-Izhar Islamic High School Pondok Labu, Jl RS Fatmawati Kav No.49, Cilandak, Kota Jakarta Selatan, Daerah Khusus Ibukota Jakarta 12450. The method used is a qualitative research approach, with a type of case study research. Data collection was carried out by observation, interview, and documentation techniques.

Primary data sourced from direct informants who were met in the field by conducting interviews and observations. While secondary data are literature, books and supporting documents.
Interviews were conducted with the deputy of headmaster; two PAI teachers in SMA Al-Izhar, namely Mr. Meta and Mr. Chairiman; class X and XI students, library student (Sipus), namely Syahla; and the school librarian. The interview was conducted in a structured and unstructured technique.

Observation was held by paying attention and directly witnessing the learning activities that occur in the classroom, outside the classroom, and in the library. Observation methods are used to observe how teacher apply information literacy strategies to students, how much learning activities are able to encourage the growth of information literacy skills of students in the classroom, and how the role of school academic community in seeking the growth of students’ information literacy abilities.

The researcher also collected some documents such as lesson plans (Rencana Pelaksanaan Pembelajaran), students scientific work, and library programs.

The data analysis technique used in this study is qualitative analysis. The steps of the research carried out are 1) the orientation stage, this stage is a preliminary step, which is to detect and know the situation or condition of the research location so that the research to be carried out is as planned; 2) exploration stage, the implementation of what has been planned; 3) data checking, i.e. the author checks the data that has been collected; 4) triangulation stage, compare the results of observations, documentation and interview results, so that conclusions are obtained for research reports.

2.1 Instruments

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<th>Table 1. AASL Information Literacy Standards</th>
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**Category L1: Information Literacy/The student who is information literate:**

**Standard L1-1:** Access information efficiently and effectively, as described by the following indicators:

1. recognizes the need for information;
2. recognizes that accurate and comprehensive information is the basis for intelligent decision making;
3. formulates questions based on information needs;
4. identifies a variety of potential sources of information;
5. develops and uses successful strategies for locating information.

**Standard L1-2:** Evaluates information critically and competently, as described by the following indicators:

1. determines accuracy, relevance, and comprehensiveness;
2. distinguishes among fact, point of view, and opinion;
3. identifies inaccurate and misleading information;
4. selects information appropriate to the problem or question at hand.

**Standard L1-3:** Uses information effectively and creatively, as described by the following indicators:

1. organizes information for practical application;
2. integrates new information into one’s own knowledge;
3. applies information in critical thinking and problem solving;
4. produces and communicates information and ideas in appropriate formats.

**Category L2: Independent Learning/The student who is an independent learner is information...**
literate and:

Standard L2-1: Pursues information related to personal interests, as described by the following indicators:
1. seeks information related to various dimensions of personal well-being, such as career interests, community involvement, health matters, and recreational pursuits;
2. designs, develops, and evaluates information products and solutions related to personal interests.

Standard L2-2: Appreciates literature and other creative expressions of information, as described by the following indicators:
1. is a competent and self-motivated reader;
2. derives meaning from information presented creatively in a variety of formats;
3. develops creative products in a variety of formats.

Standard L2-3: Strives for excellence in information seeking and knowledge generation, as described by the following indicators:
1. assesses the quality of the process and products of personal information seeking;
2. devises strategies for revising, improving, and updating self-generated knowledge.

Category L3: Social Responsibility/The student who contributes positively to the learning community and to society is information literate and:

Standard L3-1: Recognizes the importance of information to a democratic society, as described by the following indicators:
1. seeks information from diverse sources, contexts, disciplines, and cultures;
2. respects the principle of equitable access to information.

Standard L3-2: Practices ethical behavior in regard to information and information technology, as described by the following indicators:
1. respects the principles of intellectual freedom;
2. respects intellectual property rights;
3. uses information technology responsibly.

Standard L3-3: Participates effectively in groups to pursue and generate information, as described by the following indicators:
1. shares knowledge and information with others;
2. respects others’ ideas and backgrounds and acknowledges their contributions;
3. collaborates with others, both in person and through technologies, to identify information problems and to seek their solutions;
4. collaborates with others, both in person and through technologies, to design, develop, and evaluate information products and solutions.

Table 2. Instruments interview for PAI teachers

<table>
<thead>
<tr>
<th>Variable</th>
<th>Indicator</th>
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<tbody>
<tr>
<td>Information Literacy in</td>
<td>- Activities and activeness of students in</td>
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<td>Islamic Education</td>
<td>the classroom</td>
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<td></td>
<td>- Methods for developing students’ critical</td>
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<td>power</td>
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Table 3. Instrument interview for students

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<tr>
<th>Variable</th>
<th>Indicators</th>
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</thead>
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<tr>
<td>Information Literacy in Islamic Education</td>
<td>- Teacher teaching methods of teachers in the classroom</td>
</tr>
<tr>
<td></td>
<td>- Assignments from teachers</td>
</tr>
<tr>
<td></td>
<td>- The role of teacher in helping to find the information that students needed</td>
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<td></td>
<td>- The use of libraries in accessing information sources</td>
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<td></td>
<td>- Student religious activities</td>
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<td></td>
<td>- Students’ religious knowledge and understanding</td>
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<td>- Students’ religious practice</td>
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Table 4. Instrument interview for librarians

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<th>Variable</th>
<th>Indicators</th>
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<tr>
<td>Information Literacy in Islamic Education</td>
<td>- Student activities in the library</td>
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<td></td>
<td>- Resources used by students in accessing information</td>
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<td></td>
<td>- Library collection</td>
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<td>- Library efforts to improve student information literacy</td>
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<td>- Library programs</td>
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<td>- Student visits to the library</td>
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3. Results

The role of PAI teachers was so great in the process of developing information literacy. Learning at Al-Izhar Islamic High School emphasizes critical thinking skills, by doing every subject teacher. Every teacher is required to use the Inquiry Based Learning (IBL) and Evidence Based Practice (EBP) learning approaches in delivering subject matter. Inquiry-based learning is learning that emphasizes the ability of students to be able to process critical power in learning each subject, in addition to evidence-based learning strengthens the readiness of students to carry out learning.

The implementation of information literacy in PAI learning as follows:
A. Implementation in learning

1. Teachers apply various learning methods that develop students’ critical thinking skills

   In delivering material, teachers often use different methods for each class or each level (grade). Because every material is different, so the target achievement is different, then the method the teacher uses adjusts to the material to be conveyed. This is as stated in the Learning Implementation Plan that was prepared by the teacher at the beginning of the school year. The method that the teacher usually uses in class is the method of discussion, presentation, question and answer, and meaning.

   The discussion method is one way of presenting lessons by exposing students to a problem that can be in the form of problematic questions to be discussed and solved together. This method is carried out in order to stimulate students' creativity, accustom students to exchange ideas, train students to be skilled in expressing opinions, broaden their horizons, and produce stronger answers and solutions.

   Discussing the material of the next chapter, teacher uses the question and answer method. This method can be used to attract students' attention, stimulate thinking power, build courage, practice speaking skills, and think regularly, as well as a tool to determine the level of student ability objectively.

   Discussing the next chapter, the method that teacher uses is the presentation method. This is as an effort to build self-confidence, courage, and responsible attitudes of students. In addition to being able to make students explore their knowledge so that they can present and inform it well to their peers. This method is important because PAI teachers can build positive values that exist in students also improve students' ability to think.

   Because of its more nature to create student understanding, in addition to the discussion, presentation, and lecture methods, PAI teachers also use the discovery-inquiry method. This method of interpretation is done by the teacher by displaying videos or films related to teaching material, after completion the video is interpreted together. Students are required to explore the positive and negative values contained therein. In this case the teacher simplifies the material. The end result of this method is that students are expected to be able to practice positive values and stay away from negative values in their daily lives based on what they have learned from the video. The method of interpretation is only used as an addition because religious material does not always focus on books but rather digs values found in society in daily life.

   In classroom learning, teachers often associate the subject matter being discussed with the latest or most recent topics or cases. The goal is that students are sensitive to the circumstances. In addition, according to PAI teachers, the majority of Al-Izhar Islamic High School students are also actively following the latest information developments on religious issues. This can be seen when the teacher delivers learning material, students often ask questions about religious cases or topics that are rife in the mass media, even if they are not in accordance with the material being studied. This is permissible, because it can stimulate students to do information association activities that they get with old information that has been obtained previously.

2. Teacher become a model in the implementation of information literacy in the classroom

   The role of PAI teachers to improve students' information literacy skills is also done by giving examples in using sources or references. When discussions in class take place, in the provision of opinions, the teacher often emphasizes to students to provide opinions based on valid references. That is, for habituation of this, the teacher needs to do the example in class.
As a role model, in delivering material, the teacher uses the appropriate references. Teachers are required to convey subject matter or ideas based on reliable references and sources. In addition, this aims enrich student knowledge, and also attract students' attention. The references that usually use by teacher is al-Quran and hadith, as well as classic books, but occasionally teachers also add from other source books. In addition to allowing students to use other sources, teachers also actively assist students in finding and accessing sources of information relevant to the material being studied or by assignments that assigned to students. PAI teachers also make it a habit to read books because they will be emulated by their students.

Some of the sources used as teacher's reading material are not books that provide extreme understanding, and do not indicate intolerance values. The books read by teachers are religious reference books that have been used as references in studying Islam.

3. Provide diverse tasks that can foster students' critical thinking skills, create analysis questions as a benchmark for the development of high-level critical, logical and creative thinking

That the various forms of assignment by teachers are one of the efforts in habituating students' critical and analytical thinking. So that in learning, the involvement of students or direct participation from students can affect the success and achievement of learning objectives.

All assignments given by the teacher are in order to prioritize students to become a problem solver. And this is an indicator of information literacy, because someone who literates information is the one who can solve a problem. In order to make students to be accustomed to solving a problem in a task, teachers always ask for rational reasons for what they do. It will awaken the habit thinking of students who prioritize finding solutions. This can increase along with the frequency of students getting assignments from the teacher.

With a variety of tasks given, it allows students not only to use one source of information in learning, but various sources. This means that the teacher's role is no longer the only source of information that merely provides knowledge to their students, but rather that it is as a facilitator who provides students with a variety of information skills so that they can independently develop themselves both in terms of cognitive, psychomotor, and affective.

Teachers do resource-based learning, which is learning that focuses on what students do by using information sources such as newspapers, books, videos, computer software, and online databases to facilitate students in their own learning. With source-based learning students become independent, it is one of the standard criteria for information literacy abilities.

The assignments given by the teacher demand that the development of students' critical power. The steps taken by students in working on assignments to completion of tasks are in accordance with the information literacy cycle.

In giving assignments to students, teachers give assignments that are able to make students sensitive to the environment, so students can criticize in advance and do not immediately accept information. After class learning has ended, in an effort to provide students with a holistic and comprehensive understanding, the teacher provides several types of assignments. The shape of the assignment is adjusted to the material being studied. Among the forms of the assignment are assignments to make papers, assignment of meaning, report assignments, and kalam (speaking) assignments.
Making paper assignments requires students to be good at finding, processing, comparing, and using the information obtained as well as possible so that it can be expressed in the form of papers that are full of meaningful knowledge.

The task of meaning aims to make students know about religious issues and information around them, then interpret positive and negative life values from these issues, then be able to learn lessons as lessons for students and students can apply them in their daily lives.

The task of the report is carried out in the form of giving a book. The task of waqf book is given to students with students given the freedom to endow their books, with the provisions given by the teacher that must be made a report on what books are represented, where students are to give a donation, the reasons for students to endow the book and the reason for choosing a place to endow, accompanied by evidence in the form of documentation. The books that have been presented are placed on the bookshelves in the classroom as a small library to be used by all students.

Teachers view the existence of the kalam task as an effort to make students literacy towards information as well as to train students to be able to speak in front of many people. The number of readings students read to get information about the theme of kalam and that best suits their needs makes students know how to search for information correctly. So that students' critical attitude towards religion has been developed. Students can already criticize and understand wrong and true information, and how to make solutions to a problem. So the teacher concluded that the majority of Islamic high school students at Al-Izhar Pondok Labu had literacy on existing information. This is not only seen from the learning activities in the classroom, it is also seen by the kalam program that must be followed by all Al-Izhar Islamic High School students. In addition there is also a social action project to the orphanage as a group assignment.

B. Habituation Activities

1. Teacher hold a collaborative learning strategies with libraries

In general, Al-Izhar Islamic High School has a trusteeship program which runs on Monday and Thursday. The program is commanded by each homeroom teacher. In the trusteeship program, students are directed by the homeroom teacher to go to the library to do activities in the library, both reading, doing assignments, and discussions with friends. The program aims to make students enjoy reading and improve students' literacy skills.

Specifically in the PAI subjects, the teacher has not collaborated directly with the library. Collaboration with the library is only done indirectly, namely in the form of suggestions to students to look for books in the library related to the task of making papers. It is only when at the end of the semester and the subject matter is finished, the teacher invites students to the library to read religious books, but only as to add insight.

For programs that are tentative in nature, the library collaborates with religious teachers. One of the activities carried out is when students do written work, or other tasks, the teacher requires students to take one or two sources from the library, so that not all sources are solely from the internet. Even the PAI teacher sometimes does not allow students to find information through several search engines on the internet, but must from the library as a bibliography.

2. Execute school literacy programs

Al-Izhar Islamic High School implements the School Literacy Movement program every Tuesday, Wednesday and Thursday. On that day students are given 10 minutes to
read a book. The book used is a book outside of the textbook. This activity is intended to broaden students' insights and to foster students' love for reading.

In the 10-minute reading activity, Al-Izhar Islamic High School students spent more than 10 minutes reading novels, not so many students reading religious books. Only a few students read religious books related to their Scientific Work assignments. But even so, according to PAI teacher information, teachers still give advice and suggestions for students to read also books related to religion but that are mild in nature, with the aim of helping students get more religious knowledge, given the time of religious study hours in the high school curriculum is very limited, and activities outside of school or at home not necessarily all students study religion.

The purpose of this reading activity is as follows:
1) Motivate students to want and get used to reading
2) Show that reading is a fun activity
3) Enrich vocabulary (in written language)
4) Become a means of communicating between students and teachers
5) Teach reading strategies
6) The teacher as a role model for reading (reading role models).

C. Additional Lesson

In supporting the success of the School Literacy Movement program launched by the government, Al-Izhar Islamic High School incorporated local literacy content into the school curriculum which later on the subjects were called Scientific Work subjects. The scientific work is aimed at cultivating literacy so that students can become lifelong learners.

Schools provide freedom about the themes students want to study. Of the many students who took up the theme of social life, politics, health, there were also students who took up religious themes, including writing about the problem of corruption, comparison between Nahdatul Ulama and Muhammadiyah, and deviant behavior.

Students already have good writing skills, this is known from the writing techniques that students use, students already understand the procedures for making scientific work from the background of the problem to making a bibliography. Students have a good knowledge of religious issues that are necessary and important to be investigated. Some themes or problems that students make research are interesting problems. So for the level of high school students, the authors assume they already have the ability at an excellent level regarding their curiosity on the issue of religion.

Students use several sources of accurate information in making work. References that students use come from valid sources of information. Students include every source in each citation. In addition to students using sources from books, students also use references from other people's research (theses) and sources from the internet.

Students have been able to analyze well the information related to the problems they take. With the information students get from several sources, as well as information from interviews, at least they can sort out information, and students can have their own opinions and solutions regarding the religious problems they study.

4. Discussion

PAI teachers have played an active role in enhancing students' information literacy skills. This is known by the use of several learning methods that all emphasize students to be able to develop their critical thinking skills. In learning, teachers often associate learning
material with recent topics, teachers provide examples in the use of references, give assignments and make analytical questions, carry out school literacy programs, support the existence of scientific work subjects, and conduct collaborative activities between PAI teachers and Al-Izhar Islamic High School library. So with these efforts Al-Izhar Islamic High School students became very critical in responding to information. Many students ask about religious issues in class, although this is sometimes outside the subject matter of showing that Al-Izhar Islamic High School students care about the information circulating, they have high curiosity, even though most of them do not then just accept the information.

Compatibility of information literacy implementation with AASL indicators:

To find out whether there is an increase in students of the implementation of information literacy, it is necessary to know the suitability of the implementation of information literacy with American Association of School Librarians.

First, that the learning method used by PAI teachers is able to make students compile questions based on their information needs, this is in accordance with AASL School Information Literacy Standard L1-1 (Indicator 3). Students are able to recognize the need for AASL School Information Literacy Standard L1-1 (Indicator 1). With the presentation method, students are able to integrate new information into one's knowledge, in accordance with AASL School Information Literacy Standard L1-3 (Indicator 2). Students have been able to choose information that is appropriate for a problem or question, this is in accordance with AASL School Information Literacy Standard L1-2 (Indicator 4).

The discussion method allows students to be able to share knowledge and information with others. Students are able to work together with others to identify information problems and find solutions. This is in accordance with the AASL School Information Literacy standard L3-3 (Indicator 3). Students can distinguish positive and negative information that they get from the media, indicating that they have been able to achieve AASL School Information Literacy Standard L1-2 (Indicators 2 and 3), ie students have been able to distinguish between facts, views, and opinions, and students has been able to identify inaccurate and misleading information.

Second, in other side, teachers have tried to make students literacy towards information starting from the examples given by the teacher in the teaching and learning process in the classroom. The teacher exemplifies and emphasizes to students to always use accurate and trusted references in information retrieval activities, both for assignments and for all their needs in daily life. With this example, the teacher makes students able to develop and use good strategies for finding information, in accordance with AASL School Information Literacy Standard L1-1 (Indicator 5), and that students are aware of differences in opinion of the school's priests on an issue, showing that students have been able to examine the quality of the process and product of personal information search, as is the AASL School Information Literacy Standard L2-3 (Indicator 1).

Third, teacher provide diverse task that can make student have problem solving skills. The ability of students who can solve problem in accordance with Standard L1-3 School Information Literacy, namely students are able to apply information into critical thinking and problem solving (Indicator 3).

Fourth, the collaboration between the teacher and the library, it is hoped that it can help students to meet the AASL School's Literacy Information Standard L3-1, where students value the principle of access to adequate information (Indicator 2).

Fifth, scientific work subjects can develop student mastery to be able to recognize that accurate and comprehensive information is the basis of good decision making and students are able to identify a variety of potential sources of information (AASL School Information Literacy Standard L2-3 (Indicator 4)).
Literacy Standard L1-2, Indicators 2 and 4). However, according to the author, so that Al-Izhar Islamic High School students become more literate towards religious information, in making scientific works the teacher needs to direct more students so that they can make more works that raise religious themes.

5. Conclusion

The information literacy ability of Al-Izhar Islamic High School students has demonstrated good ability with the achievement of all indicators of AASL school information literacy. Students have been able to search, analyze, use, and communicate information well in the making of assignments and other works (information category). Students can learn independently (independent learning), with guidance from the teacher and the school library. In daily religious attitudes, students have been able to show a sense of social responsibility towards the surrounding environment. All of these capabilities are in accordance with AASL School Information Literacy Standards, namely Information Literacy Mastery Standards, Independent Learning Standards, and Social Responsibility Standards, with each standard consisting of several indicators of achievement.

Acknowledgement

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References

The Effect of Interactive Multimedia Base Problem Solving on Students’ Critical Thinking Skills in Equilibrium and Rotational Dynamics Concept

Sri Ratnaningsih¹, Erina Hertanti²
{sri.ratnaningsih14@mhs.uinjkt.ac.id¹, erina.hertanti@uinjkt.ac.id²}
¹,²UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. The main problem of this study is physics learning process has not involved activity that can train critical thinking skill, so that affects students’ critical thinking skill low. This study aims to determine the effect of interactive multimedia base problem solving on students’ critical thinking skills in equilibrium and rotational dynamics concept. The study was conducted at Al-Qur’aniyyah Integrated Islamic Senior High School on July 2019. Purposive sampling was used in order to determine the samples of the test. This study used quasi-experimental method as research methodology and nonequivalent control group research design. The study used essay questions as instrumental test and questionnaire as instrumental non test. The hypothesis test of posttest score showed that there is an effect of interactive multimedia base problem solving on students’ critical thinking skills. Meanwhile, the result of students’ questionnaire shows that learning using interactive multimedia base problem solving got a good category (78%).

Keywords: critical thinking, interactive, multimedia, problem solving, skill

1. Introduction

The equilibrium and rotational dynamics are physics concept concerned with the study of motion and object rotation. Rolling object, seesaw, and the dancer that do the spinning are example of equilibrium and rotational dynamics concept. This means that this concept related to the problem of daily life. Moreover, this concepts are complex and abstract [1]. Accordingly, learning equilibrium and rotational dynamics concept needs some thinking skills, such as critical thinking skill.

Critical thinking is reflective and reasonable thinking that is focused on deciding what to believe and do [2]. This means while someone does critical thinking skill optimally, they will make wise decision in their every lives [3]. However, there are obstacles to form students’ critical thinking skill. First, physics learning process is dominated by conventional learning, so that students tend to be passive and lack of building their critical thinking skills. Second, students are only able to answer questions regarding of students’ remembering and understanding aspect and almost never drilled to apply critical thinking method to solve problem [4]. These two obstacles cause students’ critical thinking low. Hence, it is needed learning tools to facilitate students to form their critical thinking. Also, this research uses interactive multimedia as the tool.

Interactive multimedia is the unification of some media (audio, video, text, or graphic) that empowering the user to control the environment usually by the computer [5] [6]. Interactive multimedia enable learning process focusing on students and guiding to do the
exploration, inquiry, and solving problem. However, nowadays, interactive multimedia could not make students to solve problem optimally [7]. Whereas problem solving can enhance students' critical thinking skill [8] [9]. The most common interactive multimedia only contain materials, experimental videos, and evaluation tests that do not support students to build their critical thinking. By this conclusion, interactive multimedia that are being applied to enhance critical thinking skills in this research is interactive multimedia base problem solving. This multimedia is considered can enhance students’ critical thinking skill.

2. Method

The research is conducted at Al-Qur’aniyyah Integrated Islamic Senior High School on July 2019. The research method is quasi-experimental research with nonequivalent controlled group design. This design is divided into the controlled and the experimental group [10] [11]. Population in this research are students of Al-Qur’aniyyah Integrated Islamic Senior High School, while the samples are 11 Nature Science 2 (experimental class) and 11 Nature Science 1 (controlled class). Data are collected by two techniques, they are test and nontest. The tests are giving pretest and posttest to experimental class and controlled class to know the critical thinking skill before and after doing the research. The test is 12 essay question of critical thinking skill by Robert H. Ennis. It consists of the elementary classification; the basic support; inference; advanced classification; the strategies and tactics [12]. The nontest is giving the questionnaire to experimental class to know the response while they are being given the treatment by using interactive multimedia base problem solving. Last, the data are analyzed by using Staticitical Product and Service Solution (SPSS).

The interactive multimedia not only contain materials, experimental videos, and evaluation tests. This interactive multimedia is developed based on very familiar design, Polya problem solving indicator which consist of understanding the problem (understanding), devising plan (planning), carrying out the plan (solving), and looking back the problem (checking) [13]. This design is considered can make students active to solve problem so that it can enhance their critical thinking skill.

3. Result and Discussion

3.1 Result

The result of pretest and posttest from experimental class and controlled class can be seen on Table 1. According to Table 1, both of experimental class and controlled class develope the average value by giving the different treatment.

<table>
<thead>
<tr>
<th>Data</th>
<th>Pretest Score</th>
<th></th>
<th>Posttest Score</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experimental class</td>
<td>Control class</td>
<td>Experimental class</td>
<td>Control class</td>
</tr>
<tr>
<td>The lowest score</td>
<td>7,00</td>
<td>17,00</td>
<td>35,00</td>
<td>35,00</td>
</tr>
<tr>
<td>The highest score</td>
<td>37,00</td>
<td>47,00</td>
<td>80,00</td>
<td>80,00</td>
</tr>
<tr>
<td>Average</td>
<td>24,81</td>
<td>26,35</td>
<td>60,04</td>
<td>49,35</td>
</tr>
<tr>
<td>Modus</td>
<td>20,00</td>
<td>28,00</td>
<td>52,00</td>
<td>47,00</td>
</tr>
<tr>
<td>Median</td>
<td>27,00</td>
<td>27,00</td>
<td>62,50</td>
<td>47,00</td>
</tr>
<tr>
<td>Stand. Deviation</td>
<td>6,69</td>
<td>6,24</td>
<td>13,75</td>
<td>9,54</td>
</tr>
</tbody>
</table>
In addition, analysis data of experimental class and controlled class pretest and posttest based on critical thinking skill categories can be seen on the Figure 1.

![Diagram Result of Pretest and Posttest Students’ Critical Thinking Skill Categories on The Experiment and Control Class](image)

According to Figure 1, it reveals the result of students' critical thinking that is not only experimental class but also controlled class doing the enhancement. Figure 1 shows that the highest enhancement of experimental class is the strategies and tactics category (43%), while controlled class is advanced classification category (36%). Meanwhile, the lowest enhancement of experimental class and controlled class is the inference category (26% and 11%). It shows that all the critical thinking skill categories of experimental class critical thinking skill is better than controlled class.

The result of normality test of pretest and posttest data can be seen on Table 2:

| Statistic     | Pretest | Posttest | | | |
|---------------|---------|----------| | | |
|               | Experimental Class | Control Class | Experimental Class | Control Class | |
| Df            | 26      | 26       | 26 | 26 | |
| Sig.(2-tailed) | 0,443  | 0,005    | 0,059 | 0,153 | |
| Significance Level (α) | 0,05 | | | |
| Decision      | Data Are Not Distributed Normally | Data Distributed Normally | Data Distributed Normally | Data Distributed Normally | |

Meanwhile, the result of homogeneity test can be seen on Table 3:

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Pretest of Experimental Class and Controlled Class</th>
<th>Posttest of Experimental Class and Controlled Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levene Statistic</td>
<td>0,877</td>
<td>6,091</td>
</tr>
</tbody>
</table>
After normality and homogeneity test, we gain the information that pretest data are not distributed normally and are having the same variant. Therefore, hypothesis test is being done by nonparametric statistical test with Mann-Whitney test. Meanwhile, there is the information that posttest data are distributed normally and has different variant, so the hypothesis test is being done by \( t \)-test. The result can be seen on Table 4.

Table 4. Hypothesis Test of Pretest and Posttest Data of Experimental class and Controlled class

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.747</td>
<td>0.017</td>
</tr>
<tr>
<td>Significance Level (( \alpha ))</td>
<td>0.05</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Decision</th>
<th>( H_0 ) accepted</th>
<th>( H_a ) accepted</th>
</tr>
</thead>
</table>

Table 4 shows the result of pretest is Sig. (2-tailed) > significance level (\( \alpha \)), so null hypothesis (\( H_0 \)) is accepted or alternative hypothesis (\( H_a \)) is rejected. After accepting null hypothesis (\( H_0 \)), it can be concluded that before being given the treatment, we find no difference of the students' critical thinking skill of experimental and controlled class. The result of posttest is Sig. (2-tailed) < significance level (\( \alpha \)), so the hypothesis (\( H_0 \)) is rejected and alternative hypothesis (\( H_a \)) is accepted. After accepting alternative hypothesis (\( H_a \)), it can be concluded that after being given the treatment, there are the difference of students' critical thinking skill of experimental and controlled class. It means that there is the effect of interactive multimedia base problem solving to the students' critical thinking skill.

The enhancement of students’ critical thinking skill on every categories of critical thinking skill of experimental and controlled class can be seen on Table 5.

Table 5. The N-Gain Result of Pretest and Posttest of Experimental and Controlled Class

<table>
<thead>
<tr>
<th>No</th>
<th>Critical Thinking Categories</th>
<th>Experimental Class</th>
<th>Controlled Class</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Score Pretest</td>
<td>Score Posttest</td>
<td>N-Gain</td>
</tr>
<tr>
<td>1</td>
<td>Basic Classification</td>
<td>21</td>
<td>55</td>
</tr>
<tr>
<td>2</td>
<td>Basic Support</td>
<td>23</td>
<td>56</td>
</tr>
<tr>
<td>3</td>
<td>The Inference</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>4</td>
<td>Advanced Classification</td>
<td>32</td>
<td>72</td>
</tr>
<tr>
<td>5</td>
<td>Strategies and Tactics</td>
<td>17</td>
<td>20</td>
</tr>
</tbody>
</table>

According to Table 5, it gains the information that there are the enhancement of critical thinking skill of experimental and controlled class. Every critical thinking skill categories has the enhancement by medium categorized in experimental class. Meanwhile, controlled class has the enhancement of two critical thinking skill categories in low category and three critical thinking skill categories in medium category.
The students' response to the interactive multimedia base problem solving can be seen on result of data of questionnaire. The result calculation of data of questionnaire can be seen on Table 6.

**Table 6.** The Questionnaire Result of Students' Response of The Study Applying Multimedia Interactive Base Problem Solving

<table>
<thead>
<tr>
<th>No</th>
<th>Questionnaire Indicator</th>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The Presentation of Multimedia Interactive Base Problem Solving</td>
<td>84</td>
<td>Very Good</td>
</tr>
<tr>
<td>2</td>
<td>The Effect of Multimedia Interactive Base Problem Solving on Critical Thinking Skill</td>
<td>74</td>
<td>Good</td>
</tr>
</tbody>
</table>

| Average | 78 | Good |

According to Table 6, it shows that the presentation of interactive multimedia base problem solving in good category. Furthermore, interactive multimedia base problem solving is in good category on enhancement of students' critical thinking skill. It means that the study that is applying interactive multimedia base problem solving gains a whole positive response.

### 3.2 Discussion

Based on the research result that has been presented, the critical thinking skill of experimental class and controlled class are relatively same before doing the treatment. However, after the treatment, experimental class is better than controlled class. Moreover, based on hypothesis test of posttest is gained Sig. (2-tailed) > significance level (α). It means that applying interactive multimedia base problem solving affects students' critical thinking skill. According to [14], this is in line with the result of the research that the average score of the students with interactive multimedia is better than the student with the conventional learning. According to [8] [9] it shows that the average score of the student with problem solving learning is better than the student with the conventional learning. Meanwhile, based on the N-Gain result, the increase of students' critical thinking skills in experimental class is higher than controlled class. The increase puts on every categories, they are elementary classification, basic support, the inference, advanced classification, strategies and tactics.

The elementary classification categories in experimental class is better than controlled class because of the interactive multimedia base problem solving. It presents the video of the real life problem (understanding step), with result that student can analyze the presented problem. To guide students in analyzing problem relate to the real life can increase elementary classification skill [15].

The basic support categories in experimental class is higher than controlled class because of interactive multimedia base problem solving that facilitates students to do the simulation, reading material learning, and watching video that is presented on planning step. On the planning step, students are being led to be active and independent to discover the information. Discovering information by their own enhance the basic support skill [16].

The critical thinking skill of experimental class is better than controlled class on inference categories. This is because interactive multimedia base problem solving that is being facilitated the box to draw the conclusion to solve the problem (checking step). Drawing conclusion based on problem solving enhances skill of inference [17] [18].

Experimental class enhances critical thinking skill which is higher than controlled class on advance classification categories. Interactive multimedia base problem solving guides
students to explore the material learning through the simulation that is presented on planning step. Simulation guides students to discover the relation among variable of a concept. By finding the relation of variable, students can draw conclusion of learning material. Therefore, students can defining term and judging definitions. Defining term and judging definitions enhancing the advanced classification skill [19].

On strategies and tactics categories, experimental class is better than controlled class. This is because interactive multimedia is designed by applying the steps of problem solving model that is drilled the students to solve the problem. Solving problem process can drill the strategies and tactics skill [20].

Interactive multimedia base problem solving has not only the advantages which is mentioned above but the weaknesses that have been found in the learning process. First, the limitation of throwing the evaluation feedback. As a result, the students do not know whether their answers right or wrong. Second, interactive multimedia base problem solving is not online for keeping the students’ answer. So that, the answer will be saved in only the same computer. If they change the computer, the answer will loss. However, the application of interactive multimedia base problem solving in learning process enhances the students' critical thinking skill and gains the positive response. Therefore, interactive multimedia base problem solving can be alternative media to solve the problem of the low students' critical thinking skill in equilibrium and rotational dynamics concept.

4. Conclusion

Based on the result of research, it can be concluded that the study by applying interactive multimedia base problem solving has the significant effect on students' critical thinking skill in equilibrium and rotational dynamics concept. It can be seen on the result of statistical hypothesis test of posttest that shows Sig. 2-tailed (0.017) < significant level (0.05). Moreover, the result of N-Gain shows that experimental class enhances their critical thinking skill which is higher than controlled class on every indicator by medium category. The students' response of the learning by applying interactive multimedia base problem solving is in good category (78%).

Acknowledgements. Finally we thank the administrative staff of Syarif Hidayatullah State Islamic University Jakarta, supervisor lecturers, teachers at Al-Qur'aniyah Integrated Islamic Senior High School, and students who have participated in this research.

Reference


The Effect of Using Process Approach on Students’ Writing of Descriptive Text

Qisthi Amalia¹, Zaharil Anasy², Ratna Sari Dewi³
\{qisthi.amalia15@mhs.uinjkt.ac.id¹, zaharil.anasy@uinjkt.ac.id², ratna@uinjkt.ac.id³\}

¹,²,³UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. The aim of this study was to find the empirical evidence of the effectiveness of Process Approach on students’ ability of writing descriptive text at the tenth-grade of SMAN 87 Jakarta. The population of this study was tenth-grade students of SMAN 87 Jakarta. The sample was 60 students chosen through purposive sampling technique and was divided into two classes; experimental class and controlled class. The method used in this study was a quantitative method using quasi-experimental design. Research instruments used in this study was a set of writing tests which was given at the beginning of the study and at the last meeting after the treatments by using Process Approach were applied. The data was analysed by using t-test. The result that was gained from this study had shown the differences of students’ scores in writing descriptive text by using Process Approach and without using Process Approach. The presented result of p-value of post-test score was 0.011 with the level of significance 5% (0.05). In other words, it can be concluded that p-value (0.011) < sig α = 0.05 (5%). In addition, the effect size result was 0.7. It proves that using Process Approach was effective at a moderate level on students’ writing descriptive text at the tenth-grade of SMAN 87 Jakarta in academic year 2018/2019.

Keywords: Writing of Descriptive Text, Process Approach

1. Introduction

In Industrial Revolution 4.0 (era Revolusi Industri 4.0) literacy culture among students including reading and writing skills are needed to be improved. For instances, with a variety of advanced technology and strong information flow, Indonesian students must be able to improve their writing skills in order adjust themselves to the industrial revolution era by utilizing the advanced technology. Therefore, by having fine writing skill, students can spread positive information and also improve their skills and expand their knowledge through writing [1]

In Indonesia, the government stated that writing skill is must be taught at school and it has been written in the education curriculum. In addition, senior high school students in Indonesia are required to study writing descriptive text. As written in Kompetensi Dasar 3.4 of Curriculum 2013: “Membedakan fungsi sosial, struktur teks, dan unsur kebahasaan beberapa teks deskriptif lisan dan tulis dengan memberi dan meminta informasi terkait tempat wisata dan bangunan sejarah terkenal, pendek dan sederhana, sesuai dengan konteks penggunaannya.” Therefore, writing descriptive text is important and should be taught and mastered both by teachers and students.
However, learning writing of descriptive text has become more demanding since the new development of English Language Curriculum 2013 has been enacted. There are many components that should be mastered by students in descriptive text such as grammar, spelling, content, conjunction, choice of words, and mechanism of the text in order to produce a unified paragraph [2]. In order to solve the problem in writing descriptive text, the teacher should encourage students’ to write creatively and to express their ideas without being afraid of making mistakes.

Nevertheless, there is an approach namely Process Approach which believed could help English teachers enhance their teaching in classroom and also help students to produce better writing. Process Approach is considered as an approach which can be used to enhance the learning process and by using Process Approach, students would learn on how to focus on their process of writing. According to I. S. P. Nation, Process Approach is an approach which considers writing as a process. In order to make a good writing, students should understand of how the writing has produced not only on the writing results’ but also on the process of writing [3].

The question that has been formulated in this study is whether there were any significant effects of Process Approach on students’ writing ability of descriptive text when it has been implemented in learning.

This paper contains the literature review of writing descriptive text and Process Approach, the methodology, the steps to implementing Process Approach in learning writing, the results and suggestions of the research, and the conclusion of the research.

2. Literature Review

Writing descriptive text generally shares some characteristics with the other kinds of writing. It purposes to explain the topic in the text or to tell the reader about something. However, in writing descriptive text, the writer needs to describe the subject of the text in more detail by using vivid nouns and verbs in order to make the readers have better imagination about the subject.

In addition, the writer also needs to check the errors of grammar and spelling in order to produce a good descriptive text [4][5]. In teaching writing descriptive text, teacher can use many approaches, methods, or techniques in order to enhance students’ ability.

One of the approaches that has been proved to be useful in learning writing descriptive text is Process Approach.

Process Approach is an approach that focused on the process of the writing. On its implementation, Process Approach focuses on some stages in the writing process namely pre-writing phases, drafting, revising and editing or proofreading [6][7].

Several studies that have been conducted by the experts had shown the advantages of Process Approach in learning. Process Approach encouraging students to write creatively in order to make students able to communicate effectively through their ideas of the writing.

Process Approach becomes advantageous because this approach gives an understanding to the students about the process of the writing. Students would be experiencing themselves as the writer who shares their ideas in writing to the reader. Furthermore, Process Approach does not only focus on the product of the writing which can omit the displeasure of traditional product approach. Moreover, by using Process Approach, students can discuss and work in pair and doing brainstorming in order to choose the topic for their writing. For examples, students can discuss with their friends or the teacher about the content of the writing, students also can share their ideas with their peers in a classroom. In addition, peer correction and group evaluation are also encouraged on Process Approach [8].

3. Methodology

Quantitative method and quasi-experimental design was used in this research since this research aims to find the empirical evidences of the advantages in using Process Approach on students’ writing descriptive text. Quantitative research is a social research that uses empirical methods and empirical statements. Moreover, a quantitative research as a type of research that
obtained numerical data that would be analysed by using mathematical method, or to be more specific, by using statistics [9]. Meanwhile, a quasi-experimental design uses two classes. The first class would serve as experimental class that will be taught by a treatment and the second class would serve as controlled class that will not be given a treatment [10]. The rationale behind the application of this method is because this research needs to find out whether the independent variable (Process Approach) has a significant effect towards the dependent variable (students’ ability in writing descriptive text).

The population of this study was the tenth-grade students of SMAN 87 Jakarta, academic year 2018/2019. It consists of 210 students divided into seven classes. Furthermore, two classes: X IPS 2 and X IPS 3 will serve as samples of the research.

The instrument used in this research is a set of writing tests of descriptive text. The test was divided into pre-test and post-test. The pre-test was given before Process Approach was being implemented on learning and post-test was given after the treatment by using Process Approach was being implemented on experimental class.

Furthermore, the collected data were analysed by using statistical analysis. Then, the data from experimental class and controlled class were being compared. The t-test was used in analysing the data to know the effect of using Process Approach on students’ writing ability of descriptive text. Below is the table of the research design:

<table>
<thead>
<tr>
<th>Study Population</th>
<th>Before/pre-observation</th>
<th>Technique/intervention</th>
<th>After/post-observation</th>
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<tr>
<td>Controlled Group</td>
<td>Pre-test</td>
<td>No experimental treatment (lecturing, group discussion, individual task)</td>
<td>Post-test</td>
</tr>
<tr>
<td>Experimental Group</td>
<td>Pre-test</td>
<td>Experimental treatment (lecturing, and using Process Approach)</td>
<td>Post-test</td>
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</table>

4. Implementation of Process Approach in Experimental Class

Four major stages in writing are pre-writing, drafting, revising, and editing. The description of these four major steps would be described as follows:

a. Pre-writing

Pre-writing stage is a first stage in process of writing, this stage helps the writer to develop ideas for the writing when the writer does not have any clues or inspiration in writing. This stage is called pre-writing stage because this stage was done before the writer create a first draft.

b. Drafting

Drafting stage is a stage where the ideas that have been obtained from pre-writing stage are being written down into a first draft. In common, a first draft is also called rough draft; the material inside a first draft is very basic and can be revised on the next writing stage.

c. Revising
In revising stage, there are many components on writing that should be noticed by the writer such as the content of the writing, the arrangement of ideas, and also sufficient evidences to support the ideas in writing. This stage would take much time and also could be the most difficult part of the writing process.

d. Editing

Editing stage is the last stage of writing process. In editing, the writer is needed to check for errors and eliminate these errors thus the writing can be free of errors [11].

In line with Barbara Fine Clouse, also proposed several procedures in using Process Approach are:

1. Freewriting: students discover ideas for their writing. After that, students would gain information which related to the topic. Then, students can do free writing where students can write as many words as possible related to the topic of their writing.

2. Drafting: students create a first draft based on the topic sentence of the writing. It is also possible to have more than one draft. In drafting stage, grammar, spelling, or punctuation should not be the primary concerns.

3. Revising: students could possibly add, shift, or delete some materials of the writing when working in revising stage by revising it individually or with others.

Moreover, here are some of the revision priority lists in revising stage:

a. Content: students are tend to give more attention to the clarity of the ideas, check the sufficient examples or details of the writing, and not to look at the unnecessary points, examples, or details that are not important or would distract the readers from the main idea.

b. Organization: students can see the clarity of topic or thesis statement, the overall organizational patterns, the punctuation, transition, or connection between each word, and the conclusion of the text.

c. Style: students can delete some words that not working well, checking the meaning of sentence in writing, eliminate unnecessary words, add some new words, and give attention to the length, type, and beginning of the sentences, and also check if there are some sentence that need to be tighten or words with no purpose that need to be deleted.

d. Mechanics: students are needed to check grammar, spelling, and punctuation of their writing.

Editing and Proofreading: After doing some revision for the material, organization, and style, students are asked to pay attention on a few kinds of errors. The main concern in editing is on the mechanism. Furthermore, for the final step of Process Approach, students were to read their final draft that had been recently edited in order to eliminate all the possible errors in the mechanism of writing. There are some way to do proofreading such as check for typographical errors, font size, line spacing, margins, and title [12].

Based on the statements of two experts above, Process Approach is commonly consists of four main stages. All of the stages are having same procedures and instructions at each stage although the terms used by the two experts are different.

From statements above, the writer sums up the procedures in using Process Approach are:

1. Students determine the topic of their writing and collect information related to the topic of the writing.

2. Students do free writing where they write down as many words as possible related to the topic of their writing on their paper.

3. Students create a first draft which consists of 150 to 200 words. In addition, grammar, spelling, and punctuation should not be the main focus.

4. Students could possibly add, shift, or delete some materials of the writing. Furthermore, students need to focus on the content, organization, style, and mechanism of the writing.

5. Students read the paper to find a few kinds of errors and make a list or chart of common errors of the writing.

6. Students read their final draft to check spelling, grammar, or typographical errors.
5. Method Used in Controlled Class

The learning method used in controlled class is Scientific Approach consists of several steps that need to be done by students. First, observing stage, in this stage the writer activates students’ background of the material that will be learned by showing pictures or video related to the learning material. Second, questioning stage, the writer gives some examples related to the material and gives students chances to ask questions. Third, associating stage, the writer explains things that need to be known by students related to the material and students are asked to discuss with their friends about things related to the learning material. Fourth, experimenting, in this stage students are asked to do an experiment and create their own material based on the information that has been obtained and discussion that has been done. Fifth, communicating, this stage aims to make students active in learning, students are asked to present their own material in front of the class or tell about their creation to their friends.

6. Population and Sample of the Research

The population of this study was the tenth-grade students of SMAN 87 Jakarta, academic year 2018/2019. It consists of 210 students divided into seven classes. The writer chose this population because the writer expected the students to have an adequate understanding of writing especially in writing descriptive text.

The writer used purposive sampling in taking sample. Purposive sampling is used in a special situation. This type of sampling is usually used in exploratory research or field research. The judgment of experts is used in selecting cases.

In this research, there will be two classes which are taken as the sample. One class will serve as the experimental class and the other class will serve as the controlled class. Those classes will be chosen based on the information from their English teacher about the average scores of writing of the two classes. The writer will took the sample of the research based on the situation of the class and the information from the English teacher.

Furthermore, two classes: X IPS 2 and X IPS 3 will serve as samples of the research. Based on the interview with the English teacher, the writer knew that X IPS 2 had higher writing scores and X IPS 3 had lower writing scores. Therefore, the writer decided to choose X IPS 2 as the experimental class to examine the writing ability of students after treated by using Process Approach and, X IPS 3 will serve as the controlled class respectively.

7. Results and Suggestions

The result of this quasi-experimental research has indicated that Process Approach was effective on students’ ability of writing descriptive text at tenth-grade of SMAN 87 Jakarta in academic year of 2018/2019. Based on the calculation of effect size, it was also confirmed that the effectiveness was at moderate level of significance.

Based on the statistical analysis, the increasing point of experimental class is 6.8 points; from 73.3 to 80.1. For the control class, the mean score has increasing point of 2.1 points; from 74 to 76.1. It means that in experimental class, the points was been increased more significantly rather than the controlled class.

Moreover, the independent-sample t-test of data analysis had shown statistically the effectiveness of using Process Approach during the period of treatment. A statistical significance shown by the analysis of post-test data had resulted that p-value or sig (2-tailed) = 0.011 that is lower than sig a = 0.05. The statistical result indicates that the null hypothesis (Ho) is rejected and the alternative hypothesis (Ha) is accepted. Therefore, it can be concluded that Process Approach has an effect on students’ writing ability of descriptive text. In addition,
the calculation of effect size adapted from Cohens’ $d$ also revealed the level of effectiveness on using Process Approach. The result of the effect size is 0.7, which indicates that Process Approach is moderately effective in this research.

Based on the research that has been conducted, the writer concludes that Process Approach gives the effect on students’ writing descriptive text. Therefore, there are some suggestions for English teacher, students, and other researchers:

1. **For English Teacher**
   Teacher might apply Process Approach to help students increase their writing achievement. Moreover, teacher should prepare the learning material and strategy and manage time effectively in the classroom when using Process Approach in order to achieve maximum results. In addition, the teacher should make conducive learning situation in the classroom when applying Process Approach as the teaching strategy. Also, the teacher should be able to supervise students’ attention, involvement, and engagement in the learning process.

2. **For Students**
   Students should maximize their time on learning and be able to be more active and focus on the learning activities while Process Approach is implemented.

3. **For Other Researchers**
   The result of this study could be the basic references for other researchers who want to conduct a similar research about the effect of using Process Approach in writing of descriptive text.

**8. Figures**

![Fig. 8.1. The Difference between Students’ Score in Experimental Class and Controlled Class](image)

**9. Conclusion**

Based on the research findings, Process Approach is moderately effective on improving students’ writing ability of descriptive text. It is proved by the result of independent-sample $t$-test which shown $p$-value (2-tailed) = 0.011 in post-test scores on experimental class and controlled class. The number of $p$-value (2-tailed) in this research is less than the referred significance level of $\text{sig a} = 0.05$ (5%).

Furthermore, because of the obtained $p$-value in this research is lower than the $\text{sig a} = 0.05$ (5%), it can be concluded that there is a statistical significance or effectiveness. In other words, when $p$-value is lower than the $\text{sig a} = 0.05$ (5%), means that the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected. In addition, the result of the effect size calculation adapted from Cohen’s $d$ shows a value of 0.7. It means that the level of significance ranged at the moderate level.
In conclusion, the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected. In other words, it proves that Process Approach was effective on students’ writing descriptive text at the tenth-grade of SMAN 87 Jakarta in academic year 2018/2019.

Despite the positive result of statistical data, the statistical calculation is needed to be supported by the interview results from five students in the experimental class that gave their opinion about the strengths and weaknesses on the implementation of Process Approach in the classroom.

From the interviews, most students found that Process Approach was helpful to guide them understanding the process of writing descriptive text. Also, the students thought that using Process Approach made them easier to discover ideas for their writing because there will be a stage called Freewriting in Process Approach.

However, there are few negative responses that arose from the use of Process Approach in the classroom. Some students thought that Process Approach was time-consuming, because there are several stages where students created their own writing. Thus, the teacher needs to allocate a larger time when implementing Process Approach in the classroom.

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References
The Disaster Education In Strategic Management Studies

Nurochim¹, Siti Ngaisah²
{nurochim@uinjkt.ac.id¹, sitingaisah.61@ui.ac.id²}
¹UIN Syarif Hidayatullah Jakarta, Indonesia
²University of Indonesia, Depok, Indonesia

Abstract. According to Law of Republic of Indonesia Number 24 of 2007, disaster management should be conducted on integrated task during pre-disaster period, emergency response, and post-disaster period. One of this pre-disaster management includes education and training in order to prepare student with the high level of awareness for facing disasters. To achieve this goal, in 2009 the Curriculum Center has compiled a series of 18 disaster risk reduction modules. However, the implementation result of this disaster education in all levels of school is not as expected. Therefore, this article shows that the strategic management perspective should be adopted on the disaster education. It is argued that the strategic management perspective which valued SWOT analysis (Strengths, Weakness, Opportunities, Threats) in formulating disaster education will make the disaster management more reliable.

KeyWords: Management; Disaster; Education; Strategic.

1. INTRODUCTION

Indonesia is the country which has historical experience of the two biggest volcanic mountain eruption ever in the world. The first was Mount Tambora eruption on Sumbawa Island, West Nusa Tenggara, occurred In 1815. At that time, Tambora was erupting and releasing about 1.7 million tons of ash and volcanic material. Some of this volcanic material formed a layer in the atmosphere that blocked the sunlight and throw it back out of the atmosphere as consequence. Because the amount of sunlight entering the atmosphere was greatly reduced, the earth did not receive enough heat and cold waves suddenly occurred. This situation was known as "the year without summer" triggering a large number of crop failure in many places and widespread famine. The second eruption was Mount Krakatoa eruption in 1883. This eruption was estimated have a power equals to 200 megatons of TNT. This power are more bigger 13,000 times than Hiroshima atomic bomb explosion in the second World War [1].

Indonesia is located in disaster prone area which make this country has a large number of volcano mountain. As archipelago state, Indonesia has many groups of islands which are inhabited by the high number of tribes and races. Therefore, the potential disasters in Indonesia is not only natural disasters but also social disasters as well. Natural disasters in Indonesia are triggered by intense and powerful natural events such as tsunamis, earthquakes, and floods, fires, and dryness. Social disasters in Indonesia comes from potential communal conflicts ranging from quarrel among youth and student in rural area to the inter-ethnic, tribes,
and religion violence conflict. Moreover, the massive distribution of hoaxes content in social media are considered now as one of national social disaster trigger because of its great impact on conflict escalation.

Figure 1. Disaster Trends in Indonesia 2003-2017 (The National Disaster Management Agency).

Based on this picture, the disaster trend from 2003 to 2017, tends to rise. The highest number of disasters in 2017 was 2,372.

Figure 2. 10 Disaster in The World 2018 (Centre for Research on the Epidemiology of Disaster, IDN Times).

In 2018, the deadliest disasters occurred in Indonesia, namely in Lombok and Sulawesi. Natural disaster in Indonesia are commonly affected by its geological aspect which is located in the junction of Indo-Australia plate, Eurasian Plate, and the Pacific Ocean plate. The encounter of these three plates made Indonesia prone to earthquakes and volcanic eruptions. So that, Indonesia is included in the part of the Ring of Fire of the world [2].

The impacts of disaster are ranging from death to physical injury or illness. The other potential problem that arise from disaster is destruction of goods, employment, groundwork for life, and natural resources [3]. Disaster impacts to food and agriculture sectors lies on the declining number of farming production triggering economic loss of the country. This
condition may contribute to the entire value chain of food [4]. For this reason, it is crucial for the state to manage this issue by reducing the risk of these disasters.

The disaster can strike anyone regardless of their nationality, background, identity, and age. Even in this case, children, elderly, women, and poor people are the most vulnerable group in terms of facing the effects of disasters. For example, kids and women are generally known as the most exposed group in the community as a result of their minimum scope of resources to deal with the disaster. For this reason, the disaster education should be initiated from the level of individual, family, and school to get the effective result [5].

Disaster awareness is a social process achieved by the learning process. Therefore, school is the most suitable place for implementing this kind of learning process due to its characteristic as a public organization in which people from the different levels gather and interact each other in one place for a certain time. These people are considered as school elements including teachers, students, and school staff. This element is also built on intangible aspects as well such as school value, school management, leadership, finance condition, curriculum, and learning media. Through education, it is hoped that students will get the improvement of their knowledge, attitudes, and skills in dealing with problems of daily life. Based on this point, disaster education must cover these three aspects, namely knowledge, attitudes, and skills.

Unfortunately, Indonesia has not implemented this kind of disaster education properly. To get this comprehensive disaster education, there are three levels of competency that must be accomplished systematically: disaster anticipation management, emergency response management, and post disaster management [6]. The non-governmental organization, Sekala, offered disaster mitigation education, but state schools refused, citing many activities (Trimirlamalangningrum in Abdulsalam, 2019). Tsunami detection devices are damaged so as to weaken the government's mitigation or preventive measures to prevent the emergence of casualties when a tsunami wave hits the land [7].

There are several countries that have implemented SWOT perspective in their disaster management. Myanmar is one of the countries in ASEAN that has been implementing SWOT perspective in their disaster risk reduction planning [8]. The shortcoming is that the implementation of this agenda is still general. In this context, schools are not placed in the central subject of this disaster education. A more comprehensive SWOT analysis was conducted by Canada in which, the social institution such as the church, school, teachers, bidders, sports groups, participate actively and have the willingness to provide an input for the disaster education [9].

Several countries have made the school as the central basis for implementing disaster education. Cape Verde, for instance, have the “institutionalized” disaster risk reduction in its schools; Mozambique has the special trained teachers to adopt the mainstream disaster risk reduction into school curricula; and the United Kingdom has implemented a project through the Internet to educate students about how to prepare for and respond to a number of hazards [10]. From this example, I suggest that Indonesia may follow the path of these countries by adopting strategic management analysis for disaster education.

2. METHOD

The research method used in this article is literature review. A literature review is an extensive summary of previous study than has been explored on the several specific topics. It reviews journal, books, and other sources related to a distinct area of research. It should give the basic perspective for the research and also help the reader to determine the nature of the
study. This kind of earlier studies are critical as the rationalization for the next research [11]. In this article the authors carry out identification, critical evaluation, and integration of findings about disaster awareness in school communities. The author draws conclusions from a critical analysis of the literature on disasters published in the last 10 years. The disaster literature comes from the case of Indonesia and other countries such as Japan. Furthermore, the authors concludes critically about strategic management studies with a SWOT analysis [12] of disaster education in Indonesia. The sources for this article are primary source (disaster report), secondary source, theoretical, and opinion.

3. DISCUSSION AND RESULT

One of the most important findings from this research is that Indonesia is suffered with the lack of integration and comprehensive coordination and cooperation in dealing with emergency response situations. The orientation of disaster management in general is still more focused on handling emergencies and not on aspects of disaster prevention and risk reduction [13].

Education on disasters has tended to focus on disaster response and recovery, as opposed to proactive actions to reduce disaster risk and increase preparedness. Furthermore, disaster risk is framed as an external event or threat rather than being integrated into development patterns. In order to build disaster resilience in societies around the world, education is needed to reframe how disaster risk can be understood and reduced—not only reducing existing risks, but also preventing the creation of new risks [14].

Some of the countries which have many natural hazards such as Japan and US usually do separate disaster education. In Japan for example, disaster education includes only education for natural hazards. Traffic safety and anticrime education are not included in disaster education. On the other hand, British disaster learning method is diverse from this path which are characterized to be more far-reaching to the all type of risk. For this reason, this type of disaster education implemented by British should not be considered disaster education but exposure training or safety education [15].

Moreover, the historical aspect of the disaster experienced by the country should be considered as the fundamental aspect of disaster management development. Natural catastrophe such Hanshin-Awaji Earthquake on 1995 and Great East Japan Earthquake and Tsunami on 2011 became the fundamental element for evolution in Japan disaster management [16]. These context-specific revisions of the governance contribute to the reduction of risk for future disasters. It is known that the initiative to make collaborative reform in the disaster management by Japanese government are highly motivated to solve the weakness of collaboration between schools and the community and weakness of collaboration between actors in schools as well in disaster response management.

According to the SWOT analyses, there are several strengths that Indonesia has in its disaster education and should be improved. One of this strength is the role that played by Pusat Teknologi Komunikasi Kementrian Pendidikan Kebudayaan (PUSTEKOM) in coordinating the disaster education. Pustekkom is the governmental office under the Indonesia minister of education that facilitates the implementation of information technology in education, learning, and teaching. It has played a critical role in producing educational resources in various media in Indonesia language version. This action benefits most of student and teacher because this disaster education material in Indonesia version are not available before. Pustekkom has been authorized by the government to enclose web content and
multimedia as the response for the significant technology information innovation in the global and domestic area [17]. PUSTEKOM becomes a strength as a medium for teaching material, a means of communication. Effective communication media is one of the success factors in increasing disaster awareness in schools. PUSTEKOM should be used to support a variety of teaching materials, including disaster teaching material.

Another strength comes from the joint agenda organized by KEMENDIKBUD and the government office for disaster in producing the preparation of disaster risk reduction teaching modules. The material in the modules was compiled in 2009, containing enrichment material for teachers, ranging from elementary school teachers to high school [18]. The modules contain about reducing the risk of disasters in earthquakes, tsunamis, landslides, fires and floods. These modules can be used as a teaching guide by the teacher. In addition, the module can be used to build teacher creativity in applying disaster risk knowledge. The module is structured systematically and comprehensively integrates disaster risk reduction knowledge into subjects, local content and self-development in schools.

Indonesia now days is entering a demographic surplus era due to the changes in its age structure of the population characterized by a decrease in the ratio nonproductive population (age less than 15 years and 65 years and over) and the increase in the ratio of productive populations (ages 15-64 years). This change has a great impact on Indonesia dependency ratio. Demographic bonus is a rare phenomenon because it will only happen once in the history of a nation. This is because the demographic bonus occurs when the proportion of the population of productive age is above 2/3 of the total population, or in other words the demographic bonus occurs when the dependency ratio is below 50 [19]. A demographic bonus is a strength for disaster education because of its impact in the development of quality human resources.

According to Preston’s argument, the least number of books published on disaster subject [18] should contribute to the weakness of disaster education. Student preparedness in disaster requests pedagogy based on disaster education. Pedagogy based on disaster education needs learning material, disaster trained educators, student psychology analysis, disaster props, and integrated curriculum analysis. The preparedness of student is the important aspect because it involves alertness and preparation to deal with a crisis [19]. This Preparedness should include the student themselves and the others in any situation, before or after disaster and also when disaster happen.

Soon after devastating tsunami 2004, the Indonesia government had been forced to adopt disaster curricula into school. Due to the complexity of educational bureaucracy, the discussion of disaster risk reduction into school was raising debate whether disaster risk education should be established a new specialized subject of disaster or incorporated into existing school course/subjects. These different methods have an advantage and disadvantage. Establishing a new subject of disaster theme into curriculum would create difficulties and take long time to implement it because it related to the need of change the regulation, developing curriculum covering national and adopting local characteristic into disaster subject [20]. The complexity of educational bureaucracy is a weakness in Indonesian disaster education.

The opportunity of disaster education comes from the development of cooperation between institutions through memorandums of understanding as a commitment to support the implementation of disaster management [21]. This awareness of local governments to work across sectors has become a support and opportunity of disaster education.

Another opportunities is that the education for disaster risk reduction has not been systematically incorporated into the curriculum guidelines [22], but in Indonesian school system enables school to find room to integrate disaster issues into the current curricula. This opportunity comes from education system in Indonesia which give the teachers an autonomy
to develop their teaching [23]. In this case, teachers in Indonesia have the autonomy to develop learning, which should be linked to disaster education, especially social studies teachers.

Disaster Management Agencies in several regions have drawn up strategic plans, specifically in the field of disaster prevention and preparedness [24]. This has become one of the opportunities. The Prevention and Preparedness Sector has the function of implementing cooperation with related agencies or institutions in the field of avoidance and moderation of disaster which is also involves the preparedness in pre-disaster and disaster risk minimization. It has been known that the strategic plan in the area of disaster management and prevention has strengthened the coordination between offices in realizing disaster-aware communities.

One of the milestones that should be noticed is that the Indonesia Law Number 24 of 2007 become the legal basis for implementing disaster management. This law represents the shift in Indonesia disaster management from responsive to preventive perspective. Therefore, The Law Number 24 of 2007 should be considered as basis for education sector to carry out disaster education.

However, this constitutional advantage does not give the great impact to the development of disaster education due to the weakness of Indonesia education environment. Even the national education has made a progress but there are still fundamental shortcoming and problem. One of the progress that should be appreciated is that the duration of study or entering school for student becomes more longer than before. Despite the fact of this progress, this path has a little impact on the quality of education and its result [25]. Some education problems in Indonesia are the quality of salaries, the low learning outcomes, the lack of facilities, disciplinary problems, poor educational management, and perverse incentive structure.

The absence of the basic knowledge of geological and environmental condition are the most critical problem leading to the inadequacy of disaster awareness. As a consequence, the number of geohazard victims are still in high level [26]. The dry season, which causes the importance of fires in Jakarta, is a challenge for disaster education [27]. The Data from Jakarta from 1 January to 5 August 2019 shows, besides electricity there are several other causes including the burning of 123 cases of garbage, 107 cases of gas, 38 cases of cigarettes, and 14 cases of candles. Regarding the spread of fire areas, according to the same data, East Jakarta ranks highest with 288 cases, followed by South Jakarta with 280 cases [28].

In addition to this natural disaster, Indonesia is also having a big potential problem of social disaster. Social disaster is catastrophe soured in the aftermath of human behavior including clash between groups and between communities and terror.
One of thing that indicates this social disaster is crime rate. The crime rate in Indonesia is still high [29] in Indonesia, including in social disasters, become a disaster education threat.

Indonesian Police Traffic Corps (Korlantas) issued the statistic on traffic casualty that took place in the four years. In detail, the number of traffic accidents in 2014 reached 88,897 events, then in 2015 it rose to 96,073, increased again in the following year to 106,591 events, and decreased to 104,327 during 2017. Then, increased again in 2018 with a total of 107,968 events. As for victims who died, an average of 30,000 people per year, or 80 people per day. It is different with the victims of serious injuries which have always declined in the last four years or an average of around 20,000 people per year [30].

Susanto explained that in 2014, the total number of brawl cases in education reached 24%. One year later, cases decreased to 17.9%, then to 12.9% in 2016. While last year, cases reached 12.9%. Whereas in September this year it reached 14%. Even in the last two years, KPAI noted there were 202 children who faced legal proceedings in brawl cases. While 74 others were recorded as being involved in cases of possession of sharp weapons. Until now, Susanto admitted there was no effective formula and solution to stop the brawl tradition [31].

Non-natural disasters are caused by mining activities, oil and natural gas drilling, exploitation of ground water sources, and bomb blasts [32]. For example, in Bolaang Mongondow Regency a landslide gold mine caused 16 workers to die [33]. According to the data issued by National Disaster Management Agency (BNPB) it has been recorded that 328,724 hectares lands are burned from January to August this year. South Sumatra, Riau, Jambi, Central Kalimantan, West Kalimantan and South Kalimantan are categorized as the most vulnerable land in this issue [34].

4. CONCLUSION

Disaster education is important to be studied with strategic management perspective in order to find out the Strengths, Weaknesses, Opportunities and Threats. One of that strength comes from Indonesia demographic surplus contributing in the development of human resources. This demographic surplus should not give us the advantage if the development of school is still not oriented in producing disaster awareness of student. Unfortunately, natural disasters have not become an important issue in the scope of schools and the disaster
education has not been systematically compiled as well. This problem has the great impact on the quality of human resources. As consequence, natural and non-natural disasters has become a threat in Indonesia.

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Reducing Cheating Chances by Involving Critical Thinking Skills within the Assessments: Students’ Perspective

Nida Husna HR  
{nida.husna@uinjkt.ac.id}  
UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. Cheating was a serious problem that was done consciously by the students in working the assessments even though they understand the consequences. Therefore, creating a specific assessment as a tool to monitor their work that could prevent them from cheating was seriously needed. Applying critical thinking skills as the requirement within the assignment was chosen to reduce the cheating possibility. This study was conducted to find out the students’ perspective about the integration of the CT skills in the assessments when doing Extensive Reading program. The result of the study have shown that most of the students agreethat by adding CT skills as part of the requirement, they prefer to rely on themselves when working on their assessment. According to them, it was no use to cheat because the CT skills required them explore their own way of thinking.

Keywords: cheating, critical thinking, assessment.

1. Introduction

The studies that show that extensive reading influenced students’ ability both in language skills and language components had been done worldwide. Extensive reading has been proven to develop students’ foreign language skills where the access to English was very limited, or when the students were less motivated [1][2][3]. An appropriate approach would be needed to reduce the anxiety from reading many materials, which in the end would make the students could feel more enjoyment during the process [1]. Extensive reading improved students’ reading comprehension [4], reading speed and comprehension [5], English general skills [6][7][8], vocabulary [9][10][11], reading attitude [3], writing [12][13] and many others.

Even though ER was already implemented worldwide, it was still at its early stage in Asia. The condition of ER in Indonesian classroom was roughly at the same stage Japan and Korea were some 10-15 years ago [14]. There were several specific reasons why it was not easy to implement an extensive reading program in formal Indonesian classrooms. One of the reasons was that, in conducting ER, the teachers were required to think beyond the ordinary language-focused, teacher-controlled classroom which prepared students for high-stake exams. However, the condition should be different when it was to be conducted in college or university level because of the different policy and outcome. University level of education was also benefit from the degree of freedom in deciding the curriculum and syllabus, because the difference in graduate expectations.
Among those which have implemented ER program in university level was UIN Jakarta. It was almost a decade that English Education Department in Faculty of Educational Sciences in UIN Jakarta had conducted ER program. Of course, there were problems in first years when it was conducted. Providing proper materials would be one of the obstacles, because there was no specific funding provided by the institution to buy the novels while the expensive price of the novels added another problem. In addition, supervising of the circulation of the novels could not be managed by the teachers themselves, they would need help from the students. Therefore, this program should be well arranged to meet the objective and experienced many trial and error processes, including in preparing the assessment. Common understanding stated that there was no assignment follow ER activities, if there was, it would be a little. However, since the program was part part of the curriculum, it should be graded. Therefore, some assessments should be designed so the students’ work can be scored.

In educational field, assessment was not merely part of grading system, further, it could play important part of instruction to support and enhance teaching learning process [15]. Assessment has also been considered to harm many of the students if it was not properly planned and designed [15][16]. The harmfulness of assessment usually as the result of the failure in balancing the standardized test and the classroom assignment [16]. Meanwhile, in higher educational level, the assessment should be further well prepared to equip the students with the ability to keep learning sustainably within the society [17].

The assessment that was applied in this program was hopefully can be utilised to accelerated students’ learning [18] and empower the students to become self-regulated learners [19]. In designing it, the most challenging part was how to create an assessment that could help the students to retell the story without losing the chance to express themselves, including to maximize the chance to practice their language skills. Another important challenge was how to minimize the cheating probability among the students. Furthermore, since the reading materials would be very various, it was really needed to create an assessment that can be used to any of those type of reading to help the teachers reduce the burden in doing the correction and scoring.

During the process of designing the assessment, it was found that the most difficult part in assessment process was the attempt to minimize the cheating probability. Cheating was defined by King, Guyete and Piotrowski (2009) “as a transgression against academic integrity which entails taking an unfair advantage that results in a misrepresentation of a student’s ability and grasp of knowledge” (p.4) [20]. While Trenholm (2007) said that cheating was also “referred to as academic dishonesty” (p. 284) [21]. Another study also stated that cheating was defined as an activity that going against university policy, benefiting from someone else’s work and not using our own brain to get an unearned grade[22].

Due to the imbalance number of students and the materials provided, repetition was unavoidable and so was cheating. Some still tried to work on reading seriously even though they read the same materials, while many others preferred the easy way out by copying others’ work. Therefore, after years of trial, critical thinking skill then was applied as an attempt to support the evidence of students’ work independency.

The addition of critical thinking ability in the assessment was then become one of the main parts in deciding whether the students really read or not even though of course that would not be enough. Some other strategies were also applied to help the students fulfill the requirement of the program while critical thinking was almost cannot be separated in the process of each.

The consideration in adding critical thinking was actually came from the concern of students’ ability in giving questions when they have discussions in paper presentation sessions. Of course less in paying attention was also part of their ability in creating proper
questions. However, the attempt to help the students’ ability in using those skills in critical thinking should be conducted, because it was very important for them especially to work on their assignment in their next level of subjects, and to help them react better in facing wide range of issues in their real world.

Generally, critical thinking skills could be summarized as the ability to find any possibilities when solving a problem, considering different perspectives and being able to see the other’s argument as part of an alternative contribution, or conclusions, on a specific topic [23]. The ability to use critical thinking would help the students to avoid making mistakes repeatedly and stating bad advice or creating unfavorable decisions [24]. However it needed a hard work to develop it and to make it as habit. In practice, the students should be disciplined in guiding themselves so they could practice to give reasons as the high part of the critical thinking process [25]. It was also stated that this practice would help the students to have rational, reasonable, and emphatic live, as well as develop their intellectual virtues. Therefore, adding some skills of critical thinking would not only help the students avoiding to cheat each other, but also help them to develop the skills that could help them to avoid prejudices and biases as well as narrow ideas when facing complex issues around them.

Therefore, it was needed to conduct a study that could give the evidence that the implementation of CT skills in assessments in this extensive reading program could reduce the cheating chances. As the initial step, this study would focus on finding the students’ perception about the assessment itself as the foundation for further research.

2. Methodology

This study was a preliminary step in investigating the use of critical thinking skills to reduce cheating probability in the assessment. Since this study was aimed to see the students perspectives about the implementation of CT skills in ER assessment toward cheating probability, qualitative method would be applied.

The assessments in Extensive Reading program in the English Education Department (EED) were integrated with other skills to get the maximum benefit of ER. All language skills were used as part of ER activities, and within those skills, CT played an important part of their effort in doing the ER projects and assessment. Each type of the reading material given in ER had a different type of assessment.

The research was conducted in an English Education Department (EED) at Faculty of Educational Sciences, UIN Jakarta. The students at EED were at an advanced level of English proficiency and they had a specific objective: to become future English teachers. 30 research participants, from 18 to 21 years age range, from three classes in their fourth semester of undergraduate study were involved. These participants were enrolled in an ER course; this number of participants was 37 per cent of a total of 82 students taking the course at that time. They were the ones who took the pre- and post-reading tests.
A questionnaire was used as an instrument to gather the information from the students. It was given to the students through google form. There were seven questions asking the students’ understanding and perspective toward the assessment given in the questionnaire.

3. Findings and discussion

3.1 Findings

There were seven questions that were related to the assessment that were asked to students in the questionnaire. The first question was about whether or not the students know that the material (novels) that they read was also read by other students previously. From 30 students, five students stated that they did not know, while the rest (83.3%) believed that they knew. However, based on the next question, even though they knew that other students have ever read those materials, and they had the chances to see those work, 90% of the students still read the same materials anyway, while the rest 10% preferred no to read them and find other materials.

Even though there were wide chances to refer to the previous works, there were only four students (13.3%) that would refer their work to those previous ones. The other 86.7% preferred not to do it with various reasons. Most of the responses stated that they believe in their own ability. According to them, by referring their work with the previous ones would show that they were not confidence with their own ability, and they believed it was a lost to gain the most benefit of the course. Some others stated that they did not need to refer to the previous work because they believed that they understand how to do the assessment properly and they preferred to believe in their own work rather than being influenced by others. According to them, people would have different understanding and perspectives toward the story, and they did not want their judgment to be influenced by others’.

100% students stated that they understand perfectly about how to do the assessment even though there was still one student who did not understand why the assessments were arranged that way. The 96.7% students claimed that they understood the reason why the assessment had critical thinking skills component as the main requirement.

In the last question, there were 12 students from 30 who stated that there was no chance to cheat with the way the assessment was arranged. The rest 18 students believed that the probability was of course exist, however, it would be difficult to do it because the critical thinking factor (reasoning) that was the main requirement would more or less prevent them to cheat. On top of that, even though there was a chance, many of them preferred not to take it for the sake of achieving greater objective, that was acquiring the language skills through regular and supervised practiced. Therefore, they did not think that they need to cheat because they really wanted to accomplished the aim of the course and felt the challenges themselves.

3.2 Discussion

There were three elements (fraud triangle) which were considered as the reason of cheating existence: incentive/pressure, opportunity, and rationalization/attitude [26]. When it was related to academic, those who saw the incentive/pressure element would focus on earning a good grade or better score (meanwhile the opportunity manifested itself in an environment when it was believed that no one was watching). For those who were in the element of rationalization/attitude became more prevalent and excusable when there was a perception that “everyone is doing it anyway.” The “examination” environment was a potential condition to create the fraud triangle. However, there was of course a probability that the opportunity to
cheat was minimized when the faculty member was present during the examination, and required that all notes, electronic devices, and other materials be put away, and carefully watched the students.

Avoiding cheating totally would be hard to do, especially in the era where technology was very helpful, including smoothing the cheating process [22]. Meanwhile, the law enforcement when the student was caught cheating was difficult to implement due to many reasons, including the non existence of uniformity among the instructor [27]. The students who preferred to work on their task by relying on their own ability and not to engage in cheating were assumed to have a higher moral compass for their positive behavior [28]. Meanwhile, some of the reasons for those who did it included the desire to help others, procrastination, the need to pass the class, course difficulties, having an assumption that “it didn’t matter if I cheat”, or thinking that cheating was easy anyway [29][30].

Even though it was still debatable, indeed the responsibility for reducing cheating lies with both students and academic institutions. Reducing it, was also considered as one of the most important components to promoting academic integrity on college campuses and was to ensure that faculty and students understand the values and expectations of the institution [31]. What made it more difficult to overcome was that most of the time the faculty preferred to handle cases individually [32][33]. Some of the reasons for such action were because the incidents of cheating were difficult to prove, there was a lack of knowledge regarding the policies of the institution, or the institution had an organizational culture that discouraged faculty from reporting such cases.

It should be acknowledged that an individual instructor was suggested to be able to minimize cheating in their class [31]. For example, there was a need some practical pedagogical methods that can be applied to help students avoid the pressure of cheating especially during the exam. Therefore, it was important to carefully planned when designing the exam and assessment. Implementing some specific requirement that was considered to minimize the students’ pressure should be put into action. By knowing some noble behavior from the ability of thinking critically, the pressure to cheat would be eliminated by the students themselves [34][35]. The skills in CT required the students to get used to broaden their perspectives as well as honor their own opinions by keep practicing the capability in analysing and reasoning. Having well understanding about the objectives of the assessment and motivating them to work with integrity would hopefully become one of the ways to reduce cheating.

4. Conclusion

As an initial step, it could be concluded that the implementation CT as one of the requirements in the assessment was helpful enough to avoid cheating and repetition. Even though the chance was there, due to the nature of assessment and positive behavior of the students, cheating behavior was unlikely to become the choice in this program. However, of course further study would be needed to claim that CT was useful in reducing cheating activity. The availability of evidence such as the students’ work would strengthen the result of the study.

References


The Washback Effects of English National Examination in Teaching and Learning English for Deaf Students

Najmi Hilaliyati¹, Fhriany²
{najmi@uinjkt.ac.id¹, fahriany@uinjkt.ac.id²}
UIN Syarif Hidayatullah Jakarta, Indonesia¹, ²

Abstract. This study aimed to see the teacher’s perspective and the positive or negative washback effect about English National Examination in teaching and learning English for deaf students at the tenth grade of SMALB Negeri 01 Lebak Bulus Jakarta Selatan. Qualitative-descriptive was used as a method in this study. The Instruments used in this study were observation guideline, interview guideline and documentations. Techniques of collecting data were used in this study namely observation, interview, and documentation such as photo camera, video recorder, syllabus and lesson plan. The results of this study showed that (1) the main problem to implement the National Examination was the deaf students’ difficulty to understand and comprehend the questions in English subject (2) there were positive and negative washback of English National Examinations in teaching and learning for deaf students.

Keywords: Washback, English National Examination, Deaf Students.

1. Introduction

National Examination is compulsory test to determine whether a student can graduate from a primary and secondary level of education, or should repeat [1]. Since its first implementation in 1965, a steady debate over National Examination practice in Indonesia continues, mainly on the format, effectiveness, and effects of national exam. Government believes that establishing national examinations will push teachers to teach better and students to learn more [2]. However, critics argue that such exam is not beneficial since this examination cannot guarantee the improvement of teacher instruction and student motivation.

Nevertheless, both the pros and cons base their arguments on common sense not supported by a sound reasoning. This study tries to discover the washback effects of English National Examination (ENE) in Indonesian Senior High School education. In this study, the writers tries to find out about teachers’ perceptions in SMALB Negeri 01 Lebak Bulus to analyze on deaf students’ National Examination achievement. The dimensions of the washback effect of ENE on English teachers are negative and positive, strong, specific and for a short period time.

As pros and cons concerning the National Examination are getting more intense, this study tries to explore the washback effects caused by the NE in Indonesia, including whether the washback is positive or negative, the areas of washback, and its dimensions seen from teacher perspectives in teaching and learning for deaf students.

Cheng and Watanabe defined washback or backwash here discusses to the impact of testing on teaching and learning [3]. The concept is fixed in the notion that tests or examinations can and should determination teaching, and hence learning, and it also stated to as measurement-driven instruction. The reason of this goal being successful is a “match” or the connection between the content and format of the test or the examination and the content and format of the curriculum (or “curriculum surrogate” such as the textbook) is motivated. This is discussed to as curriculum alignment by Shepard. Even though the idea of association—matching the test and the curriculum—has been defined by some as “unethical,” and terrifying the validity of the test, such arrangement is evident in a number of countries, for example, Hong Kong. This arrangement, in which a new or reviewed examination is offered into the education system with the purpose of
enlightening teaching and learning, is stated to as systemic validity by Frederiksen and Collins, consequential validity by Messick and test impact by Bachman and Palmer and Baker [4].

The study of washback has led to in latest rises in language testing, and measurement-driven transformation of instruction in general education [5]. Research in language testing has focused on whether and how to size the specific characteristics of a detailed group of test takers and whether and how to contribute such information into the ways in which we enterprise language tests. One of the most significant theoretical progresses in language testing in the past 30 years has been the consciousness that a language test score indicates a complex of multiple influences [6]. Language test scores cannot be interpreted simplistically as an indicator of the particular language capability we think we are determining. The scores are also affected by the characteristics and contents of the test tasks, the characteristics of the test takers, the strategies test takers employ in struggling to complete the test tasks, as well as the implications we attraction from the test results. These factors certainly interact with each other.

Some researchers defined that positive washback discusses to tests or examinations that impact teaching and learning beneficially when testing technique encourages ‘good’ teaching practices. In this sense, teachers and students have a positive attitude towards the test and work enthusiastically towards its objectives. Furthermore, Brown stated that a test’s washback effect will be negative if it fails to expose the learning principles and course objectives to which the test deceptively relates, and it will be positive if the effects are useful and stimulate the whole range of desired changes [7].

2. Research Methods

In conducting this study, the writers use qualitative method. The research method used in this study is qualitative-descriptive. Qualitative research is a kind of educational research in which the writers relies on the views of participants; asks broad, general questions; collect data consisting largely of words (or text) from participants; describes and analyzes these words for themes; conducts the inquiry in a subjective, biased manner[8]. Meanwhile descriptive research design is a scientific method which includes observing and describing the behavior of a subject without controlling it in any way.

The data were collected through observation and interview. In observation, the writers observed about three times at SMALB Negeri 01 Lebak Bulus. The first time, the writers surveyed the school and interviewed the headmaster about the school. Based on the interview with her, the writers increased some useful information regarding with deaf students principally and inclusive school, she also described several classification in inclusive school. The second time, the writers, interviewed the English teacher of SMALB Negeri 01 Lebak Bulus about English curriculum that used in the school, about English National Examination was held in SMALB Negeri 01 Lebak Bulus and planed about observation in the class with the deaf students. The last time, the writers observed the deaf students of SMALB Negeri 01 Lebak Bulus in teaching and learning English.

For interview section, the writers interviewed the headmaster and the English teacher of SMALB Negeri 01 Lebak Bulus, even the writers tried to interview the deaf students using the sign.

The data analysis includes these following points. First, contextual information about SMALB Negeri 01 Lebak Bulus which include into inclusive schools, characters for deaf students, teaching and learning process for deaf students and facility that available for deaf students in teaching and learning process. And the last, the documents such as English Curriculum for deaf students and sample of English National Examination for deaf students.

3. Result and Discussion

A. Result

The discussion are the answers for the research questions which have been mentioned above, what do the teachers think or argue about English National Examination washback effect in teaching and learning for deaf students and what are positive or negative washback of English National Examinations in teaching and learning for deaf students.
1. The result of observation

In observation, the writers observed about three times at SMALB Negeri 01 Lebak Bulus. The first time, the writers surveyed the school and interviewed the headmaster about the school. Based on the interview with her, the writers enlarged some beneficial information regarding with deaf students particularly and inclusive school, she also explained several classification in inclusive school.

The second time, the writers interviewed the English teacher of SMALB Negeri 01 Lebak Bulus namely Mr. Rambat, S.Pd about how English National Examination was held at SMALB Negeri 01 Lebak Bulus and how the process of English National Examination for deaf students. Based on the explanation from the English teacher, the deaf students of SMALB Negeri 01 Lebak Bulus conducted English National Examination just like other students in the regular schools.

The last time, the writers observed the tenth grade deaf students of SMALB Negeri 01 Lebak Bulus. The writers observed about English teaching and learning in the classroom at the tenth grade deaf students. In this section, English teacher taught about how to write letter to friends. The teacher begun the activities with wrote down the example of letter in whiteboard and the deaf students copied the text to their book. Then, the teacher started to read the text using the sign and translated the text word by word using the sign. The teacher also instructed the deaf students to answer the question based on the text that adopted form the book.

2. The result of interview

For interview section, the writers interviewed the headmaster and the English teacher of SMALB Negeri 01 Lebak Bulus, even the writers tried to interview the deaf students using the sign.

Based on the interview with the headmaster, the writers increased some useful information regarding with deaf students particularly and inclusive school, she also explained several classification in inclusive school and characteristics of students with special needs.

The writers interviewed the English teacher about about how English National Examination was held at SMALB Negeri 01 Lebak Bulus, how the process of English National Examination for deaf students and there are any effects for deaf students in English teaching and learning process. Based on the explanation from the English teacher, the deaf students of SMALB Negeri 01 Lebak Bulus conducted English National Examination just like other students in the regular schools. Furthermore, the English teacher also explains that deaf students have several difficulties in conducted English National Examination. He explains that for several times he should explains briefly about the instructions in the English National Examination and translate the questions word by words in order deaf students understand the instructions.

B. Discussion

In this part, the writers will describe about the result of the research. The writers will interpret two parts based on research questions in the first chapter.

1. What do the teachers think or argue about English National Examination washback effect in teaching and learning for deaf students?

As the result of interview from the English teacher namely Mr. Rambat, S.Pd, English subject is one of the subjects that should be examine in the National Examination for deaf students in Indonesia. He explained that the difficulty in communicating using sign language is main constrain in the application of the National Examination for deaf students at SMALB Negeri 01 Lebak Bulus. That also the problem for SMALB Negeri 01 Lebak Bulus to exchanged the teacher with hither teachers of Santi Rama School for disable students who also handle the deaf students. According to Mr. Rambat, besides communication problem, the students also need the pictorial exam questions. The type of deaf students’ examination question should be simple and consisting of pictures.

Furthermore, the English teacher enlarged that there are positive and negative effect of English National Examination for deaf students for sure. In general, washback effect of English National Examination in teaching and learning for deaf students are the English teacher more concentrated to teach material that predicted in next English National Examination and just focused to discuss
about English National Examination questions before. The other effect is the Headmaster more considered about the parents’ perception about SMALB Negeri 01 Lebak Bulus accreditation based on the graduates from this school.

In this case, there is misrepresentative in the determination of English National Examination for deaf students. Based on description in the previous explanation that washback effect states to the impact that tests have on teaching and learning [10]. Additionally, there is several washback effect of English National Examination for deaf students of SMALB Negeri 01 Lebak Bulus.

2. What are positive or negative washback of English National Examinations in teaching and learning for deaf students?

Based on the English teacher explanation, there are positive and negative washback of English National Examination in teaching and learning for deaf students, they are:

a. Positive washbak effect:
   a) English National Examination could be the tool for an Evaluation for the English teacher
   b) Various aspects of the students’ learning in School, such as; the students are totally organizing for English National Examination since the 2nd semester of the twelfth grade. English National Examination has affected the material taught by the teachers principally when they have English National Examination try out.

b. Negative washbak effect:
   a) Based on teaching materials there are more reading exercises, textbooks, text types (genre), complementary materials from the Internet and newspapers, English National Examination past papers, commercial books for English National Examination preparation.
   b) Based on the teaching strategies more exercise on English National Examination format.
   c) Nervous, stressful, pressure for the deaf students.

4. Conclusion

The conclusion is completed based on the explanation given to answer the research question. First, what do the teachers think or argue about English National Examination washback effect in teaching and learning for deaf students. The difficulty in communicating using sign language is main constrain in the implementation of the National Examination for deaf students at SMALB Negeri 01 Lebak Bulus and the type of deaf students’ examination question should be simple and consisting of pictures.

And the last, what are positive or negative washback of English National Examinations in teaching and learning for deaf students. The positive washback effects are: English National Examination could be the tool for an Evaluation for the English teacher and some aspects of the students’ learning in School, such as: the students are completely preparing for English National Examination since the 2nd semester of the twelfth grade. English National Examination has affected the material taught by the teachers particularly when they have English National Examination try out. Negative wash back effect could be classified based on teaching materials, teaching strategies and deaf students’ attitude.

5. References


Enlightment Strategy Leads To A Quality Learning
At Islamic School In 4.0 Era

Mukhamad Musyafidin1, Ahmadi Ahmadi2
{Syf18u@gmail.com1, Ahmadi@iainponorogo.ac.id2}

1,2Faculty of Tarbiyah and Teacher Training, The State Institute of Islamic Studies Ponorogo
Indonesia

Abstract: Strategic management can move learning organizations to achieve a harmony at various levels. The article intends to elaborate on three levels of learning; (i) leaders, (ii) education staff, (iii) and teachers-learners. The researchers used a qualitative approach to elaborate the focuses. The result is; i) the leadership activities based on strategic issues of locality to face the revolutionary era as strategic work plans, ii) business curricula was compiled according to special specifications for sharpening student expertise, iii) the implementation of learning strategies were realized by paying an attention to the program's distinction for gaining a higher-order thinking skills for facing 4.0 era. Finally, they recommended the usage of it.

Keywords: Strategic, quality and learning.

1. Introduction

Improving the quality of learning is not a simple job because it requires planning, realizing and continuing the real action especially with the start of the 4.0 industrial revolution era. In this era, emerging technologies such as artificial intelligence will shift more of the role of humans. This has to inspire us to prepare mentally and skills that have competitive advantage. One of the main steps to preparing skills is behavioral attitude, improving self-competence and having a spirit of literacy [1]. Therefore, educational institutions are expected to be able to prepare the next generation that have high quality human resources for the glory of the nation.

Stainer dan Miner said that strategy refers to the formulation of basic organizational missions, purposes and objectives, policy and program strategies. They can be understood simply that strategic planning is a plan that concerns the future success of an organization. Strategic planning as well as a means that helps provides guidance for leaders in achieving organizational vision, mission and objectives. So, Strategic planning is one formation of strategy included in the perspective of rational based strategy. This strategy is suitable to use if the situation is stable, environmental changes can be anticipated, the pressure of change is weak and competition is still limited, so the concentration of institutions rests on long-term goal achievement [2]. The use of strategic planning in education is relevant as long as educational institutions receive support from the government. So, that despite the turmoil of environmental changes but most of the institutions can still be anticipated by educational institutions.
The State of Islamic high school (MAN) 2 Madiun Indonesia has used a strategic planning in the Islamic high school work plan in improving the quality of education. This is used as a reference for working or a guide for all activities, including learning activities. The process of preparing was preceded by Islamic school self evaluation to see various potentials and abilities of themselves through SWOT analysis. Therefore, the purpose of this study is to reveal more deeply about 3 things, namely: (i) strategic activities carried out by the headmaster in improving the quality of learning, (ii) strategic activities carried out by curriculum workers in improving the quality of learning, (iii) strategic activities carried out by teachers in improving the quality of learning in MAN 2 Madiun Indonesia.

2. Strategic Planning In Learning Orientation

There are some theories regarding the steps taken in strategic planning. Strategic planning began to be applied in the new education world two decades ago, when educational institutions are forced to deal with various changes and must be responsive to challenges that arise within and outside the institution's environment. Then, finally an educational institution began to use strategic planning as a tool to achieve benefits the environmental changing [3].

Implementation of strategy is the most decisive step in management strategy. By implementation can be known both the effects and the benefits of the formulation of strategies that have been prepared before [4]. It happens because no matter how good a plan will be without implementation or action. Implementation of the strategy is more oriented to the formation of culture, the creation of effective organizational structures, financing, development of information systems and employing relations with organizational performance. Generally, there are four levels of strategy, there are; i) enterprise strategy, a strategy that communicates the organization with the demands of the community, ii) corporate strategy, a strategy at the leadership level to effectively steps of achieving the organization's main mission, iii) strategy business unit is a strategy at the production unit level to lure customers iv) functional strategy, a strategy that is applied at the level of technical implementation area [5].

According to the National Education System Law is the process of interaction of students with educators and learning resources in a learning environment [6], and the quality is something that satisfies and exceeds the customer's request and needs [7]. Based on this theory, it is known that the quality of learning means the implementation of a series of learning processes that are able to meet or exceed the expectations of education’s customers. One approach that can be used to determine the quality of the education process is the system approach. That cause the system is a unit of components that interact and are interrelated with each other to achieve an expected result optimally based on the intended purpose [8].

To strengthen the system, we need a strategic way of thinking and acting on every line. According to Bryson, there are several steps in strategic planning; i) initiating and agreeing on the strategic planning process, ii) clarifying the mandate and mission organization, iii) assessing SWOT approach for identifying strategic issues facing the organization, v) formulating strategies to manage issues, vi) creating effective organizational visions in the future.[9]

At Islamic school, the quality of learning is achieved from the top to the bottom. It starts with the preparation of a corporate strategy strategic plan outlined by the Head of Islamic School has formed an Islamic school work plan, Strategy Business Unit has constructed a school based curriculum. At last, functional strategy level where teaching learning instrument are made by the teachers including the preparation of syllabus, learning Implementation plans.
3. Research Methods

This used qualitative approach that used a descriptive data as research procedure in the form of words written and the behavior of the people observed [10]. So, the source and type of data in this study are: words, actions, written sources, photos, statistics, recordings and etc. The steps of those has been conducted as follows; i) the words of the people interviewed or informants, namely about the application of strategic planning related to improving the quality of learning, starting from the level of headmaster, curriculum affair, teacher and student, ii) the actions of observing people in implementing the strategy to improve the quality of learning, iii) written sources in the formation of Islamic school documents relating to organizational strategic management such as: Islamic school work plan, curriculum of Islamic school Aliyah Negeri 2 Madiun, vision, mission and organizational goals, organizational structure, iv) the photo as a reinforcement of the results of observation, statistical data such as data on the number of teaching staff and education, the number of graduates, institutional achievements, and the number of students, vi) the type of interview used in this study used is semistructured interviews. Documentation is a document about the profile of the Islamic School, as well as various written policies from the head of the Islamic School in the Islamic school Work Plan as well as policies from the Curriculum development contained in the Islamic school Curriculum, as well as the policies of the teacher contained in learning devices, and photos activities at the Islamic School.

Data analysis is done by organizing data[11]. Data analysis in a single social situation is a data analysis carried out in each research location by using interactive data analysis. Triangulation technique is a technique of checking the validity of data that uses something else outside the data for checking purposes or as a comparison to that data. In this context of study, the triangulation technique used two techniques, sourced triangulation and method triangulation.

4. Findings

1. Strategic Activities at several Levels

a. Leaders

Becoming an accomplished, disciplined, Islamic cultured based on faith and piety, formatted vision and objective conditions of the Islamic School, the headmaster motivates various policies related with preparing strategic planning in the formation of an Islamic school work plan. The point is as a guideline in taking policies, implementing learning programs and administration of other Islamic schools. The stakeholder prepares the person in charging of each program and issues for them. Then, all programs can be carried out regularly. By the organization going on, it indicates that strategic planning has been implemented. [12].

b. Curriculum Department

In improving the quality of learning, it can be seen from the 7 steps of developing curriculum as following; i) diagnosis of needs, the main needs of society are in the fields of Mathematics and Natural Sciences, Social Sciences, Religion, the need for information technology, ii) Formulating of objective, the aim of the Islamic school is to serve the community by organizing various types of learning because the average student will continue to university, iii) Selecting of content, teachers may develop according to their
respective characteristics. The specialization groups of Social Sciences, Mathematics and Natural Sciences, Religious Sciences, are also materials in the automotive, fashion, electrical, sports, arts and etc, iv) organizing the content, those are refers to the implementation of the 2013 curriculum after which the curriculum examines it. It also collects and views the contents of the teacher learning device while ratifying the authority of the stakeholder, v) choosing a learning experience, both teachers and learners have to maintain a balance of cognitive aspects with others. It also the formation of characters through the habit of reading the Quran before the lesson begins, vi) organizing learning experiences, it’s based on specialization and characteristics of each student for class entry requirements model through IQ test with a score must be above 130, the curriculum related to Olympic material, the study time are given additional material in mathematics, physics, chemistry, biology, economics. There is also a CI (Smart Special) class that is taken within two years. Then there is the BI class (Special Talent) to hone non-academic achievements in sports and arts, there is also a skills program, vii) evaluating the assessment, Its function in addition to students, it useful for evaluating teacher performance because the teacher must surrender all values and see basic competence that has not been achieved. For daily evaluations, the curriculum submits the technique to the teacher.[13].

c. Teaching - Learning Process

Furthermore, generally, the teacher's strategic activities are explained based on interviews with three teachers. In improving the quality of learning when viewed from the 7 steps as explained before. Besides that, the teachers should play a role as the spearhead for success in realizing the vision, mission and goals of educational institutions. Teachers who are experienced and have high competence will make the generic strategy of the Islamic School effective one. No matter how good the strategy is at the leadership level or unit level, if the functional level is not active then the end result is not optimal. This means that the objectives of the Islamic school Work Plan and curriculum objectives cannot be achieved if teachers are not able to teach well.

Therefore, teachers should be able to predict student needs now and in the future. Then set goals to meet these needs through learning in Islamic Schools. Because the needs, talents, interests and abilities of students are very diversity, the teacher should be able to determine the appropriate learning strategies between the classes with one another. Teachers can also help students achieve their goals through science.

In choosing a strategy or method of learning, it also adjusted to the characteristics of students and their respective subjects. Such as the selection of inquiry learning strategies that place more emphasis on student independence, expository learning strategies that prioritize the role of the teacher to deliver lessons such as lectures, and demonstrations.

d. Learners

Learning is a system consisting of several components [14]. To find out how well the learning component is one of them is by digging information from students who are the main customers of education. The results of interviews with two students of Islamic Senior High School 2 Madiun about 5 components of learning consist of: objectives, subject matter, learning methods or strategies, media, evaluation

Based on the interviews with the two students, it can be seen at a glance that the learning system at MAN 2 Madiun is good because students admit that the Islamic School service is in line with their expectations when they used to choose to attend school here.
Firstly, in terms of goals, students already have their own direction and ideals. And Islamic Schools play a role in helping students achieve their goals. As regarding the subject matter, it also good because the knowledge taught such as religion and other sciences is felt to be in accordance with student expectations although there are some that have not been fulfilled, such as development in the field of ICT. In the learning method or strategy, it usually the average lesson delivered orally, writes on the board and delivers lessons according to basic competence. One of teacher who like and the other also not liked as in the application of K-13, students are confused because they are required to learn independently while the teacher are less directing.

The preferred media is using projectors and practice. It also using games, reading and writing, using a computer when national examination, try out tests based on Android. Evaluation activities at the Islamic School make students more enthusiastic in learning and managing time.

5. Discussion

Based on the explanation, the activities carried out by the headmaster of the Islamic school are strategic ones, because they are oriented towards future success; such as preparing students to face the era of industrial revolution 4.0. He should realize the curriculum component of humanistic curriculum model. In this case, students are the main ones and become subjects in education itself. This curriculum emphasizes integrative education between affective and cognitive aspects.

The curriculum concept model used in MAN 2 Madiun is a humanistic one. The main strategy used is competitive marketshare, specific activities developed by the stakeholder to win the market. Those are several model classes; such as bilingual class, an accerated class, vocational class, special skill class programs, as a distinctive strategy for obtaining good input such as the entry requirements of the model class through IQ tests with scores above 130 (above average). That is the action taken by the curriculum practicers be able to do activities better than its competitors.

The formation of religious and nationalist character of students through the habit of reading Quran, praying together and then standing singing the Indonesia Raya national have been performed as nation and religion aims so far. The teacher activities are strategic learning because they are oriented towards future success, such as preparing the success of students towards universities and the world of work in the era of industrial revolution 4.0. The teacher has implemented 7 steps in developing as the Taba said, such as: needs diagnosis, goal of formulation, content of selection, content of organization, selection of learning experience, organization of learning experience, evaluation and how to do it. The learning strategy used consists of inquiry and expository.

The advantages of MAN 2 strategic planning are conducting a model class prepared to win the Olympics. Accelerated class program which allows students to take education faster give an opportunity to several class such as automotive, fashion and electrical fields. The head master supported facilities and infrastructure that are relatively completed that closed relationship with a good Islamic School management because gaining accredited A and ISO 9001: 2008.

MAN 2 madiun as stated by students that learning needs students to be more independent turns out to have side effects. That is, if the teacher is too surrendered all to the activity of students, then for some students will feel confused in understanding the lesson. To overcome this, the teacher should choose the right learning method or strategy in guiding and directing.
students according to their preferences. Then regarding the absence of student capacity building activities in the ICT field, it should be immediately organized by the Islamic School. Given in the industrial revolution era 4.0 digital technology is fundamental, competencies needed are not only the ability to operate, but must be able to create new things.

6. Recommendation and Conclusions

a. Recommendations

The writers recommended that the teacher should actively guide students according to their needs and characteristics because of developing ICT, being concentric diversification strategy such as an automotive, fashion, and electricity Islamic school programs. Those lead to be a pioneer Islamic school in the next.

b. Conclusions

It is necessary for constructing balances among headmaster, vice school, and teachers in implementing several strategies in the form of preparation for the era of the Industrial Revolution 4.0. At this case; i) all stakeholders Islamic School must build the advantage competitive through competitive advantage strategies, ii) vice school principal must improve the quality of learning by using national standards and forming the excellence distinctive competence strategies; namely developing learning programs such as intelligent special, talent special and automotive, and electrical skills programs, iii) all teachers must carry out improving the quality of learning namely compiling learning tools by analyzing needs, setting goals, selecting the content of learning materials, then delivering the subject matter with various strategies such as inquiry and expository, using value integrity and good behavior road to devotion to Allah All-mighty, constructing high-level reasoning.

References


Integration of Islamic Values in Designing English Material by the Teachers through Video

Marhamah1,2, Syofiani1,2, Yenni Rozimela3,2, Hasanuddin4,2, Nuraini3, Fenny Suryani6
{marhamah@edu.uir.ac.id1, syofia.este@gmail.com2}

1Department of English Education, Islamic University of Riau, Pekanbaru, Indonesia
2,3,4,5,6Department of Language and Art, Universitas Negeri Padang, Jl. Prof. Dr. Hamka, Padang, Indonesia

Abstract. SMAN 1 Kampar Timur is a national standard model school which applies the 2013 curriculum in teaching. However, the use of technology in the classroom is not optimized since teachers use conventional approaches. There is a need for teachers to use a strategy which focuses on improving students’ performance and shaping their characters. For this reason, a Community Service Program (PKM) is designed to hold workshops for teachers at SMAN 1 Kampar Timur, Kampar Regency - Riau, Indonesia. It focuses on the use of learning videos based on Islamic values in high school 1 (SMAN 1) East Kampar. Teachers obtain materials on learning videos from the PKM team which helps them produce teaching aids which are useful in the learning process.

Keywords: Video, Islamic Values, Character.

1. Introduction

SMAN 1 Kampar Timur has been essential in children’s education, providing quality education which improves the lives of citizens in a country [1]. Quality education is carried out based on national education standards [2]. For years, SMAN 1 Kampar Timur has been a model school, organizing workshops, training, and technical guidance to improve the quality of education offered. This supports the implementation of classroom learning activities and as a result, the school performs better.

Based on the observation in SMAN 1 Kampar Timur, the researchers found that most teachers still use traditional learning approaches, such as giving assignments, teacher-centered, and direct learning full of instructions [3]. The teachers seem to convey the material through doing the exercises every meeting. Also, some cannot use technology, such as videos in teaching. That is why the students feel bored.

From recapitulation of data, the school has 13 and 46 male and female teachers respectively. The implication showed that the school lacks enough teachers to implement alternative learning approaches, such as the use of videos, and the ones available need a supporting device to optimize learning [4][5][6][7].

Additionally, teachers are not familiar with the use of technology such as video. Also, there is a weak mental development in students, implying they cannot take charge of their lives. Moreover, their characters have been contaminated due to globalization. To redeem them, it is necessary for teachers to use English language learning videos based on Islamic values [8][9][10][11]. Furthermore, teachers and students are not effective in using technology. For instance, teachers mainly use books or Student Worksheets (LKS) to teach
basic concepts [12]. Furthermore, the learning process is still results-oriented, focusing only on questions related to the National Examination. For this reason, the use of video should be adopted [13][14][15].

The purpose of learning videos in PKM activities is 1) to provide convenience in the learning process for teachers, 2) to increase efficiency in the process of learning English, 3) to maintain the linkages between subject matter and learning competencies, both core and basic competencies. It would support creating the innovative teachers in designing the materials. This is one of the factors why students interest in learning English [16][17].

The use of media has a very significant influence on language learning since teachers still use traditional methods such as giving assignments and passive training, failing to deliver the language skills required in the curriculum, including listening, speaking, reading and writing [18]. For this reason, innovation and development of language learning through media (audiovisual/video) might improve students' language skills [19]. The following are some of the steps that should be followed in using English learning videos [20] namely 1) the teacher reviews what was previously covered, also called the opening activity, for student apperception, 2) the teacher conveys the material to be covered, 3) the teacher asks and invites students to download some of the available Islamic Values-based English learning videos. If there are still some students who are unable to download, colleagues should actively help, 4) Students practice the dialogue in the video while the teacher acts as a model, 5) the teacher assess of all student performances, 6) Finally, after students understand the pronunciation model of the English word correctly, they should begin practicing in front of the class.

By applying these learning steps, the learning process creates a good atmosphere and shape the character of students according to the motto of Kampar district, which is “to become an Islamic person with the nickname of the Mecca porch of Riau.” The objective of this community service is to develop the ability to produce teaching materials aired using powerpoint. The material should cover the content from learning videos based on Islamic values in high school.

2. Methods

It is descriptive analysis method. It described the implementation and the activities of this community service program during several meetings in SMAN 1 Kampar Timur. The sample is English teacher who have capability in operating computer. They trained how to design the English material by using media, video and power point. The video contents the Islam story, especially, prophet stories. In the end of this training, the teachers hope this media can build hat the character building of students.

3. Implementation and Result of Activities

3.1 Implementation

PKM activities were carried out on Sunday to Tuesday, June 16-18 2019 which starting from 07.00 WIB to 17.00 WIB at the SMAN 1 Kampar Timur, which is located on the State KM road 40 Pekanbaru-Bangkinang, and was attended by several English teachers.

The activities carried out included delivery of materials using lecture and practice methods or peer teaching through class discussion, presentations and question and answers. This started with the introduction of concepts about learning using Information Communication and Technology or Information Technology and Communication (ICT/ITIK), Learning uses a scientific approach and the integration of Islamic values in learning using
learning videos to develop Islamic values in students. In the next activity was the preparation of ICT-based learning tools, including material processing, preparation of materials, searching them through the internet or youtube. All teachers brought equipment such as Laptops and Modems or Hotspots to look for teaching materials from the youtube. Afterward, teachers present learning videos in powerpoint for assessment of the development made in using videos with Islamic values. Upon completion of the evaluation, the instructors provide conclusions and suggestions, indicating the areas they need to improve on to attain the desired goals.

3.2 The Result of the Activities

High school students contextualize the material, especially in written form are very few. Nevertheless, where the material is presented in an audio and visual form they many students easily contextualize the intended message. For this reason, teaching methods and the use of media are very influential and interrelate aspects in the learning process. Multimedia should be used in the classes, and students should be involved in applying the material provided [21][22][23].

Students often like lessons with motivations and encouragements in material and video learning is effective in this regard. It helps students understand the lesson, apart from being easy to practice. This approach affects children's thoughts and emotions and makes learning more interesting and interactive. Moreover, teachers easily deliver the material and which might be repeated any time [24][25][26].

Teachers at SMAN 1 Kampar Timur obtain materials on the use of media files such as videos from the PKM team.

![The Teachers Activities in Conducting the PKM about The Use of Learning Video-based on Islamic Values](image)

Fig 1. The Teachers Activities in Conducting the PKM about The Use of Learning Video-based on Islamic Values

The stages in the preparation of the learning videos are 1) The first stage involves the selection of teaching materials(sources). Teachers sort the existing textbooks as references by considering the material content, difficulty level, method learning and integration of their respective knowledge, 2) The second stage is preparation, starting from arrangement of propositions from basic text, which is switched to online form to obtain a model of text representation or impressions from several slides in the power point (see figure 2, for example shows on the power point slide), 3). The third stage is the selection of material that fits the needs of students, not all material on the topic or material is needed.
by students. Therefore, it is necessary to re-select material which is in line with the demands of the curriculum. In this PkM activity the material is based on Islamic values, such as stories of the English-speaking Prophet (see figures 3 material containing Islamic values). 4) Stage 4, is a reduction, which is a way of simplifying language, visualization, and the use of historical techniques in presentations. (see figures 4 visualizing learning videos).

**Fig 2.** The Basic Text View in Slide

**Fig 3.** Content Material based on Islamic Values
In this activity, some teachers have limitations in processing and compiling learning videos. This is due to lack of ability in the mastery and use of technology to ensure the speaker is conveying the material effectively [27], and produce quality learning videos.

During the video presentation sessions, the teachers had extraordinary abilities with pedagogical and professional competence in the learning process. Moreover, they manage classes and learning process runs effectively and efficiently. As a result, students understand correctly the material covered and improve their performance.

The presentation of several learning videos shown the integration of Islamic values in learning English shapes the character of students. Although they learn English, the contents in the material are Islamic in nature, for example, the stories of the Prophets. Therefore, the learning process runs effectively and efficiently and shapes the character of students according to educational goals.

The use of teaching media in the learning process increases desires and interests, arouse motivation and stimulant learning activities, bringing psychological influences to students. The selection of one particular learning method influences the type of learning media which is appropriate, although there is still something to be considered in choosing media. For
instance, students improve their performance in a subject in case they understand correctly the subject matter learned.

Furthermore, the advantages and disadvantages of using video in English learning and teaching process is as follows (Munir, 2012):

1) The Learning System is more innovative and interactive
2) The teachers will be creative in designing the materials
3) Students can grasp the meaning of vocabulary through watching video
4) Increase the motivation of learners during the learning process

While the weakness of using video, namely:
1) The lack of the ability of teachers in designing materials through video devices
2) Requiring large amounts, and
3) Lack of facilities in schools

4. Conclusion

PKM has trained English teachers in designing and compiling Islamic value-based learning videos that are presented using the PowerPoint application. It is designed to shape the characters of Islamic students of SMAN 1 Kampar Timur. This is achieved through English learning videos based on Islamic Values successfully designed.

A video is a tool that helps in the process of learning English. The listening, speaking, reading and writing language skills is presented using classroom learning videos, though teachers remain the main instructors and should never be replaced. Students should receive care and affection from teachers. The media only play a role if the teacher explains what is in the text but needs an indirect explanation. Teachers need to pay attention to the use of videos and ensure learning is relevant to the curriculum and as required by the goals of education.

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Assessment Of Higher Order Thinking Skills (Hots) For Chemistry Pre-Service Teacher Using Computer Based Testing (CBT)

Luki Yunita¹, Yetti Supriyati², Herwindo Hariwibowo³
{lukiyunita_pep16s3@mahasiswa.unj.ac.id¹, yetti.supriyati@unj.ac.id², herwindo@gmail.com³}

Department of Chemistry Education, Syarif Hidayatullah State Islamic University of Jakarta, Indonesia¹
Graduate Program of State University of Jakarta, Indonesia¹,²,³

Abstract. This research is aimed to identify the ability of the chemistry pre-service teachers in undertaking the questions within the MOTS and HOTS. Furthermore, the authors involve pre-service teachers who are studying at Department of Chemistry Education Syarif Hidayatullah State Islamic University of Jakarta. What is more, the instrument of research is administrated by examining the questions’ items through the CBT program consisting questions based on the learning competencies of basic chemistry in the higher education level. Therefore, the findings seem to indicate that (1) The test instrument carried the students in MOTS possesses the average 92%. While, the average percentage of the students who have HOTS is about 72%. Therefore, the students are able to do various kinds of questions covering HOTS;(2) The character and the pre-service teachers’ responses in accomplishing the questions trough CBT show the average point for about 80.1 and it is included in good category.

Keywords: Assessment, CBT, HOTS, Chemistry Pre-service Teacher

1. Introduction

There are some crucial factors that can help teachers and school institutions to prepare the students’ competencies in developing various skills in the 21st century, such as teachers’ pedagogical ability and information technology and communication use [1]. Sudarman and Ririn stated that one of the educational problems happened is lack of the opportunities in enhancing the students’ thinking skills during the learning process [2]. Furthermore, the development of technology and global information have affected the rapid enhancement of science. In fact, people can be easier to obtain various kinds of information both national and international scopes in this globalization era. Specifically, the development of science especially in chemistry higher order thinking skill enables teachers to apply technology in teaching and evaluation needs.

The importance of HOTS has influenced the development of teacher’s profession in developing the problems in chemistry subject objectively without neglecting basic knowledge theory, so it can support the students to participate in HOTS[3]. It is also related to several aspects in the teaching process, such as understanding the materials, designing the materials based on the students’ needs. Further on, the students as the pre-service teachers should have learning competency regarding the National Qualification of Indonesia, including HOTS that should be developed optimally.
Importantly, HOTS is needed for chemistry pre-service teachers before having a real teaching practice in a school, especially in micro-learning which will be organized in micro class by training the basic competences of teaching in order to the pre-service teachers are able to comprehend each component comprehensively in a simple learning situation [4]. Also, micro-learning is a kind of platform for the pre-service teachers to be brave in handling the class and developing the teaching materials about chemistry in the classroom activities. Moreover, it may be developed in accordance with the chemistry education program and the curriculum used in order to fulfil the pre-service teachers’ needs [5]. Relating to the learning materials, the teachers are only required to master the materials given to the students and pedagogy aspect in its development. Whereas, nowadays teachers should understand the learning materials, teaching strategies, and technology in teaching [6]. In light of the enhancement of ICT literacy, the students tend to implement technology in the classroom activities [7]. In this case, a teacher should be able to elaborate their ability to design the learning materials and pedagogy competence, learning materials with the technology, so it can create a learning process in the digital era.

In the implementation of HOTS, the learning assessment is important for the students to measure their understanding in using technology, such as computer, smartphone, tablet and other technologies, during the test. Also, the accessibility and internet connectivity can become the opportunity in implementing the information and communication technology in the classroom. Specifically, Google form is one of the software used to support teachers because of some considerations. For instances, it is easy to access, free to use, simple to operate and good enough to develop. It is included in the component of the Google Docs service. This application is appropriate for students, teachers, lecturers, office employees and professionals who like to create quizzes, forms and online surveys [8]. Furthermore, the features in the Google form, especially in the quiz, are very helpful teachers to create a test on chemistry subject that has been carried out either multiple-choice questions, entries or essays.

Therefore, the authors limit the research on micro-learning to know the students’ ability in content testing of chemistry. Also, it is used to identify the students’ level of the HOTS and MOTS based on 2013 curriculum and the national qualification framework of Indonesia. Moreover, the research focuses on assessing the students’ ability when they use Google form in a test. Finally, this research is aimed to describe the results of students’ ability that have reached HOTS and MOTS in completing computer-based test through Google form in micro-learning subject.

2. Research Methodology

The authors administrate the research by utilizing quantitative research methodology. According to Emzir (2008), a quantitative approach is one of the research approaches that primary uses a positivistic paradigm in promoting knowledge. Also, it is intended to gain the statistic data during the research process [9]. Furthermore, the authors analyze the data through descriptive analysis by distributing questionnaire as the survey study in order to obtain the main information from the students in the Department of Chemistry Education. The questionnaires are provided to investigate the students’ responses towards the use of the assessment instrument by Google form in completing the Chemistry questions’ items on HOTS. In addition, the authors set 18 MOTS questions’ items and 22 HOTS questions’ items to be examined. What is more, the authors involve 42 chemistry pre-service teachers who are studying at Department of Chemistry Education Syarif Hidayatullah State Islamic University of Jakarta and all of them have joined micro-learning subject in academic year 2018/2019.
Importantly, the number of the questions’ items are forty multiple-choices questions with the reliability coefficient of the internal consistency 0.86. After collecting the data, the authors carry out the analysis by calculating all of the data statistically in the quantitative form [10]. In this research, the assessment of content testing of chemistry Higher Order Thinking Skill using computer-based test will be analyzed with the percentage very good (81-100), good (66-79), enough (56-65), bad (40-45), and very bad (0-39) [11].

3. Finding and Discussion

Based on the research findings, it seems to suggest that the multiple-choices questions that have been assessed using Computer Based Test are appropriate to be applied for the chemistry pre-service teachers as the alternative media in solving the problems during the learning evaluation [12]. Consequently, it gives a positive impact to the students’ learning performances. Moreover, the students should understand from the materials given and the teachers also should evaluate their teaching performances periodically. Therefore, to build a feedback between teachers and students, computer-based test can be a solution to speed up the fulfillment of the students’ needs [13].

Furthermore, the use of CBT in learning process tends to increase the learning quality and learners will be easier to obtain the materials. To measure the learning objectives in teaching and learning process, the teacher carries out an assessment to know the students’ difficulties in understanding the materials given [14]. What is more, the authors examine the questions’ items emphasized on the HOTS (minimum in C3) to the students in the Department of Chemistry Education to know their abilities about chemistry learning materials. Higher order thinking possesses several benefits for the students, such as being more autonomous in learning, and being more credible in delivering the argument. Thus, the implementation of HOTS becomes one of the learning assessments, in which produces productive activities in the classroom [15]. Importantly, the character and the responses of pre-service teachers’ in accomplishing the questions trough Computer Based Test (CBT) show the average point for about 80.1 and it is included in a good category. George (2017) confirmed that applying ICT can create teaching and learning process more effective and meaningful. Besides, it helps the teachers to develop their teaching profession through developing assignments and assessments for the students. The result of the instrument analysis based on MOTS and HOTS can be seen from Figure 1.

Fig 1. The Analysis between MOTS and HOTS in Chemistry Assessment

The test instrument carried out by the students in MOTS possesses the average 92% (very good). While, the average percentage of the students who have HOTS is about 72% (good) [16]. Therefore, the students are able to do various kinds of questions covering higher order
thinking skills. Brookhart (2010, p. 17) argued a different perspective about the classification of thinking skills, which are LOTS or recall versus HOTS [17]. However, Anderson & Krathwohl (2001, p.31) divided the thinking skills into middle order thinking skills and higher order thinking skill by pointing to some important aspects. For instances, understanding, applying, analyzing, evaluating, and expressing [18]. Consideration in high order can be adjusted based on the school institution and the students’ characteristics. High-level thinking for the students in primary school, secondary school and high school level has different limitation [19]. Moreover, higher order thinking skill is considered from the basic chemistry level. While, the students in the elementary school and the secondary school who have understood the learning materials can be included in higher order thinking skill, but actually it is classified into low order thinking skills.

**Fig 2. The Students’ Competencies of Thinking Skill based on Gender**

The characteristic of questions’ items in higher order thinking skills between male and female indicates different result. Based on the Figure 2, the percentage of MOTS of male students reached 54% and the female students attained to 48%. However, the percentage of HOTS of male achieved 46 %, while the female students reach up to 52%. According to Brookhart in Shidiq, higher order thinking skills can be utilized to find out an understanding of how students ‘thinking will be different and what they learn can be improved by using special assessments that uncover students' thinking. Higher Order Thinking Skills in learning are applications of thought processes for complex situations and have many variables. All students can think, but most students need encouragement and guidance for higher-order thinking processes [20]. Thinking skills distinguish how far the teacher's science uses activities that encourage students to use their higher cognitive skills so as to think. As prospective chemistry preservice teachers for teacher science and encourage them to use different teaching strategies, especially cognitive strategies needed to achieve high-level thinking skills [21].

The research conducted by other researchers shows that difficulties in generating ideas experienced by students will cause students to experience technical problems in completing their assignments. This is a major factor affecting student achievement. Therefore, students need to learn HOTS because it is an important aspect of teaching and learning, especially in higher education. Practical thinking skills are part of generic skills that must be infused in all technical subjects. Students with HOTS will easily learn, improve performance and reduce weaknesses either through conventional teaching, learning environments or individual assignment[22]. Similarly related to HOTS are high level skills which include analysis, synthesis, and evaluation as well as demanding mastery from before, such as applying routine rules for problems that are familiar or problems that are new [23].
4. Conclusion and Suggestion

a. Conclusion

Based on the results of the present research, it can be concluded that the Chemistry pre-service teachers have completed the questions’ items by using Google form application based on its proportion regarding the result of the research. The results seem to suggest that (1) The test instrument carried out by the students in MOTS possesses the average 92%. While, the average percentage of the students who have HOTS is about 72%. Therefore, the students are able to do various kinds of questions covering higher order thinking skills, (2) The character and the pre-service teachers’ responses in accomplishing the questions through Computer Based Test (CBT) show the average point for about 80.1 and it is included in good category.

b. Suggestion

The result of the present research can be utilized to support the further research focusing on the higher order thinking skills. Specifically, computer-based test may be utilized as one of the alternative instruments to assess the students’ higher order thinking skills.

References


Abstract. Analysis of learning to write scientific papers (articles) is one of the needs analysis in research development of learning models. The purpose of this study was to determine the perceptions and expectations of students towards teaching writing articles in the UMI PGMI Jakarta Study Program. The research methodology in this research is qualitative. The research sample was 50 PGMI students spread over 5.7 and 9. semesters. The data collection technique was in the form of a questionnaire via Google Form. The results of research related to student perceptions showed that the majority (62%) of students had never written an article and published it. But students use articles to complete lecture assignments. Students expect that article writing training and intensive guidance from competent lecturers will be held. By knowing these perceptions and expectations PGMI lecturers are expected to design appropriate learning models for learning to write articles.

Keywords: Learning, writing, articles.

1. Introduction

As one of the requirements for graduation from the Undergraduate Program, PGMI students are required to make scientific papers in the form of theses. The thesis is then modified into a research article that must be uploaded in the UIN repository. This means that every student must publish his scientific work even if only in an online library. The advantage of online publication is that scientific work can be accessed by anyone who needs it without being bound by time and space. While the drawback is, if the article is not in accordance with the general rules of writing the article, then readers who will use the article as a reference will get an article that is less feasible.

During this time, there were no specific subjects that discussed writing articles. Article writing material is obtained by students, one of them is only from a small portion of other lecture material. For example in the language skills which include listening, speaking, reading and writing skills. The article writing material is in the writing material, and that was only one meeting because the writing component itself was very much material.

Students do not learn how to create articles intensively, however students are never separated from articles because the assignments given by lecturers from other subjects, such as curriculum planning, require students to look for journal articles as a reference.

To improve students' skills and productivity in writing articles, the design of RPS and syllabus and other curriculum components are needed. Before designing an article writing learning model, it is necessary to analyze the learning needs of writing an article in the form of
2. Literature Review

Articles are scientific papers that are rewritten from a study and distributed through publication in reputable journals. [1]

Generally, the article component consists of the beginning, middle, and end. The front of the article includes (1) the title, (2) the author's name, (3) the author's affiliation, (4) abstract and (5) keywords. The middle section, which is the contents of the article, consists of an introduction, discussion section, and concluding section. The final part of the article includes the bibliography and appendix. [2]

However, Rifai [3] argues that writing articles does not necessarily have to start from the introduction. Start writing from the easiest and most interesting part. Writing can also start from the preparation of tables or preparation of images. If the cultivation of a section is stuck, delay and move to another part that is ready to be handled. After everything is ready to be presented, then it is arranged according to the components that must be present in an article. Thus writing articles is not a hard job.

Why do students still find it difficult to write articles? Syaefullah [4] explained that the difficulty factor for students in writing scientific papers/articles was because:

1. Weak basic ability of students to build knowledge construction in accordance with the basics of philosophy of science
2. The incomplete guidelines for scientific writing in explaining the way of scientific writing in accordance with the laws of knowledge in the dimensions of epistemology, ontology, and axiology (the fundamentals of scientific writing)
3. Lack of understanding the basics of philosophy of science and cognitivism
4. Weak understanding of students in the dimensions of research methodology
5. Lack of reading reference books that are relevant to the subject (scientific exploration)
6. Weak ability of students to use good and correct language rules.

There are several lecturers who in their lecturing activities require students to read journals. This academic policy certainly needs to be appreciated as an effort to popularize the interest in reading journals led by the public [5].

Various attempts were made to improve writing skills. Both at the college level and at the school level. Some research that has been done reveals that there is an increase in the skills of writing scientific papers/articles after the respondent is given certain treatments.

One study conducted by Zulkarnaini [6], stated that there was an increase in writing skills in scientific works through the Drill Method. Subsequent research was conducted by Tnunay [7] who used a problem-based learning model accompanied by portfolio assessment, the results of the study showed that there was a significant increase in article writing skills after respondents were treated with the model and assessment.

Another method that has been used is the mind map method conducted by Tebing et al [8] where through this method there is an increase in scientific writing skills. In line with that, Muhammad Fauzan [9] suggested that there was a relationship between character strengthening and the activity of writing scientific papers with the principle of 165.
Furthermore, research conducted by Irawadi [10] about the CIRC (Cooperative Integrated Reading and Composition) learning model in improving the ability to write scientific papers. Supporting this research, He and Izziv [11] used the IMRAD (Introduction, Method, Research and Discussion) method as writing learning strategies. While Li and Zhang [12], and Fazillist [13] revealed the results of their research on the need for investigations in the writing process. The assessment in writing has been explored by Shirazi [14] and Walkinshaw [15].

In this connection, the steps of writing articles have been studied and discussed by Rumney [16], namely the techniques of seeing, doing and writing. Another strategy is the metacognitive strategy discussed by Cer [17]. Meanwhile, Li and Zhang [18] discussed how to editing writing.

Subsequent research on writing style, Lancaster [19] revealed, if we want students to perceive style and sound as social and dialogic, it makes sense to make assignments that encourage them to reflect deeply on their types. writer's self-representation is effective when writing to certain audiences in certain genres. Without the opportunity to reflect on it, students may be slower to understand the many voices they have learned to control and weave together in their own writing. Speeding up this capacity, and drawing students' explicit attention to it, can be a more liberating idea for many students than the more static "find their voice".

Regarding the relationship between writing and reading skills, McCardle [20] suggested that there is a relationship between reading activities and students' writing skills.

3. Methodology

Research Methodology The learning analysis of writing articles in PGMI is a descriptive qualitative method. The results of this analytical study are directed at students' perceptions and expectations towards learning to write articles. The population of this research is the students of PGMI UIN Jakarta in the 5th, 7th and 9th semesters. The sample of respondents is 50 students. The sampling technique of this study is purposive sampling, where each sample taken must meet certain criteria. the criteria in question is that the student has made a paper or article.

4. Findings

Based on the results of the questionnaire calculations that have been analyzed. Obtained the following results:

a. Student Perception

According to research data, there are 62% of students who have never written scientific papers in the form of articles and 38% who have written articles. In terms of article submission, 22% of students have submitted articles both for journals and competitions, the remaining 78% said they have never. That is, there are slices between students who have written articles and published them. Not all students who write articles submit these articles.

When asked if there were lecturers who had asked them to collaborate on making articles, the majority answered yes, the percentage was 56% and the remaining 44% answered no. This proves that the lecturer in making articles actually has involved students. But the students themselves do not know the procedures for making good
articles, as evidenced by the percentage of students who know the procedures for making good articles is 48% and the remaining 52% claim to not know.

The majority of students also did not know how to send articles to a journal, this was answered by 82% of respondents and the remaining 18% knew how to submit articles to a journal. Related to this, there are 47 students who do not understand the style of a journal and 3 students who already know it.

In connection with that, related to the learning strategies that have been implemented so far, the majority of students answered that the learning strategies in PGMI lectures supported students to make articles. Respondents who answered "yes" were 80% and those who answered "no" were 20%. The question is whether the learning media that has been used so far can support students to make articles, 74% answered yes and 26% answered no.

Evaluation of learning conducted so far at PGMI also actually has supported students to be productive in writing articles. Evidently 80% of students answered "yes" and 20% answered "no". This is in line with the subsequent statement that the pattern of assignments so far has supported students to make articles with the percentage of answers 82% answered yes and 12% of students answered no.

The next research data is that 100% or the whole sample responds that students use journals to complete lecture assignments. In terms of citing, 98% answered citing cited and 2% answering no.

Next, student knowledge about the Mendeley application; the majority of students do not know about the Mendeley application. Those who answered knew about 14% and those who did not know were 86%. This is relevant to the answer to the next question about whether students are able to use the Mendeley application as one of the bibliographic applications, students who answer no are 94% and answer already know it as much as 6%. This is one of the important findings so that how the lecturer then gives material about the application of mendeley to students.

UIN Jakarta facilitates students and lecturers with an online library. There are online journals that are subscribed and can be downloaded for free. Students who answered that they knew that the UIN library provided e journals that could be downloaded for free were 88% of respondents, the remaining 12% did not know. As for whether e journals subscribed to the UIN library can help students in doing their class assignments, the majority answered yes, which is 80% and those who answered not as much as 20%. The main text should be written using Times New Roman, 10pt, fully justified. Italics can be used for emphasis and bold typeset should be avoided.

b. **Student Expectation**

Expectations are important data needed to formulate a policy. Student expectations in learning writing articles are summarized in the following points:

1. PGMI Study Program conducts basic training on article writing, so students can understand what must be included in an article.
2. After students are directed on how to write good articles, then students are assigned to make articles.
3. It is necessary to have an article writing workshop and assignment of making articles both individuals and groups.
4. Students are taught the procedure (style of environment) of writing articles and how to submit articles to journals.

5. Hold a competition in writing scientific papers (articles).

6. Encourage students to publish their articles

7. Students want continuous training and monitoring of writing and submitting articles

8. There is an evaluation process so students know the shortcomings and errors in writing articles

9. There is a mandatory training to write articles

10. Availability of supporting facilities

11. Students form special study groups outside of class hours so they can explore about writing articles

12. Each subject recommends creating journal articles

In conclusion, students want guidance and training in writing articles, and procedures for sending them to journal editors, assigning both individuals and groups, holding discussions and competitions as well as monitoring and motivation to publish them.

5. Discussions

Based on the results of analysis of learning to write articles in the form of students' perceptions and expectations, several ideas emerged about the method of learning to write articles that contain novelty, in accordance with literary studies about learning to write articles that have been studied by previous researchers. In addition, ideas about the media, evaluation, assignment patterns and the results of this research (in the form of students' expectations) also became the basis for the PKTI (Training of Scientific Papers) at the PGMI Study Program on October 10, 2019.

6. Conclusions

Students' perceptions and expectations of the learning of writing articles at PGMI UIN is one of the basis or foundation for lecturers in formulating learning plans, methods and evaluation techniques. The research findings reveal that the methods, media and learning evaluation that have been carried out in the PGMI Study Program have supported students to make scientific papers / articles. Students generally have used journal articles to do their class assignments. However, many students are not yet skilled at making articles and do not know how to send them to journals. The next finding is that students do not yet know that there is an application such as Mendeley that can be used to make bibliography.

Students hope that there is ongoing training or workshops, which are monitored regularly, and then evaluated so that students know their mistakes and shortcomings. Students also hope that there is an intensive coaching process in sending articles to journals. In addition, students also want to have learning outside of class hours (a kind of discussion forum) to improve student skills in making articles. Finally, to encourage students to write articles, in addition to supporting facilities, an article writing competition should be held so that students are even more motivated.

7. Acknowledgements
Thanks are due to the Head of PGMI for allowing researchers to conduct research. And all PGMI students who have agreed to be respondents of this research.

References

The Effect of Puzzle-based Learning Approach on Students’ Mathematical Intuitive Thinking Ability

Lia Kurniawati1, Mardiana Zulfa2, and Ramdani Miftah3
{lia.kurniawati@uinjkt.ac.id1, mardiana.zulfa@icm.sch.id2, ramdani.miftah@uinjkt.ac.id3}

UIN Syarif Hidayatullah Jakarta, Indonesia1,3
insan Cendekia Madani Elementary Schools, Indonesia2

Abstract. The purpose of this research was to know students’ mathematical intuitive thinking ability between students taught with Puzzle-based Learning Approach and those taught using a Scientific Approach. The research was conducted at a senior high school Tangerang Selatan. The method of research used was quasi experiment with posttest-only control group design. The samples were 64 students; 32 students in experimental group and 32 students in controlled group by cluster random sampling technique. Data collection to measure the ability of students’ mathematical intuitive thinking used by test instrument. The result of this research showed that the value of sig. = 0.000 was less than significance standard 0.05 on hypothesis test. This indicated that the average of students’ mathematical intuitive thinking ability of teaching sequences and series taught using Puzzle-based Learning Approach was higher than those taught with Scientific Approach. This research concludes that learning mathematics using Puzzle-based Learning Approach has an effect on students’ mathematical intuitive thinking ability.

Keywords: Puzzle-based Learning Approach, Mathematical Intuitive Thinking, quasi experiment.

1. Introduction

The urgency of mathematics according to Suwarsono in Muniri in daily life is considered not only as a method of arithmetic using formulas and processing of numbers, but also as a logical value in thinking specifically in solving problems, [6].

Based on the role of mathematics, learning in schools is required to create a well-learning climate to support the improvement of students' thinking skills. One effort that can be done is by giving problems to students related to mathematics. Sometimes some students can immediately understand the problem or problem given and at the same time an idea or strategy appears to solve the problem, but there are also students who need stimulus such as aids or learning media as a bridge of thinking to understand and find the best way to determine solutions from that problem. The ability of a person to understand mathematical problems as well as determine the strategy of a problem solving is a mental activity that is supported by intuitive thinking skills or can also be called mathematical intuitive thinking skills.

The aspect of intuitive thinking ability still receives less attention in the practice of learning mathematics in Indonesia. Based on the 2015 PISA results under the auspices of the OECD stated that the ability of Indonesian students to solve questions level 5-6 namely 0.8% is very far from the average of 15.3%, [8]. Cognitive level 5-6 in PISA questions one of which is the ability to predict a solution to a problem based on prior knowledge that has formed within, [7].
Based on preliminary research conducted at one of the high schools in Tangerang Selatan, the researcher submitted a mathematical intuitive thinking ability test instrument to 30 students. The results obtained are students' mathematical intuitive thinking ability which is relatively low with a percentage of 37.5%.

Fischbein believes that through the training process, one can develop new intuitions. Thus this view implies that intuition can be learned, acquired, and developed, [12]. Puzzle-based learning approach is a learning that uses puzzles with students compiling their own knowledge based on problems given to improve their thinking ability in solving unstructured problems, [5]. In compiling his knowledge of a given problem, the use of intuition is very necessary and instrumental. Because convergent problems are solved directly, using the ability of the algorithm possessed by prior knowledge requires the ability to think intuitively mathematically.

The use of puzzle-based learning approaches in class tends to direct students to compile their own knowledge with steps that start from understanding the problem, recognizing patterns, registering and eliminating, simplifying, gedanken, then ending with simulation and optimization in order to compile mathematical rules, formula, and its own principles.

Based on the problems that have been described, there is a significant relationship between puzzle-based learning in improving students' mathematical intuitive thinking skills. The core of PzBL learning provided is to stimulate students' intuitive mathematical thinking abilities based on unstructured problems and knowledge from previous experiences that have arisen suddenly and tend to be unclear where they came from.

Based on the research background that has been stated, the problem to be investigated will be further studied with the formulation of the problem as follows:
1. How is the mathematical intuitive thinking ability of students who get learning with puzzle-based learning?
2. How is the ability to think intuitively mathematically students who get learning with a scientific approach?
3. Is the ability to think intuitively mathematically students who get learning with puzzle-based learning is higher than students who get learning with a scientific approach?

2. Literature Review

2.1 Mathematical Intuitive Thinking Ability

Thinking is a very influential part in supporting the activities of human life. This causes human activity in regulating life on earth supported by the ability to think. Mathematical thinking, according to Sumarmo, is defined as a way of thinking regarding mathematical processes (doing math) or ways of thinking in completing mathematical tasks, both simple and complex, [11].

Intuitive thinking ability is often used in mathematical problem solving. As revealed by Kustos [9], that intuition can be a reason for a strong understanding in relation to logic rather than against logic. A mathematical statement requires proof, but evidence from a statement often uses intuition to determine patterns in proving the statement. To think intuitively is to think concrete, direct, inductive and rich in non-symbolic ways in representing and processing of information, as well as recognition, [4].

Based on the description above, the ability to think intuitively mathematically which is the basis of this research is the ability of a person to solve mathematical problems based on information stored in memory, linking them to aspects in the form of audio or visual, to
understand and apply them in understanding and resolve the structure of mathematical problems spontaneously, globally, or may emerge suddenly.

2.2. Puzzle-Based Learning

Pedagogically, the concept of puzzle-based learning aims to improve students’ general analysis and problem solving skills by using puzzles (unstructured problems) that are educational, interesting and not boring, [5]. Puzzle-Based Learning refers to a basic approach that aims to improve thinking skills, build mentality and accuracy in solving unstructured problems, [10]. The statement is in line with the main purpose of puzzle-based learning expressed by Falkner, which is to build a solid foundation for students to become problem solvers in real life, [2].

3. Research Methods

The research method used a quasi-experimental design that has a control group, but cannot control the external variables that affect the experiment. This study divides the two groups namely the experimental group and the control group. The experimental group was the group that was given the treatment of learning with Puzzle-based Learning while the control group was given the treatment of learning with the Scientific Approach.

The design used was a randomize control group post test only design, which is a randomized design using a control group as a comparison to the experimental group and administering the test at the end of the treatment.

The sample in this research was taken from the population that is all students of class XII one of senior high schools in Tangerang Selatan in the academic year 2018/2019. Samples were taken as many as 2 classes randomly from nine classes using the cluster random sampling technique.

The research instrument used in this study was in the form of six descriptive questions given in the form of a post-test. The research instrument used in this study is a matter of description that has been measured validity, reliability, and tests to find out the different power and difficulty level of questions.

Analysis of the data used is hypothesis testing regarding differences in two population averages. The test used is the t-test. Before testing the hypothesis, the analysis prerequisite test is performed first, namely: normality test and homogeneity test

4. Result And Discussion

4.1. Result

1. Comparison of Mathematical Intuitive Thinking Ability in Experimental and Control Class Students

Comparison of the results of the test results of mathematical intuitive thinking ability students of the experimental class who were taught with a puzzle-based learning approach and the control class taught with a scientific approach can be seen in Table 3 as follows.
Table 1. Descriptive Statistics Mathematical Intuitive Thinking Ability in Experimental and Control Class Students

<table>
<thead>
<tr>
<th>Class</th>
<th>N</th>
<th>Range</th>
<th>Min</th>
<th>Max</th>
<th>̄X</th>
<th>S</th>
<th>Skewness</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>32</td>
<td>30</td>
<td>63</td>
<td>93</td>
<td>78.91</td>
<td>7.512</td>
<td>-.081</td>
</tr>
<tr>
<td>B</td>
<td>32</td>
<td>31</td>
<td>38</td>
<td>68</td>
<td>55.53</td>
<td>8.317</td>
<td>.464</td>
</tr>
<tr>
<td>Valid N</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

The table shows that the average value of the experimental class is higher than the control class with an average value of 78.91 in the experimental class and 55.53 in the control class. The maximum value of students in the experimental class is 93, while the minimum value is in the control class is 38. The standard deviation of the experimental class is lower than the control class. This shows that the mathematical intuitive thinking ability of the control class is more diverse than the experimental class. When viewed from the skewness level, the experimental class is negative, which means that most of the experimental class data is above average. The slope of the control class is positive, which means the control class data is below average.

Visually, the difference in the distribution of students' post-test results data for mathematical intuitive thinking ability of the two classes can be seen in the following figure 1:

![Graph of Students Scores between Experimental and Control Classes](image)

**Fig.1. Graph of Frequency Distribution in Experimental and Control Class**

Based on these curves, it is seen that the comparison of mathematical intuitive thinking ability values of the experimental class and control class students has a significant difference in the acquisition of the most values, namely the control class in the range of 50-60 and the experimental class in the range of 70-80. The highest score is dominated by the experimental class.
2. Mathematical Intuitive Thinking Ability in Experimental Classes and Control Class Students Based on Indicators

The students' mathematical intuitive thinking abilities are analyzed even more sharply based on the indicators namely catalysis, generalization and deduction. The average mathematical intuitive thinking ability in the experimental class and the control class are reviewed based on the indicators presented in the following table.

<table>
<thead>
<tr>
<th>No.</th>
<th>Indicators</th>
<th>Experimental</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Catalysis</td>
<td>76.17</td>
<td>58.59</td>
</tr>
<tr>
<td>2</td>
<td>Generalization</td>
<td>79.69</td>
<td>50.98</td>
</tr>
<tr>
<td>3</td>
<td>Deduction</td>
<td>82.81</td>
<td>58.2</td>
</tr>
</tbody>
</table>

Based on the table, on the catalyst indicator, the achievement of the experimental class is superior to the control class. In the generalization indicator, the achievement of the experimental class is far superior to the control class. Furthermore, the achievement of the experimental class on the deduction indicator is also higher than the control class. Judging from the three indicators, the experimental class is always superior to the control class in each indicator of mathematical intuitive thinking ability.

The average indicator of mathematical intuitive thinking ability with the highest level for the experimental class is indicator 3, namely deduction. Meanwhile, the average indicator of mathematical intuitive thinking ability with the highest level for the control class is indicator 1, namely catalysis. It can be seen, the average experimental class was higher in all indicators than the control class.

This research uses quantitative analysis, which is an analytical technique whose analysis process is carried out with mathematical calculations. This is because the results of this study are in the form of numbers on the results of tests of mathematical intuitive thinking abilities. Data taken from the experimental class and the control class are the results of the students' post-test on the subject of Trigonometry Derivation. The data that has been collected is processed and analyzed to answer the problem formulation and research hypothesis. The data processing starts from the normality test to the average difference test of the research class carried out using SPSS software.

Based on the results of the t-test hypothesis test it can be that the price of \( t = 10.607 \), \( df = 62 \) and \( p\text{-value} = 0.000 \text{ <0.05} \). This shows the rejection of \( H_0 \) and acceptance of \( H_1 \). \( H_1 \) states that the average mathematical intuitive thinking ability of the experimental class taught by the puzzle-based learning approach is higher than the average mathematical intuitive thinking ability of the control class taught by the scientific approach.

4.2 Discussion of Research Results

The results revealed that there were significant differences in mathematical intuitive thinking skills between groups of students who were taught with a puzzle-based learning approach and groups of students who were taught with a scientific approach. When viewed from the acquisition of values on each indicator, the experimental class is superior to the control class in each indicator of mathematical intuitive thinking ability.
Based on the results of the study found that learning with a puzzle-based approach has a positive influence on the development of students' mathematical intuitive thinking abilities that are applied during the learning process. It can be seen from the achievement of the values obtained by students who are taught with a puzzle-based approach and who are taught with a scientific approach to each indicator of mathematical intuitive thinking ability. The intuitive thinking ability of a puzzle-based approach is superior to a scientific approach, because a puzzle-based approach scores on the intuitive thinking ability of each indicator is higher than a scientific approach. This statement is supported by the recapitulation of a puzzle-based approach students who read the questions on average twice, while a scientific approach three times, this supports that the ability to quickly grasp the problem of a puzzle-based approach students is better than a scientific approach.

The results of this study are also supported by research conducted by Boukcherida in an international journal entitled "Enhancing Tertiary Students' Creativity Thinking Through Educational Puzzles ". The study concluded that puzzle-based learning is able to optimize students' creative thinking abilities that are closely related to intuitive abilities [1]. In addition, the findings of this study are also relevant to research conducted by Lia Kurniawati in the International Journal of "Enhancing Students' Mathematical Intuitive-Reflective Thinking Ability through Problem-Based Learning with Hypnoteaching Method" which concluded that learning with Problem-Based Learning uses the method hypnoteaching can develop mathematical intuitive-reflective thinking skills, [4]. The indicators measured are identify, arrange, evaluate, determine and construct. Intuitive-reflective abilities are closely related to indicators of mathematical intuitive thinking ability. Identification indicators are related to catalysis, where students use their intuition to make sense of the problem in a logical way. Arrange and determine indicators use the ability of students to solve problems and group concepts based on prior knowledge as stated in the generalization indicator. The next indicator is evaluate and construct related to students' thinking ability in concluding and building their own concepts of knowledge based on generalizations from examples or concepts that have been done before. From previous research it can be concluded that problem-based learning or puzzle-based learning can improve mathematical intuitive thinking skills.

Based on the average of each indicator the mathematical intuitive thinking ability of the puzzle-based approach is above 75, while the scientific approach is above 50. Even though the average control class taught with the Scientific Approach is lower than the experimental class, it does not mean this approach does not have a positive influence on Natematic intuitive thinking ability. The combination of puzzle-based learning with a scientific approach can certainly be an alternative choice when learning mathematics to improve students' mathematical intuitive thinking abilities.

5. Conclusion And Recommendation

5.1. Conclusion

1) The mathematical intuitive thinking ability of students in the experimental class which learning is applied puzzle-based learning approach is already high on all indicators. The ability to think intuitively mathematically in the largest experimental class is in indicators of deduction. Other indicators that occupy the second and third positions are generalization and catalysis. It can be said that learning with a puzzled-based learning approach can develop students' mathematical intuitive thinking skills.

2) Mathematical intuitive thinking ability of students in the control class that is applied with conventional learning that is with a scientific approach is still relatively low on
all indicators. The ability to think intuitively mathematically in the largest control class is catalysis but this result is still relatively low and not satisfactory enough. Other indicators that occupy the second and third positions are deduction and generalization.

3) Based on the results of hypothesis testing shows that the average mathematical intuitive thinking ability of experimental class students whose learning is applied with puzzled-based learning is higher than the average of control class students with a scientific approach.

5.2. Recommendation

Based on the findings that the researchers got in this study, there are some suggestions that researchers want to convey in this study, namely:

1) For schools, based on the results of research that the average students' mathematical intuitive thinking ability that is applied with puzzled-based learning is higher than the average mathematical intuitive thinking ability of students who are taught with a scientific approach so that learning with puzzle-based learning can be wrong or suggested alternatives in mathematics learning to be applied to students in developing mathematical intuitive thinking skills.

2) For teachers, learning with puzzle-based learning requires a relatively longer time at the stage of quantifying and eliminating as well as simulation and optimization. Therefore, the application of this learning should be well designed to consider the time allocation needed so that learning can run on time.

3) For students, it is better to be more independent in solving problems when learning the concept of knowledge rather than waiting and relying on the teacher's explanation in presenting the material so that students are more confident and get solid knowledge in each learning process.

4) For other researchers, this study only looked at the effect of applying learning with puzzle-based learning to the ability to think intuitively mathematically on trigonometric derivative material. Therefore, research should also be carried out on the subject and other mathematical thinking abilities. In the selection of problems (puzzle) researchers should provide unique and interesting problems, so students are enthusiastic in solving problems. Researchers are also advised to conduct good time management, so that all stages of puzzle-based learning run optimally.

References


Rasch Model Analysis of Critical Thinking Instruments for Elementary School

Kowiyah1,3*, Arita Marini1, Sihadi Darmo Wihardjo2
{kowiyah_agil@uhamka.ac.id1,arita250268@yahoo.co.id2,sihadiwihardjo@gmail.com3}

Elementary Education Department, Universitas Negeri Jakarta Indonesia1
Department of Environmental Sustainability Education, Universitas Negeri Jakarta, Indonesia2
Elementary Education Department, University of Muhammadiyah Prof.DR.HAMKA Jakarta, Indonesia3

Abstract. One of the 21st century abilities that must be mastered by students is the ability to think critically. To determine the level of successful students in developing critical thinking skills, an instrument is needed that can measure the critical thinking ability. The aim of this study is to analyze the instrument of critical thinking skills. This research is quantitative methodology. Data of critical thinking skills was obtained from 269 students on fifth grade from five elementary schools in Jakarta. The data was analyzed by rasch models using winstep version 4.4.3 software. The findings of the pilot study found that the reliability obtained based on the Cronbach Alpha is 0.98, so this value shows instruments used are in very good condition and effectively with a high level of consistency. Reliability of item is 0.99, while the separation of the item is 9.70 and this value can still be used because it shows that the entire item. The respondent was 0.72. While the separation of respondent is 1.62, it indicates in good condition and acceptable. The results showed that all items had a high value of Point Measure correlation which indicated that items could distinguish the ability of respondents. Instruments are valid and reliable can be used for further research.

Keywords: Critical Thinking, Instrument, Rasch model.

1. Introduction

Nowadays, education is in the industrial revolution 4.0 faced with the demands of the 21st century. According to the results of research conducted by more than 250 researchers from 60 world institutions members of ATC21S (Assessment & Teaching of 21st Century Skills), there are four skills that must be possessed such as communication, collaboration, critical thinking and problem solving, creativity and innovation. One of 21st century skills is to think critically. Critical thinking is a competency that must be possessed by every individual in globalization era [2], [6], [7]. It is an inseparable part of education because it is a very important cognitive ability [18], so the school keep striving to improve it. Students who have critical thinking will be able to solve problems effectively [3], [10].

Furthermore, the character of the person when facing problem will be seen if he has critical thinking skills. It appears when he speaks, acts and gives arguments and solutions to a problem. Facione says that there are six main critical thinking skills involved in the process of critical thinking. These skills are interpretation, analysis, evaluation, inference, explanation and self-regulation [4], [11]. In measuring critical thinking skills, an instrument is made based on the aspects of critical thinking. It can be measured through written, oral and observation.
tests. Adapted from Starkey, test of critical thinking covers aspects like drawing conclusions, recognizing assumptions, deduction, interpretation, analysis, evaluation of arguments [12].

The competency requirements of industrial revolution 4.0 and 21st century education appears that solving problems and critical thinking is an ability that must be possessed by someone to enter the industrial world as well as a basic foundation for children's thinking skills at the elementary school level. Based on explanation, the researchers conducted research on critical thinking skills in elementary schools by creating instruments to measure students' critical thinking skills in elementary schools. An indicator of the successful learning process is from the score obtained by students. A teacher develops an instrument to get students score. The instrument was arranged based on six aspects of critical thinking skills developed by Facione. It was developed by general events and technical fields faced by students. A good instrument can be trusted and it is measurable. The quality of the instruments is based on the analysis [18].

The analysis was conducted to determine the validity and reliability of the instrument. Validity is related to the accuracy of the assessment tool for what is being assessed so that it really evaluates what should be assessed as the result of the form of the score. There are four kinds of validities, such as content validity, construct validity, predict validity and similarity validity. Content validity relates to the ability of the instrument to measure the content that should be. In this case, the ability of the instrument measures students' critical thinking skills. Construct validity means the ability of an instrument to measure the understanding contained in the material being measured. The ability to predict certain characteristics, behavior or criteria is called the validity of predictions. While the validity of similarity means that the test has similarities with the tests that have been standardized [14].

In this study, the instrument will be analyzed by Rasch modeling using Winstep software. The analysis was carried out so that the resulting instruments had sufficient validity and reliability to measure critical thinking skills. This instrument can be used according to the needs of further research.

2. Methods

In this study, the data was obtained by developing instruments of critical thinking ability assessment. Respondents were 269 students from fifth grade taken from five elementary schools in Jakarta. Instrument was developed from part of one research variable.

The instrument was a questionnaire about critical thinking skills which contained eight questions in the form of open-ended mathematical problem solving questions. Eight questions were developed from six aspects of critical thinking skills delivered by Facione [4] and four aspects were taken which included interpretation, analysis, evaluation, interference. From the four main aspects then it was developed into eight aspects, such as identifying, considering, concluding, communicating data, explaining conclusions, writing results and presenting arguments. In material numbers in elementary school, the instruments of thinking ability were developed from general knowledge and technical knowledge. Then, the respondents determined the correct answer.

The instrument analysis of critical thinking skills used is the Rasch model with the Winstep Software tool version 4.4.3 developed by Linacre (2006)[8]. Analysis of the Rasch model was put forward by Georg Rasch in the 1960s and popularized by Ben Wight. The raw data used is dichotomous data that shows the ability of students. In the analysis of this Rasch model in one model it can be seen the relationship between questions and students [16].
The obtained data was processed using Winsteps software. Rasch model connected student data with questions on the same scale. This scale is obtained from the logarithmic value of the chance that the students are working correctly. By using Rasch model, it can be seen the relationship between the ability level of students (person abilities) and the difficulty level of the problem (difficulty items). Thus, it can be concluded that high-ability students are able to work on easier questions [1].

The Rasch model analysis is able to provide such as the overall information, the quality of the instruments used, the overall response quality of the students, and the interaction between respondents with the items [15]. Person measure shows the average score of all students in working on the problem. Sumintono stated that to measure reliability, it was shown by the value of person reliability and item reliability [16]. Reliability criteria are as follows: <0.67 (weak); 0.67-0.8 (enough); 0.8-0.9 (good); 0.91-0.94 (very good); > 0.94 (excellent).

The analysis of the Rasch model will provide a level of items fit. It will explain whether the item is functioning normally to make measurements. If an obtained question is not fit, this indicates a misconception on the question, so it is useful for the teacher to improve the quality of his teaching [16].

In Rasch model analysis, the quality between item fit and model is abbreviated with item fit. Determination of items fit according to Boone et al in Sumintono (2014) [15] the used criteria are: (1) Value of accepted Outfit mean square (MNSQ) = 0.5 <MNSQ <1.5; (2) The value of the Z-standard Outfit (ZSTD) accepted = -2.0 <ZSTD <+2.0; (3) Value of Measure Correlation (Pr Mean Corr): 0.4 <Pt Measure Corr<0.85.

Analysis of the obtained data using Winsteps software in accordance with the Rasch model if the value of the number of the middle quadrant (mean square) is 1.0 while the standardized value (Z-standardized value) is 0.0. In the analysis, it can also be known that the questions are too easy or too difficult and the respondents are outliers.

3. Results and Discussion

In the study, Rasch modeling was carried out with the help of Winsteps Software 4.4.3 to analyze data in order to test the validity and reliability of the instrument. "The Rasch model considers the ability of the respondent to answer each item or question and the level of difficulty of the item itself" (Rasch, 1980). With the analysis of items, compatibility (item fit) can be evaluated whether the items in the instrument can measure what should be measured. Conversely, if the item is not suitable (misfit); then, it is said that the item measures the construct outside the instrument, so the item must be revised or eliminated (Smith, 1992).

Based on Wright and Stone (1979).

3.1 Reliability and Separation Items and Respondent

Based on Rasch measurement model approach, the acceptable reliability Cronbach's Alpha is between 0.71-0.99 where it is at the best level (71% - 99%). The findings of the pilot study found that the reliability obtained based on the Cronbach Alpha is 0.98. So this value shows instruments used are in very good condition and effectively with a high level of consistency thus can be used in the actual research.

Person RAW SCORE-TO-MEASURE CORRELATION = .98
CRONBACH ALPHA (KR-20) Person RAW SCORE "TEST" RELIABILITY = .70
SEM3.48
Analysis was also performed on the instrument as a whole, namely the reliability and the separation of the respondent. Table 1 shows the reliability and separation respondent where the reliability of the respondent was 0.72, while the separation of respondent is 1.62 when rounded off is equal to 2.0. Based on the reliability of the respondent, “the value of 0.72 indicates are in good condition and acceptable” [1]. While “the separation of the item is 1.62 if rounded off is equal to 2.0 and this value can still be used because it shows that the entire item is divided into 2.0 levels of measurement”. According to Linacre (2003) [8], the separation index is better when the value is more than the value of 2.0.

### Table 1. The Result of Validity and Reliability of Respondent

<table>
<thead>
<tr>
<th>Total Score</th>
<th>Count</th>
<th>Measure</th>
<th>S.E.</th>
<th>MNSQ</th>
<th>ZSTD</th>
<th>PNSQ</th>
<th>ZSTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>22.8</td>
<td>8.0</td>
<td>.46</td>
<td>.32</td>
<td>1.82</td>
<td>-.01</td>
<td>.99</td>
</tr>
<tr>
<td>SEM</td>
<td>.4</td>
<td>.0</td>
<td>.04</td>
<td>.00</td>
<td>.04</td>
<td>.08</td>
<td>.04</td>
</tr>
<tr>
<td>P.SD</td>
<td>6.4</td>
<td>.0</td>
<td>.69</td>
<td>.06</td>
<td>.59</td>
<td>1.13</td>
<td>.72</td>
</tr>
<tr>
<td>S.SD</td>
<td>6.4</td>
<td>.0</td>
<td>.76</td>
<td>.06</td>
<td>.59</td>
<td>1.13</td>
<td>.72</td>
</tr>
<tr>
<td>Max</td>
<td>39.0</td>
<td>8.0</td>
<td>2.60</td>
<td>.77</td>
<td>4.85</td>
<td>3.36</td>
<td>7.30</td>
</tr>
<tr>
<td>Min</td>
<td>2.0</td>
<td>8.0</td>
<td>-2.97</td>
<td>.29</td>
<td>.18</td>
<td>-2.51</td>
<td>.17</td>
</tr>
</tbody>
</table>

REAL RMSE .36 TRUE SD .59 SEPARATION 1.62 Person RELIABILITY .72
MODEL RMSE .32 TRUE SD .61 SEPARATION 1.89 Person RELIABILITY .78
S.E. OF Person MEAN = .04

Besides, the validity and reliability of respondents in answering questions, questions can also be analyzed from each item to be measured. The following are the results of the reliability of the item question.

### Table 2. The Reliability Results of Items

<table>
<thead>
<tr>
<th>Total Score</th>
<th>Count</th>
<th>Measure</th>
<th>S.E.</th>
<th>MNSQ</th>
<th>ZSTD</th>
<th>PNSQ</th>
<th>ZSTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>786.9</td>
<td>269.0</td>
<td>.80</td>
<td>.06</td>
<td>1.02</td>
<td>-.47</td>
<td>.99</td>
</tr>
<tr>
<td>SEM</td>
<td>74.6</td>
<td>0.0</td>
<td>.22</td>
<td>.09</td>
<td>.15</td>
<td>1.79</td>
<td>.13</td>
</tr>
<tr>
<td>P.SD</td>
<td>197.4</td>
<td>0.0</td>
<td>.59</td>
<td>.01</td>
<td>.48</td>
<td>4.74</td>
<td>.35</td>
</tr>
<tr>
<td>S.SD</td>
<td>211.1</td>
<td>0.0</td>
<td>.63</td>
<td>.01</td>
<td>.43</td>
<td>5.07</td>
<td>.38</td>
</tr>
<tr>
<td>Max</td>
<td>1285.0</td>
<td>269.0</td>
<td>.73</td>
<td>.07</td>
<td>1.75</td>
<td>7.41</td>
<td>1.57</td>
</tr>
<tr>
<td>Min</td>
<td>515.0</td>
<td>269.0</td>
<td>-1.36</td>
<td>.05</td>
<td>.55</td>
<td>-6.15</td>
<td>.57</td>
</tr>
</tbody>
</table>

REAL RMSE .06 TRUE SD .59 SEPARATION 9.70 Item RELIABILITY .99
MODEL RMSE .06 TRUE SD .59 SEPARATION 10.60 Item RELIABILITY .99
S.E. OF Item MEAN = .22

Table 2 shows the reliability of item is 0.99, while the separation of the item is 9.70. This shows that the item are very high reliability and very good. This is because Bond and Fox
based on the reliability of the item, the value of 0.99 indicates are in very good condition and acceptable [1]. While the separation of the item is 9.70 and this value can still be used because it shows that all items

### 3.2. Items Fit Measures Constructs

Items fit is measuring the constructs that can be seen through “the infit and outfit Mean Square (MNSQ)”. According to Bond and Fox (2007)[1], the outfit and infit MNSQ should be in the range of 0.5 to 1.5 to ensure the items are suitable for measuring the constructs. But the outfit index MNSQ noteworthy in advance compared to infit MNSQ for determining congruity of items that measure a construct or latent variable. If the outfit or infit MNSQ value more than 1.5 logit, then it gives meaning confusing item.” If the MNSQ value is less than 0.5 logit, it shows that the item is too easily anticipated by the respondents [8], [9]. Point measure correlation should be in the range of 0.4 to 0.85 does not indicate a problem distribution [16]. Besides, the outfit and infit ZSTD value should also be within -2 to +2 [1]. However, if the infit and outfit MNSQ be accepted, the ZSTD index can be ignored [1], [8]. Applying the Rasch Model: Fundamental Measurement in the Human Sciences.

### Table 3. Scale Item Misfit Order

<table>
<thead>
<tr>
<th>ENTRY NUMBER</th>
<th>TOTAL SCORE</th>
<th>TOTAL COUNT</th>
<th>MODEL MEASURE</th>
<th>INFIT S.E.</th>
<th>MNSQ</th>
<th>ZSTD S.E.</th>
<th>ZSTD MNSQ</th>
<th>ZSTD CORR.</th>
<th>EXP.</th>
<th>OBS.</th>
<th>EXP.</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>629</td>
<td>290</td>
<td>.50</td>
<td>.05</td>
<td>1.75</td>
<td>7.41</td>
<td>1.57</td>
<td>5.53</td>
<td>.56</td>
<td>.55</td>
<td>29.7</td>
<td>33.3</td>
</tr>
<tr>
<td>4</td>
<td>793</td>
<td>269</td>
<td>.84</td>
<td>.05</td>
<td>1.20</td>
<td>2.57</td>
<td>1.37</td>
<td>4.06</td>
<td>.27</td>
<td>.50</td>
<td>21.9</td>
<td>29.2</td>
</tr>
<tr>
<td>5</td>
<td>706</td>
<td>269</td>
<td>.18</td>
<td>.05</td>
<td>1.34</td>
<td>4.08</td>
<td>1.25</td>
<td>2.73</td>
<td>.68</td>
<td>.56</td>
<td>26.1</td>
<td>32.5</td>
</tr>
<tr>
<td>6</td>
<td>1286</td>
<td>269</td>
<td>-1.36</td>
<td>.07</td>
<td>1.23</td>
<td>1.75</td>
<td>1.66</td>
<td>3.38</td>
<td>.62</td>
<td>.58</td>
<td>65.8</td>
<td>65.6</td>
</tr>
<tr>
<td>7</td>
<td>318</td>
<td>269</td>
<td>-3.34</td>
<td>.05</td>
<td>1.78</td>
<td>-3.18</td>
<td>.72</td>
<td>-3.45</td>
<td>.49</td>
<td>.60</td>
<td>32.7</td>
<td>25.3</td>
</tr>
<tr>
<td>8</td>
<td>692</td>
<td>269</td>
<td>.22</td>
<td>.05</td>
<td>1.78</td>
<td>-4.37</td>
<td>.78</td>
<td>-3.89</td>
<td>.65</td>
<td>.56</td>
<td>41.6</td>
<td>32.5</td>
</tr>
<tr>
<td>7</td>
<td>692</td>
<td>269</td>
<td>.22</td>
<td>.05</td>
<td>1.59</td>
<td>-6.15</td>
<td>.65</td>
<td>-4.76</td>
<td>.61</td>
<td>.56</td>
<td>35.7</td>
<td>32.4</td>
</tr>
<tr>
<td>8</td>
<td>515</td>
<td>269</td>
<td>.73</td>
<td>.06</td>
<td>1.55</td>
<td>-5.83</td>
<td>.57</td>
<td>-5.36</td>
<td>.56</td>
<td>.52</td>
<td>57.2</td>
<td>39.4</td>
</tr>
</tbody>
</table>

Table 3 shows that there are 3 items that are outside the range because they exceed the MNSQ infit and outfit limit values (> 1.5), namely E3 and the ZSTD in fit and outfit limits (> 2), namely E3, E1 and E2). Item E3 has MNSQ infit of 1.75 (> 1.5) and MNSQ 1.57 (> 1.5) outfit and the ZSTD infit and outfit values obtained are also large, namely ZSTD infit of 7.41 (> 2) and ZSTD outfit at 5.53 (> 2). Item E1 has a ZSTD infit value of 2.57 (> 2) and ZSTD outfit is 4.06 (> 2) but the infit and MNSQ outfit values are acceptable, namely MNSQ 1.20 (<1.5) infit and MNSQ outfit 1.37 (<1.5). Furthermore Item E2 has ZSTD infit value of 4.03 (> 2) and ZSTD outfit of 2.73 (> 2) but the infit and MNSQ outfit values can be received, namely MNSQ infit value of 1.34 (<1.5) and MNSQ outfit of 1.25 (<1.5). Thus, there is one item that really is outside the range is E1. Then item E1 needs to be revised or eliminated from the list of items in the research instrument.
3.3 Polarity Item By PTMEA CORR Value

Examination of the Point Measure Correlation (CORR PTMEA) to detect polarity items intended to test the extent to which the construction of constructs to achieve its goal. “If the value contained in the PTMEA CORR is the positive (+), it shows the item measure the constructs to be measured”[1]. Otherwise, if value is negative (-), the item is not developed to measure the constructs to be measured. Thus, it needs to be improved or dropped because the item is not lead to the question (not focus) or difficult to answer by the respondent.

Table 4. Item Polarity Based on Point Measure Correlation

<table>
<thead>
<tr>
<th>Entry Number</th>
<th>Total Score</th>
<th>Total Count</th>
<th>Measure</th>
<th>Point Measure Corr</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>626</td>
<td>269</td>
<td>0.73</td>
<td>0.56</td>
<td>E8</td>
</tr>
<tr>
<td>3</td>
<td>793</td>
<td>269</td>
<td>0.40</td>
<td>0.56</td>
<td>E3</td>
</tr>
<tr>
<td>7</td>
<td>704</td>
<td>269</td>
<td>0.22</td>
<td>0.61</td>
<td>E7</td>
</tr>
<tr>
<td>6</td>
<td>1205</td>
<td>269</td>
<td>0.22</td>
<td>0.65</td>
<td>E6</td>
</tr>
<tr>
<td>2</td>
<td>910</td>
<td>269</td>
<td>0.18</td>
<td>0.60</td>
<td>E2</td>
</tr>
<tr>
<td>1</td>
<td>692</td>
<td>269</td>
<td>-0.04</td>
<td>0.27</td>
<td>E1</td>
</tr>
<tr>
<td>5</td>
<td>690</td>
<td>269</td>
<td>-0.34</td>
<td>0.69</td>
<td>E5</td>
</tr>
<tr>
<td>4</td>
<td>515</td>
<td>269</td>
<td>-1.36</td>
<td>0.62</td>
<td>E4</td>
</tr>
</tbody>
</table>

Based on table 4, it shows that for each item E1 to E8 has a positive Point Measure Correlation value. Thus, there are no items in the instrument that are discarded because “they meet the minimum requirements (PTMEA CORR> 0)”[15]. In addition, the item login value (Measure) which is item E8 of 0.73 shows the most difficult item for the respondent to answer. While E4 items are -1, 36 shows the easiest items to be approved by respondents. The results showed that all items had a high value of Point Measure correlation which indicated that items can distinguish the ability of respondents.

4. Conclusion

From the research that has been done, it can be concluded that there is a typical process of measuring instruments of critical thinking skills in material numbers in fifth grade using the Rasch model. Rasch model analysis provides more comprehensive and in-depth information on the respondent's test, the items simultaneously and accurately. The findings found that the reliability obtained based on the Cronbach Alpha is 0.98, so this value shows instruments that are used in very good condition and with a high level of consistency. The reliability of the item is 0.99 while the item is 9.70 it shows that the entire item. The respondent was 0.72 while the round of off was 1. When rounded off was equal to 2, 0.72 indicated are in good condition and acceptable. The results showed that all items had a high value of Point Measure correlation which indicated that the item could distinguish the ability of the respondents. It can be concluded that the instrument of critical thinking skills could be used for further research.

Reference

The Effect of Flipbook Media on Visual Students’ Learning Outcome in Remedial Teaching of Parabolic Motion Concept

Iwan Permana Suwarna¹, Dini Nurhayati²
{iwan.permana.suwarna@uinjkt.ac.id¹, dini.nurhayati14@mhs.uinjkt.ac.id²}

UIN Syarif Hidayatullah Jakarta, Indonesia¹,²

Abstract. Physics remedial teaching in Indonesian High School (SMA) does not accommodate the diversity of student learning styles. That has an impact on low student learning outcomes (cognitive domain of Bloom’s taxonomy C2 – C4). This research was conducted at SMA in South Tangerang Banten on November 2018 with a sample of 20 visual students. The sample was selected by purposive technique, from 188 students (tenth-grade natural sciences). Samples were divided into two groups (experiment and control) with the same amount. The results of hypothesis testing (Mann-Whitney test) obtained sig values. 0.040 (α = 0.05), concluded that alternative hypothesis was accepted. There was an influence of flipbook media on visual students’ learning outcome in remedial teaching of parabolic motion concept. Students in experimental group experienced a high increase in C4 (analyse) with an N-gain of 0.73. The flipbook is very effective (80%). It helps process of remedial learning and accommodate students.

Keywords: Flipbook Media, Remedial Teaching, Parabolic Motion, Learning Outcomes, Visual students.

1. Introduction

The average results of the Indonesian National Examination in physics at the South Tangerang Senior High School (SMA) have decreased in the last three years. The average decline in the value of the 2015-2017 physics National Examination was 25.90% (73.07 to 54.15), 5.53% (54.5 to 51.15) [1]. Decreasing the average value of the National Examination is one of the impacts of physics learning that has not been optimal. Students have different learning difficulties. One reason is the difference in students’ understanding of the stimulus provided by the teacher, due to differences in learning styles [2]. Students who have learning difficulties and cannot maximize their abilities continue while they are participating in remedial activities by the teacher. However, at this time the teacher does not provide special treatment or remedial learning to students who have not yet completed/have difficulty in learning.

The handling of the remedial learning process carried out by the teacher has not been done ideally. These problems include: First, 58.43% of students said the teacher did remedial activities through written tests [3]. In the parabolic motion material, the number of students who completed the State High School in South Tangerang was 343 students (72.36%) [3]. In theory, if the number of remedial students reaches 50%, the form of remedial learning that must be done is remedial teaching [4]; Second, remedial student learning outcomes are still
incomplete. On average students take three remedial tests to get completeness scores [3]; Third, students have difficulty in visualizing the motion displacement trajectory after being given the initial angle, students cannot predict the farthest distance on the trajectory of objects with different angles [5], and students find it difficult to determine the quantities of parabolic motion (difficult to distinguish the use of formulas) [3]; Fourth, the lack of interaction and guidance by the teacher (learning is still teacher-centered). Learning by teachers is still classical and conventional [3]; Fifth, the teacher does not realize that students have different learning styles; Sixth, the display of books used by students to learn the concept of parabolic motion is less interesting because it only contains formulas and explanations that are abstract. The material does not display a lot of pictures and animations/videos that relate the concept to everyday life. The problem causes the visual students are not optimal in understanding the concept of parabolic motion. Visual students have difficulty in understanding the concepts that require explanation in the form of graphic images, vectors and real examples in everyday life [6]; seventh, most visual students do not complete the concept of parabolic motion (81%); and eighth, teachers only provide one learning stimulus (learning style), students with different learning styles have difficulty in understanding the concepts [2].

Remedial teaching-learning for visual students on the concept of parabolic motion is very important to do. If remedial teaching is not carried out then, the value obtained by visual students will remain low or no different from previous grades that are not completed; understanding of remedial learning concepts will not increase; the concept of parabolic motion is important for students to understand because this concept always appears in every National Examination; visual students have difficulty in accepting the information conveyed by the teacher, and students cannot understand their learning styles and develop learning attitudes and habits to get better results.

Visual students’ learning outcomes that follow the remedial on the concept of parabolic motion can be improved if they are given remedial teaching-learning by using flipbook media. Remedial teaching-learning can help students to understand the material more closely related to the material being studied. Improved understanding of students who learn with flipbook media on the concept of parabolic motion can improve student learning completeness. The visual students who learn to use flipbook media can visualize the abstract concept of parabolic motion into the concrete. Flipbook media can visualize the concept of parabolic motion such as movements in the field of sports (soccer, basketball, volleyball, and javelin throwing), military (putting down bullets/bombs in cannons), and homework (watering plants with a hose). Flipbook media can be inserted by animation that supports learning the material in the form of video or flash animation, student-centered oriented, can be opened at any time, and can be opened on all computers/laptops even though the flipbook application is not installed [7]. With the advantages of flipbook media, it is expected to help students to maximize their learning abilities following their visual learning styles to achieve learning mastery. This study aims to determine the effect of flipbook media on visual students’ learning outcome of parabolic motion concept.
2. Materials and Method

2.1 Setting and Subjects

The research method used in this study was a quasi-experimental method with the Nonequivalent Control Group Design [7]. The population in this study was students of tenth-grade Senior High School in South Tangerang Banten odd semester 2018/2019 school year with a total of 188 students divided into five classes. The affordable population in this study amounted to 26 students. The sample used in this study amounted to 20 students who were divided into two groups, namely the experimental group and the control group. The sample was determined using a purposive sampling technique, with the criteria used in sample selection are groups of visual students who are incomplete on the concept of parabolic motion [8]. Both groups that were sampled given VARK (Visual Auditory Read-Write Kinesthetic) learning style tests to find out students who had visual learning styles. Both groups have also followed daily tests on the concept of parabolic motion, but the results are incomplete. The experimental group was given remedial teaching treatment using flipbook media while the control group was given remedial teaching treatment not using flipbook media.

2.2 Data Collection

Data collection in this study was carried out with two test instruments. First, all students from the population, were given the VARK learning style test instrument. This test was used to find out the learning styles students have. The VARK learning style test instrument consisted of 16 multiple choice questions with four answer choices according to the characteristics of visual, auditory, read-write, and kinesthetic learning styles [9]. Furthermore, the results of the VARK learning style test were used to determine the research sample, namely students who have a visual learning style.

Second, the data collection of student learning outcomes used the pre-test and post-test instruments consisting of 13 multiple choice questions with five answer choices. The pre-test and post-test test instrument consisted of C2, C3 and C4 cognitive domain of Bloom’s Taxonomy. The instrument has been validated by 16 experts (physicists, construction experts, and linguists). The expert assessment results were processed using a content validity ratio (CVR) [10] which was then used to obtain a content validity index (CVI) value which is an average of the CVR value [10]. This test instrument has also been tested on 42 students. The reliability test results were in the high category (0.88).

2.3 Data Analysis

The data obtained through the VARK learning style test instrument was then processed to determine the learning styles that each student has. This learning style test results produce four answer choices (Visual, Auditory, Read-Write, and Kinesthetic) with one score for each learning style. The score is then used to determine the learning styles students have based on the number of scores from one learning style that is more dominant than the others [9].

Data obtained through the pre-test and post-test test instruments were tested using the SPSS application [11]. The test given is the normality test using the Sapiro-Wilk test; homogeneity test using the Levene test; and hypothesis testing on pre-test data using the t-test, on post-test data using the Mann-Whitney test. To find out the increase in understanding or mastery of students’ concepts after learning, the pre-test and post-test results were tested using
the N-gain test [12]. Furthermore, the data was tested for effectiveness by looking at the percentage of students who get learning outcomes ≥ KKM (Kriteria Ketuntasan Minimal - Criteria for minimum completion) after attending remedial teaching [13].

2.4 Hypothesis

The formulation of statistical hypothesis in this study was to test the differences in the average learning outcomes of remedial teaching in the experimental and control group is:

\[ H_0: \mu = \mu_0 \]
\[ H_a: \mu \neq \mu_0 \]

Explanation:
\( H_0 \) = Null Hypothesis (there is no influence of flipbook media on remedial teaching on visual students learning outcomes)
\( H_a \) = Alternative Hypothesis (there is an influence of flipbook media on remedial teaching on visual students learning outcomes)
\( \mu \) = The average visual students learning outcomes on remedial teaching in the experimental group who were treated learning with flipbook media
\( \mu_0 \) = The average visual students learning outcomes on remedial teaching in the control group who were treated learning didn’t use flipbook media

3. Result and Discussion

The results of the VARK learning style test of 188 students with visual learning styles spread over five natural science tenth-grade in this study are shown in Table 1 below.

<table>
<thead>
<tr>
<th>No.</th>
<th>Learning Style</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Visual</td>
<td>9%</td>
</tr>
<tr>
<td>2.</td>
<td>Visual – Auditory</td>
<td>2%</td>
</tr>
<tr>
<td>3.</td>
<td>Visual - Read-Write</td>
<td>2%</td>
</tr>
<tr>
<td>4.</td>
<td>Visual – Kinesthetic</td>
<td>1%</td>
</tr>
<tr>
<td>5.</td>
<td>Visual - Read-Write – Kinesthetic</td>
<td>1%</td>
</tr>
<tr>
<td>6.</td>
<td>Auditory</td>
<td>27%</td>
</tr>
<tr>
<td>7.</td>
<td>Read-Write</td>
<td>25%</td>
</tr>
<tr>
<td>8.</td>
<td>Kinesthetic</td>
<td>24%</td>
</tr>
<tr>
<td>9.</td>
<td>Read-Write - Kinesthetic</td>
<td>3%</td>
</tr>
<tr>
<td>10.</td>
<td>Auditory - Read-Write</td>
<td>4%</td>
</tr>
<tr>
<td>11.</td>
<td>Auditory - Read-Write - Kinesthetic</td>
<td>1%</td>
</tr>
</tbody>
</table>

Based on the table 1, there are 14% (26) visual students spread across five classes of natural sciences. Then, a pre-test was given to students from the population who were spread out in the five classes of natural science in the form of daily tests conducted after learning with the teacher to determine student learning outcomes on the concept of parabolic motion. Pre-test results stated student learning outcomes on the concept of parabolic motion is still low. 87% of students do not complete their learning outcome. The cause of the low student learning outcomes in the concept of parabolic motion is students do not understand the concept of parabolic motion-in-depth and students have difficulty to distinguish the use of formulas to solve problems because many formulas are used in the concept. Visual students who did not complete had to take remedial teaching. Students who did not complete were > 50% (80.7%).
Visual students who are incomplete are divided into two groups with the same number of visual students (10 students), namely the experimental and control groups.

The recapitulation of students' pre-test and post-test results is presented in the following Table 2.

| Table 2. Pre-test, Post-test, N-gain, and Effectiveness Test of Visual Students’ Learning Outcomes |
|---------------------------------------------------------------|---------------------------------------------------------------|
| Descriptive                                                   | Control                                                       |
|                                                              | Post-test | Pre-test |                       |
| Minimum Score                                                | 1,00      | 4,00     | 2,00                   | 9,00 |
| Maximum Score                                                | 9,00      | 11,00    | 9,00                   | 12,00|
| Mean                                                          | 5,30      | 8,80     | 4,90                   | 10,30|
| Median                                                        | 5,50      | 9,00     | 5,00                   | 10,00|
| Mode                                                          | 8,00      | 10,00    | 5,00                   | 10,00|
| Standard Deviation                                           | 2,58      | 1,93     | 2,47                   | 1,06 |
| N-gain                                                       | 0,4       | 0,7      |                        |
| N-gain Criteria                                              | Medium    | Medium   |                        |
| Effectiveness                                                | 40%       | 80%      |                        |
| Effectiveness Criteria                                       | Not Effective | Very Effective |

The pre-test score of both classes was low and did not reach half of the maximum score (6.5 out of 13). The mean score of the control class (5.30) was slightly higher than the experimental class (4.90). The reason for the low pre-test results of visual students is the conventional learning method where the learning process is centered on the teacher, students only see the material exposure on the blackboard, listen to the teacher's explanation, take notes, and memorize [3]. They find it difficult to understand the teacher's explanation with this method because they prioritize the important role of the eye as a vision so that it requires clear and concrete visualization to build understanding [14].

Post-test scores of both classes after being given remedial teaching treatment have increased. The mean score of the pre-test in the control group increased by 3.50 (27%) from 5.30 to 8.80 in the post-test, while the mean score of the pre-test (mean) in the experimental group increased by 5.40 (41.5%) from 4.90 to 10.30 at the post-test. The increase in the average pre-test score in the experimental group was greater than the control group. It means that the experimental group had higher learning outcomes than the control group. Improved learning outcomes can also be seen from the N-gain of both groups. N-gain in the experimental group was higher (0.7) compared to the control group (0.3).

The percentage of students' post-test completeness in the control group was 40%, meaning that the treatment given to the control group was not effective in improving visual students’ learning outcomes. Meanwhile, the percentage of post-test completeness in the experimental group was 80%, which meant that the treatment given to the experimental group was very effective in improving visual students’ learning outcomes. This states that flipbook media is effectively used in overcoming student learning difficulties [15].

Student learning outcomes in the experimental group are higher than the control group due to the use of flipbook media that facilitates visual students can maximize their ability to understand knowledge because learning is following their learning styles.
The average C2, C3, and C4 cognitive domain scores and N-gain of Bloom's taxonomy based on the results of the pre-test and post-test in the control and experimental groups can be seen in Table 3 below.

<table>
<thead>
<tr>
<th>Group</th>
<th>Score</th>
<th>C2</th>
<th>C3</th>
<th>C4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-test</td>
<td>0.40</td>
<td>0.37</td>
<td>0.48</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>0.70</td>
<td>0.64</td>
<td>0.73</td>
</tr>
<tr>
<td>N-gain</td>
<td></td>
<td>0.45</td>
<td>-0.63</td>
<td>0.44</td>
</tr>
<tr>
<td>N-gain Criteria</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>Pre-test</td>
<td>0.55</td>
<td>0.33</td>
<td>0.38</td>
</tr>
<tr>
<td></td>
<td>Post-test</td>
<td>0.85</td>
<td>0.73</td>
<td>0.88</td>
</tr>
<tr>
<td>N-gain</td>
<td></td>
<td>0.60</td>
<td>0.56</td>
<td>0.73</td>
</tr>
<tr>
<td>N-gain Criteria</td>
<td>Medium</td>
<td>Medium</td>
<td>High</td>
<td></td>
</tr>
<tr>
<td>Experiment</td>
<td>Maximum score of pre-test post-test</td>
<td>2.00</td>
<td>7.00</td>
<td>13.00</td>
</tr>
</tbody>
</table>

The average score of the final abilities of cognitive domains C3 and C4 in the experimental group (0.73 and 0.88) experienced a significant increase from their initial abilities (0.33 and 0.38). The difference between the average score of C3 and C4 cognitive abilities in the experimental group was higher than in the control group. This shows that there is a significant improvement after being given remedial teaching treatment using flipbook media in the experimental group. A comparison of the average pre-test and post-test scores of the control group and the experimental group is presented in Figure 1.

**Figure 1** The Average Pre-test and Post-test Scores for Each Cognitive Domain

The final ability improvement in the experimental group that was given remedial teaching treatment using flipbook media was greater than the control group that was given remedial teaching treatment not using flipbook media. The use of flipbook media that facilitates visual students can maximize their ability to understand knowledge because learning is following their learning styles. During remedial teaching, visual students can learn according to their learning styles. Thomas stated that learning styles are important in increasing the
understanding and achievement of each subject [16]. Flipbook media helps visual students’
learning by looking at text; picture; and observing conceptual videos and animations related to
phenomena in everyday life. Flipbook media helps visual students in a) visualizing the
phenomenon of parabolic motion in everyday life in the form of images, animations, and
videos; b) explain the material and formulas in the form of text, animation, and video; c)
visualize the motion movement path of the object after being given an initial angle through
animation of the movement of the object in the parabolic path; d) predict the farthest distance
on the path of objects with different angles through video showing the relationship between
elevation angles and range distances; e) predicting the farthest distance on the path of objects
with different initial speeds through video showing the relationship between initial velocity
and range distance; f) predict the maximum height on the path of objects with different angles
through video showing the relationship between elevation angles to maximum height; e)
predict the maximum height on the trajectory of objects with varying initial speeds through
video showing the relationship between initial speed and maximum height; and f) searching,
analyzing, and transforming new information in accordance with what students want and can
be happy to operate the media repeatedly in accordance with their ability to learn and
understand teaching material that is in the media. But all that remains under the control of the
teacher in the classroom [17].

In the cognitive domain C2 (understanding), flipbook media explain the concept of using
visualization of text, images, animations, and videos of parabolic motion phenomena in daily
life so that visual students of experimental groups more easily accept information based on
what is displayed by the media. The material presented in the form of pictures, animations,
and videos observed by students through flipbook media can facilitate and strengthen memory
[18], also increase student curiosity and know the relationship of the phenomena presented
with the material being studied [19].

In cognitive domain C3 (applying), flipbook media presents some animated
formulas/equations in parabolic motion such as animated velocity equations on the x-axis and
y-axis so that visual students in the experimental group can remember the formula more easily
and more can answer questions to find the resultant velocity compared to visual students in the
control group who saw the formula/equation only on the board and student textbooks.

In the cognitive domain C4 (analyzing), the flipbook media display animations and videos
that make the visual students of the experimental group analyze material, that is visualized
independently. Animation can show objects with ideas, explain difficult concepts, and explain
abstract concepts into concrete [19], while video can describe the real state of a process,
students can replay certain parts to see a more focused picture and the limitations of student
memory can be overcome by repeated learning [20]. At the time of remedial teaching on
visual students, the experimental group used flipbook media that can be used independently
so that student-centered oriented learning and visual students can actively construct and
depth their knowledge so that their learning experiences are more students and can control
their learning activities and can decide the extent of understanding [21]. Whereas visual
students in the control group only accept explanations from the teacher, so that the teacher-
oriented learning is centered and it has limited understanding to the explanation given by the
teacher.

The flipbook media have several characteristics, namely the learning process using a 5M
scientific approach (observing, asking questions, gathering information, associating,
communicating), implementing learning meaningfully, and practicing high-level thinking
questions (ability C4 to C6) [22]. This is because the flipbook media present real objects,
evokes the students’ skills in asking questions, then there is information related to the material
conveyed in the media through audio, video explanations, animations, text material, and practicum, then there are practice questions and evaluation questions that practice the ability of C4 (analyzing) that students can do through the flipbook media on the concept of parabolic motion [7].

The results of testing the hypothesis of this study are presented in Table 4 below.

<table>
<thead>
<tr>
<th>Class</th>
<th>Assumption test</th>
<th>Hypothesis test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Normality</td>
<td>Homogeneity</td>
</tr>
<tr>
<td></td>
<td>Sig. Shapiro Wilk</td>
<td>Sig. Levene</td>
</tr>
<tr>
<td>Pre-test</td>
<td></td>
<td>0.775</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td>0.328</td>
</tr>
<tr>
<td>Experiment</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Post-test</td>
<td></td>
<td>0.021</td>
</tr>
<tr>
<td>Control</td>
<td></td>
<td>0.051</td>
</tr>
<tr>
<td>Experiment</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Conclusion

The flipbook media on the concept of parabolic motion in remedial teaching affects visual students’ learning outcomes. The post-test mean score of the experimental group (10.30) was higher than the control group (8.80). Improved visual students learning outcomes in the control and experimental groups are in the medium category. The N-gain average of the experimental group was 0.3 greater than the control group. The improvement of student learning outcomes in the experimental group was the highest in the cognitive domain C4 (0.73) at the high category, in the cognitive domain C2 (0.60) was in the medium category, and the cognitive domain C3 (0.56) was in the medium category. The effectiveness of remedial teaching in the experimental group is in a very effective category (80%). The flipbook media on the concept of parabolic motion is effectively used to improve student learning outcomes in remedial learning.

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References


The Effect of Make a Match Strategy on Students’ Reading Comprehension of Descriptive Text

Irma Khairunnisa¹, Ratna Sari Dewi², Zaharil Anasy³
{Khairunnisairmao4@gmail.com¹, Ratna@uinstjkt.ac.id², Zaharil.anasy@uinstjkt.ac.id³}
¹,²,³UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. This study aimed to find the empirical evidence of the Effect of Make a Match Strategy on Students' Reading Comprehension of Descriptive Text at the Seventh-Grade of MTs Negeri 4 Jakarta in Academic Year 2018/2019. The population of this study was the seventh-grade of MTs Negeri 4 Jakarta. The sample was 60 students selected by purposive sampling technique and was divided into two classes; experimental class and controlled class. The method used in the study was a quantitative method using a quasi-experimental design. The research instruments of this study were 25 multiple choice questions and 5 matching words. The data were analyzed using the t-test. The result of the data showed the diversities of experimental and controller class post-test scores in reading comprehension of descriptive text. The post-test score of the experimental class was increased than the pre-test score after applying the strategy on students' reading comprehension. Also, the effect size result was 0.9. It proved that Make a Match strategy was effective to use at a moderate level on students' reading comprehension of descriptive text at the seventh-grade of MTs Negeri 4 Jakarta in the academic year 2018/2019. Thus, to use this strategy in teaching reading comprehension of descriptive text, the teacher cannot teach the theory of descriptive text specifically because the activity needs more practice in the classroom.

Keywords: Reading Comprehension, Make a Match Strategy, Descriptive Text

1. Introduction

Reading comprehension is one of the English language skills that should be mastered by English Foreign Language Learners (EFL). 2013 curriculum stated that students need to improve their reading comprehension to get knowledge from their English learning sources. Reading comprehension as a process to understand the writer's idea in a written text to get essential information from it as efficiently as possible [1]. Although students must master reading comprehension, these skills are considered as a complex activity for students. It is because students need a useful combination of processing skills. The skills used in reading comprehension are the speed movement of the eyes and mind to absorb the intent of the text simultaneously [2].

Furthermore, students need to learn several kinds of functional text besides learning reading comprehension, the curriculum also states that students need to learn about the descriptive text. A descriptive text is aimed for a lot of purposes. First, the text provides an impression about a place, person or thing to the readers. Second, it allows the reader to imagine an abstract idea and makes essential information about the object described. The last, descriptive text can be used to promote an argument that requires description [3].
However, along with teaching and learning process, students faced several problems in reading comprehension of descriptive text. Then, the teacher should overcome the problems by finding an appropriate approach, technique or strategy in teaching reading to the students.

Based on the observation, students of MTs Negeri 4 Jakarta often considered reading comprehension of the descriptive text as boring activity in the classroom. It is because the students have a lack of vocabulary and a monotone technique used by the teacher.

The previous researches mostly focus on the students' performance of reading comprehension without used specific kinds of text. In this research, the focus will be on the effect of Make a Match Strategy on students' reading comprehension of Descriptive Text at Seventh-grade students of MTs Negeri 4 Jakarta. The researcher chose the class based on her observation and interview with the English teacher. It was found that seventh-grade students still at the beginner level of English language skills.

2. Literature review

2.1 Reading Comprehension

Reading comprehension is considered as an important skill for EFL learners. Because of reading, they can get the knowledge from their English learning sources. Reading comprehension also can be defined as a process to understand the writer's idea in a written text to get essential information from it as efficiently as possible [4]. Readers must know the meaning of the text, decoding the text, and recognize the syntactic order of the sentence. Through this process, the readers will interpret, integrate and connect their past experiences with the text. Therefore, the readers interact dynamically with the text as they try to obtain the meaning of the text [5].

Reading comprehension is a complex activity for students because it needs a useful combination of processing skills. The skills used in reading comprehension are the speed movement of the eyes and mind to absorb the intent of the text simultaneously [6]. In a nutshell, reading comprehension is a process of reading that requires some abilities to absorb the information needed from the text.

Kinds of Reading. Two types of reading, namely Intensive Reading and Extensive Reading. Intensive reading allows the readers to understand how the meaning arranged, instead of the meaning of the text only. In this kind of reading, the teacher's guidance encourages students to focus on the text, so it makes Intensive Reading is suitable to do in the classroom. Intensive Reading can escalate the reading comprehension of the readers. This type of reading is effective in improving reading comprehension because it needs the students to combine some strategies, such as metacognitive, schematic and linguistic [7].

The second type of reading comprehension is Extensive Reading. Like the name, Extensive Reading means the reader has to extend the interpretation of the text. Extensive reading requires the reader to be familiar with the construction of every section of the text: sentences, paragraphs, and chapters of the whole book. In Extensive Reading, the reader needs to make meaning of the text rather than know the content. Extensive reading is a superior tool to enlarge the target language input for students. It could happen when the reader more comfortable to do self-selected text based on their desired text [8].

Purpose of Reading. Primary purpose of reading is to get information from the text. Thus, after getting the data, usually, the reader stops reading. Additionally, Anderson in Nunan's book revealed the two purposes of reading. The first is reading for pleasure. The words that appeared in the books are a universal language or understandable for foreign learners. For that
reason, it makes the books more attracted learners of all ages to read. Engrossed in reading stories, students unwittingly learned their target language from the books quickly. It is known as reading for pleasure.

The second purpose of reading is reading for information. Aside to entertain themselves, the readers are reading a book to find their needed information. Anderson gave an example of a child who interested in dinosaurs may like to read a book about a prehistoric animal. In this case, reading for information also can give the readers enjoyment in reading [9].

2.2 The Concept of Descriptive Text

Descriptive text is outlined as a text which describes a particular animal, people or things to the readers in specific ways. The particular information which can be described with a descriptive text is the aroma, feels, sounds, appearance and the sense of the object [10]. Besides, descriptive text not only tells about a particular object but also a favorite object which the writer adores such as someone's personality, character, and feeling [11].

The Generic Structure of Descriptive Text. The descriptive text consists of the identification which appears at the beginning of the paragraph to introduce the object. On the other hand, the description part describes the character or the qualities of the objects [12]. The identification becomes the first part of introducing briefly the object to describe. This part usually mentions the name and essential explanations about the object. It starts with an introductory paragraph of the text then continues with several explanations paragraphs. The second generic structure of the text is description. The description part tells about each section or feature of the object described. It begins with the explanation of the general physician to the unique specification quality and the habit of the human, animal or thing explained.

Language Features of Descriptive Text. Besides the generic structure, the descriptive text also has several linguistic features. First, it focuses on what is the prominent or distinctive part of the object that the writer wants to describe. Second, the descriptive text uses the present tense. Because the descriptive text focuses on describing a real object, it requires to use the simple present tense. Third, Linking verbs in the descriptive text are used to describe the appearance of an object or function of the parts contained in the object represented, for example; am, is, have, etc. Next, the use of action verbs are also one of the language features in the description text. Each text that is studied academically has the language features criteria used, as well as descriptive text. Fifth, Mental verbs in the descriptive text are used to describe feelings in the text. One of the aims of descriptive text is to express feelings or sense. And the last is adjectives used in the descriptive text to provide more detail information for objects that are being described [13].

2.3 Make a Match Strategy

Lorna Currant developed Make a Match strategy in 1994. This strategy is a part of Cooperative Learning. Cooperative learning is used for a long time in education. The propriety of the learning style is students' collaboration in groups during the learning process. One of the characteristics of cooperative learning is compactness among students. The students are required to be active and creative during the learning situation [14]. Besides, the teacher ought to prepare and give the students material during the lesson and sometimes give them a case. Furthermore, the students need to solve the problem with their groups.
This strategy needs a teacher and students' teamwork. Before the activity begins, students ask to read a descriptive text, while the teacher prepares the cards (question and answer cards). After that, the students are divided into two groups; A and B. Each student of the groups takes one card. The student in group A receives an answer card, and group B gets a description card. Next, the teacher gives several minutes for students to find their match. In the last step of the strategy, students must provide the teacher with a report after they find their match. And then, the teacher asks them to explain their results in front of the class.

**Advantages and Disadvantages Using Make a Match.** Make a Match strategy is suitable to increase the students' interest in reading the descriptive text. The strategy also allowed students to directly hook with the material. Some advantages noticed on the use of Make a Match: First, students feel more interested in reading comprehension of descriptive text because they can interact and move with their friends to find the matching cards. Second, because the students have to read the detail information of the text, it will increase their focus to the descriptive text. Third, the strategy will expand their attention of unfamiliar words. It is happen when the teacher has asked the students to comprehend the text, the students may find difficult words and they might be curious with the meaning of the words. Because of their curiosity about the meaning of unfamiliar words, the the words can stay longer in the students’ mind than the words that they remember regularly. Agus Suprijono added, in learning process using Make a Match strategy, teacher as a facilitator should give the students chance to confirm their matches [15].

Besides those advantages, Make a Match also has some disadvantages; Firstly, it takes a long time because the students would spend most of their time to move. Secondly, because it uses cards as the media of learning, the teacher needs an extra effort to provide adequate media of learning. Third, in using this strategy, teacher cannot specifically focus to teach theoretical of descriptive text because the activity needs more practices in the classroom. The last is the teacher is required to be active in controlling the class.

**2.4 Conceptual Framework**

Reading comprehension is one of an English skill that should be learned for the students. It needs the combination of a complex skill; therefore, reading comprehension is often to be a problem for seventh grades students. Besides, the students have a lack of motivation to develop their skills. Thus, the teacher should find a strategy suitable for the students to improve their reading comprehension. One of the solutions that can be applied in the class is Make a Match Strategy.

The researcher assumed that Make a Match strategy can increase students’ focus and interest on reading comprehension of descriptive text. Because they have to move and interact with their partner, Make a Match strategy will give students an exciting classroom atmosphere during the learning process.

In addition, the strategy will make the students aware of unfamiliar words, so it challenges them to know the meaning and memorize it. Before using the strategy, the teacher gives students time to read the text which given. After that, the teacher gives the students opportunity to ask the difficult words and discuss about the text. From those activities, the vocabularies can stay longer in their mind than when they memorized them regularly.

It can be synthezised that the researcher chose Make a Match strategy to help students in resolving their problem in reading comprehension of descriptive text. Therefore, Based on the explanation above, it can be posed;
Null hypothesis (Ho): There is no effect of using Make a Match strategy in students’ reading comprehension of descriptive text.

Alternative Hypothesis (Ha): There is a significant effect of using Make a Match strategy in students’ reading comprehension of descriptive text.

3. Methodology

This research used a quantitative research method with Quasi-Experimental Design. This paper used a reading test as the instrument. The students were asked to answer an appropriate choice. The test consists of 25 multiple choice questions and five matching words taken from National Exam questions, Final Exam questions of seventh grade students and several books containing descriptive text. Before applying to Make a Match Strategy, a pre-test was given to the samples and the post-test was given after the treatment in an experimental class by using Make a Match Strategy.

The population of this study was seventh grades students of MTs Negeri 04 Jakarta academic years of 2018/2019. It consists of 248 students divided into eighth classes. Furthermore, two classes will be samples of this research. 7.3 class took the role as the experimental class and 7.4 class took the role as the controlled class. The classes were chosen based on pre-test scores and teacher recommendation.

4. Data Analysis and Result

The normality test is conducted to assess whether the data had been normally distributed or not. The significance (Sig.) score in the Kolmogorov-Smirnov columns of both classes is ≥ 0.05. The experimental class is 0.032 and 0.101 controller class. By the result, it can be concluded that the data of the pre-test experimental class and controller class are in the normal distribution. Then, the homogeneity test is conducted to find out whether the data from the experimental class and controlled class is homogeneous. The data results that the Sign. value from the post-test score was 0.086. Since the data is higher than the significance level (0.086 ≥ 0.05), it can be concluded that the data of the post-test is homogeneous. Finally, to discover the effect of Make a Match strategy on students reading comprehension of descriptive text at MTs Negeri 04 Jakarta the hypothesis test is carried out. Thus, the test of effect size has a contribution to support the T-test result. The test takes the data from the post-test score of experimental and controller classes to be compared which shows that standard deviation in the experimental class is decreasing, from 11.525 to 7.736. In addition, the pre-test and post-test score of both classes are significantly increasing. In other words, the teaching reading comprehension through Make a Match Strategy is successfully applied in the class and all students showed their progress together. The result of independent samples shows p-value or sig (2-tailed) of the research at 0.001. Because the p-value (0.001) is lower than sig a (0.001 < 0.05), it implies that the null hypothesis (H₀) is rejected and the alternative hypothesis (Hₐ) is accepted. Accordingly, there is a statistical significance of using Make a Match strategy on students reading comprehension of descriptive text at seventh-grade students’ of MTs Negeri 4 Jakarta.

Effect size test is the last step after the t-test in order to decide the level significance of the effect using Make a Match strategy on students’ reading comprehension of descriptive text. The calculation presents that the effect size of this research is at the value of 0.95 that is categorized as a moderate effect. In other words, Make a Match strategy has a sufficient effect on students’ reading comprehension of descriptive text.
5. Discussion and Recommendation

5.1 Discussion

After all the tests, the result of this study showed that Make a Match strategy is effective on students reading comprehension of descriptive text at seventh grades of MTs Negeri 4 Jakarta. Based on the statement, the results of the research have answered the research question stated in chapter one in this study.

Indeed, the result of this study supported the previous related studies which assumed and proved that Make a Match strategy is effective on students reading comprehension of descriptive text. It also showed that teaching reading comprehension of descriptive text using Make a Match strategy made the learning process became actively and enjoyable.

Furthermore, the description of the data showed the increasing mean score from the experimental class after implemented Make a Match strategy from 60.07 became 76.73. Meanwhile, the score of the controller class also slightly improved although they did not apply the strategy. It is 64.13 became 67.36.

Besides, the researchers found that the independent t-test indicated that Make a Match strategy is a statistically effective. This can be seen from the analysis of post-test data that the p-value or sig (2-tailed) = 0.001 < sig a = 0.05. From the results, it concluded that the alternative hypothesis (Ha) is accepted and the null hypothesis (Ho) is rejected.

Accordingly, Make a Match strategy is effective on students reading comprehension of descriptive text. Furthermore, the result of the effect size test is 0.95. Based on the criteria of Cohens' $d$ effect size, 0.95 categorized as a moderate effect. In other words, Make a Match strategy has a sufficient effect on students’ reading comprehension of descriptive text.

In conclusion, the result of the research established that Make a Match strategy is effective on students’ reading comprehension of descriptive text for seventh-grade students of MTs Negeri 4 Jakarta in the academic year of 2018/2019.

5.2 Recommendation

The teacher needs to choose a suitable strategy to teach students with different learning types. The researcher suggests applying the Make a Match strategy in teaching reading comprehension of descriptive text since it had been proved effective in the class. Moreover, the teacher should teach the theory of descriptive text before apply the Make a Match strategy in teaching reading comprehension of descriptive text.

For students, Make a Match strategy can be the solution that can make them more focus, interested and comprehend in reading the descriptive text.

The other researchers who are interested in making a similar study, this research can be a reference. Besides, the researcher hopes that other researchers can explore more with different skills and design of studies.

5.3 Conclusion

This research was expected to prove the effect of Make a Match strategy on students’ reading comprehension of descriptive text for seventh-grade students of MTs Negeri 4 Jakarta in the academic year 2018/2019. The researcher used two classes to do the research: experimental class and control class. The pre-test and post-test were conducted for both classes. The experimental class was taught by using Make a Match strategy while the
controller class was not given the strategy. It is found that Make a Match strategy can make the post-test score of both classes higher than the pre-test score. On the other hand, to use this strategy in teaching reading comprehension of descriptive text, the teacher cannot teach the theory of descriptive text specifically because the activity needs more practice in the classroom. Moreover, the result of the effect size test taken from Cohen's $d$ is 0.95. It indicated that the range effect of this research is at a moderate level. Because of the effect of the research only on a moderate level, it can be concluded that the strategy cannot give significant improvement on the students' score. Besides, the result of standard deviation from the pre-test of both classes is smaller than the post-test; 11.525 and 12.675 became 7.73676 and 11.82482. It means that Make a match strategy is successfully applied in the class and all students showed their progress together. Therefore, the alternative hypothesis (Ha) is accepted, and the null hypothesis (Ho) is rejected. The research proved that Make a Match strategy is effective on students' reading comprehension of descriptive text for seventh-grade students of MTs Negeri 4 Jakarta in the academic year 2018/2019.

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The Effectiveness of Smart Jakarta Card Program at Islamic Senior High Schools

Hasyim Asy’ari1, Riqotun Nihlah2
{hasyim.asyari@uinjkt.ac.id1, riqotun.elmisbah@gmail.com2}
1,2UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. This study aims at analyzing the achievements of the Smart Jakarta Card (Kartu Jakarta Pintar/KJP) program at Madrasah Aliyah at Cakung subdistrict, East Jakarta. This research uses a goal free evaluation model, which employs four steps including data collection, reduction, display, and conclusion. Data sources were obtained from the principals, KJP operator, KJP recipients, and parents/guardians of KJP recipients. Based on the results of the evaluation through questionnaires from 80 students, management deviations and use of KJP funds were found that 39.84% of the implementation of the KJP was not under KJP provisions. There are also 17.19% deviations from the KJP provisions that are positive.

Keywords: Evaluation Program, Goal Free Model, Smart Jakarta Card

1. Introduction

Education is important for every human being. In a popular mahfuzat (pearl of wisdom) is said that ﷾أُلْبَّبُ عَلَمِ مِنَ الْمُهْدِ إلى النَّخْدَ which means that a Moslem should pursue knowledge from cradle to grave, meaning from birth until death [1]. In line with the mahfuzat, Indonesia also provides lifelong education opportunities as affirmed in RI Law No. 20 of 2003 concerning the National Education System, Chapter IV on the Rights and Obligations of Citizens, Parents, Society, and the Government, the first part concerning the Rights and Obligations of the State article 5 paragraph (5) which reads "Every citizen has the right to have the opportunity to improve lifelong education." Education provided must be a good quality of education. This is reaffirmed in RI Law No. 20 of 2003 concerning the National Education System, Chapter IV concerning the Rights and Obligations of Citizens, Parents, Communities, and Governments. Regarding the Rights and Obligations of the State, article 5 verse (1) reads "Every citizen has the same right to obtain a quality education." To carry out the mandate of education, the government made regulations contained in Government Regulation No. 17 of 2010 concerning Management and Implementation of Education contained in article 3 emphasized that" Management of Education is intended to guarantee; 1) community access for education services that are sufficient, equitable, and affordable, 2) the quality and competitiveness of education and its relevance to the needs and/or conditions of the community, 3) effectiveness and efficiency, and accountability in the management of education. Therefore, through education that is given properly, we hope that the Indonesian people can be more creative, innovative and more focused on determining life goals.

DKI Jakarta Province is a province that is domiciled as the Capital of the State, as well as the center of government, economic center, and autonomous region. With a variety of advantages, DKI Jakarta is the main destination for urbanization from all regions in Indonesia.
Therefore, the province has heterogeneous community characteristics. This background makes the decentralization carried out by the DKI Jakarta government deal with the task of implementing a multi-characteristic education development. The multi-characteristics in question is the diversity of problems and needs. One of the issues that become the priority of educational development is the equal distribution of community opportunities to obtain an education. Therefore the government makes a policy on the education system contained in Regional Regulation (Perda) No. 8 of 2006 concerning the Education System explained in article 5 paragraph 1 that "Citizens aged 7 to 18 years are required to attend basic education to graduate. Then in article 16 the letter (i) confirms that the regional government is obliged to provide funds for the implementation of 12-year compulsory education especially for students from underprivileged families and neglected children.

In 2016 the APK (Gross Participation Rate) for the SMA / MA / Package C level in the DKI Jakarta area reached 73.09% and the APS (school participation rates) age 16-18 reached 70.83% whereas in 2017 both increased with the number of APK 79.51% and APS 71.5% (www.bps.go.id, downloaded on March 26, 2018). In this case, the mindset of the community regarding education is good enough by being proven through the APK and the APS. Therefore, to support the implementation of 12-year compulsory education, the Provincial Government of DKI imposed a policy of granting and Operational Assistance Costs (BOP) and Personal Education Assistance Costs (BBPP) for students from underprivileged families through the Jakarta Smart Card (KJP).

The enactment of policy certainly has obstacles while the policy is in progress. It is undeniable that KJP also has several obstacles including, namely, there are still many people who have a mentality of cash so that they are quite difficult with KJP funds coming down non-cash or using ATMs, a consumptive lifestyle means that those categorized as KJP recipients spend money outside school needs such as buying daily necessities or household needs, afraid that KJP funds will be forfeited so that any given money is always spent even though the money is not forfeited and becomes their savings if the money is still there. According to online news, there are findings of misuse of KJP funds for purposes other than educational needs. Abuse is carried out in places that already have Electronic Data Capture (EDC) facilities [2]. Even according to the Governor of DKI Jakarta, Mr. Anies Baswedan, a problem related to KJP is the confusion about KJP recipients because of incompatible data [3].

2. Methodology

This evaluation research uses descriptive methods and goal free approach. The primary data sources in this study were person and place with procedures and data collection techniques through interviews and questionnaires. The secondary data source in this research is paper through document study activities. Researchers conducted interviews directly with the principal regarding the implementation of the KJP program, KJP operators related to technical fields and administration, students and parents-guardians of KJP recipients. The focus of the questionnaire was aimed at KJP recipient students. Quota random sampling technique is a technique used for data collection through a questionnaire. The sample used was KJP recipient students, amounting to 80 KJP recipient students from four schools located in Cakung District. Each school has the right to choose 20 KJP recipient students randomly. In this research, a document study is needed to obtain several important documents related to school profiles, the number of students, KJP recipient student data, KJP instructions and technical, legal/policy basis regarding KJP, and KJP requirements file.
3. Results and Discussion

Evaluation as a systematic process to determine the worth, value or meaning of something [4]. Stufflebeam argues that Educational evaluation is the process of delineating, obtaining, and providing useful, information for judging alternative decisions [5]. From the opinion of Stufflebeam, it can be understood that evaluation is the process of describing, gathering and presenting information that is useful for determining alternative decisions. According to Arikunto and Jabar define evaluation is an activity to gather information about the workings of something, then the information is used to determine the right alternative in making a decision [6]. It can be concluded that evaluation is an activity to gather information on objects that are evaluated systematically that is useful for making decisions and assessing the achievement of the process.

According to Wirawan, "Programs are activities or activities designed to implement policies and implementation for activities that are not restricted" [7]. In line with this opinion, Ahuja stated: "... program is a series of organized activities designed to produce results or series of results that will have an impact on a particular problem or need" [8]. In other words, the program is a series of activities that produce results or results that will bring problems to the division of specific problems or the fulfillment of the needs. It can be concluded that the program is a separate plan or series of activities from the implementation of a policy. Thus, the evaluation program is likewise with information related to the program that is being run or has been carried out to improve the effectiveness of the program running and see the level of success of the program for decision-making purposes to obtain the next program. Evaluation programs can be used to increase the level of success associated with environmental programs by assessing whether the program is continued, postponed, developed, accepted, or replaced.

The goal free evaluation model was developed by Scriven because there is dissatisfaction with the evaluation findings that are not able to show the effect of the program being evaluated. According to Patton that evaluation is free from the objective means to collect data directly about the influence and effectiveness of the program without being limited by the narrow focus stated as the goal [7]. Patton and Scriven defined Goal-free evaluation as gathering data on a broad array of actual effects and evaluating the importance of these effects in meeting demonstrated needs [9] To evaluate the objective-free model, evaluators need to produce two items of information, namely an assessment of actual effects, and an assessment of the needs profile to be assessed [10]. Arikunto and Jabar stated that what needs to be considered in the program is how the program works, by identifying the performances that occur, both positive things -things that are expected- and negative things -which are not expected- [6].

The Jakarta Smart Card Program (KJP) is a strategic program to provide access for DKI Jakarta residents from the community who cannot afford to have a minimum education level to graduate from high school / vocational school with full funding from the DKI Jakarta Provincial Budget. The Jakarta Smart Card Program is expected to be able to encourage education without discrimination, and through this program, it is expected that educational equality will occur, especially in the Province of DKI Jakarta. The target recipients of the Personal Education Cost assistance program through the Jakarta Smart Card are students who are currently studying at the elementary, junior high, and high school /vocational school levels throughout the DKI Jakarta Province who come from underprivileged families. It is said to be poor in material and inadequate income of their parents to meet basic education needs. The basic education needs referred to include uniforms, shoes and school bags, transportation costs,
food, and extracurricular costs. The tables below describe the negative and positive side effects of KJP implementation policy according to goal free evaluation model:

**Table 1: The Negative Side Effects on KJP Implementation**

<table>
<thead>
<tr>
<th>No</th>
<th>Negative Field Findings</th>
<th>Percentage</th>
<th>Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Completion of forms by parents</td>
<td>60%</td>
<td>There was a deviation in the management and use of KJP funds amounting to 39.48% which did not comply with KJP regulations.</td>
</tr>
<tr>
<td>2.</td>
<td>Determination of KJP recipients by Administration (TU)</td>
<td>46.25%</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Fund collection by the bank</td>
<td>16.25%</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>The use of KJP funds for SPP</td>
<td>37.5%</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Collection of KJP recipient funds (service fee)</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Regulation of the use of KJP funds by parents</td>
<td>48.75%</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Use of KJP funds for family needs (ever)</td>
<td>27.5%</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Lagging education costs in KJP</td>
<td>57.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>39.84%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Based on the results of the field research, it was found that deviations in the management and use of KJP funds amounted to 39.84% which were not by KJP regulations. There were eight deviations found with explanation 1) filling out forms by parents was categorized as negative because it was highly doubtful and parents could have manipulated data as in reality they were capable categories, but the desire to receive was there so that sometimes the forms or items of questions were answered not according to conditions in fact; 2) the management of KJP recipients by the Administration section, in this case, administration section is only a mediation of the KJP program. They do not have the authority to determine but only carry out the task of inputting data following what was given by KJP registrants. All the provisions are with the school principal as the owner of the power of attorney at the school, but because the school principal does not go directly to the field regarding KJP, the KJP registrants or recipients assume that the TU determines who is entitled to receive KJP; 3) collection of funds by banks, in general administration is a natural thing in the banking world, but there is one bank that does not charge bank administrative fees for education funds or KJP or scholarships. This cannot be denied because it has become the determination or policy of each bank; 4) the use of KJP funds for SPP, according to KJP guidelines the use of KJP funds is not only for SPP only. They may use KJP funds to support the learning process so that they become the best and most outstanding students. For students who study in private schools is certainly very helpful, in addition to supporting the learning process, parents also feel relieved of the burden by having an auto-debit for SPP to the school account. But there are still double payments to
the SPP due to lack of socialization to parents about the use of KJP; 5) levies on KJP recipient funds (service fees), these levies are not compulsorily required for KJP recipients. This levy is only sincerity and gratitude to KJP operators. Because operators there is no additional incentive regarding additional duties as KJP operators; 6) regulating the use of KJP by parents, this is done because parents are worried about the misuse of KJP funds and are afraid of KJP cards lost if held by children. In this case, parents are only limited to control. Even though the card is regulated or held by parents, the child's learning or education needs are still being met because it is the child's right. But it cannot be denied that there are also parents who abuse their KJP cards; 7) use of KJP funds for families, very few use KJP funds for family needs, for example, medical treatment, daily needs and so on. That is because the funds obtained are not sufficient for family needs and violate regulations; 8) dependence on the cost of education on KJP, parents are very dependent on KJP funds, because it is very helpful and ease the burden of expenditure. With the KJP fund, parents and children also get additional facilities such as free boarding TransJakarta, can take a nutritional package so that the personal funds that should be allocated for education can be allocated for other things, and the child continues to get a good education.

Table 2: The Positive Side Effects on KJP Implementation

<table>
<thead>
<tr>
<th>No.</th>
<th>Positive Field Findings</th>
<th>Percentage</th>
<th>Conclusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Utilization of KJP funds for productive activities (venture capital)</td>
<td>2.5%</td>
<td>There are 17.19% deviations of positive KJP provisions</td>
</tr>
<tr>
<td>2.</td>
<td>The use of KJP funds for business capital (always)</td>
<td>1.25%</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>invest KJP funds received (saved)</td>
<td>56.5%</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>KJP fund investment with education insurance (always)</td>
<td>8.75%</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Average</strong></td>
<td><strong>17.19%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Based on the results of the field research, there were 17.19% of the KJP deviations that were positive. This is not in the KJP guidelines or regulations, but what is done is not bad either but is creative and innovative. As for the deviations found, there are four types, namely 1) utilization of KJP funds for productive activities (venture capital), very few students use KJP funds for productive activities (venture capital) because KJP funds cannot be disbursed and have not been thought of so far that. They only use the KJP funds they get to meet their school or education needs. 2) the use of KJP funds for venture capital (always), only 1.25% of students always use KJP funds for venture capital, but after being interviewed it turns out that only to develop their interests and talents, such as drawing, so to purchase the required drawing equipment used KJP and also sold it but it was not sustainable. 3) how to invest KJP funds received (saved), KJP recipient students invest more KJP funds by saving. This makes it very easy for them to save because they automatically enter their account if the funds in the ATM card are not used and to meet the needs that are suddenly very needed, so they more often invest in savings. 4) investing KJP funds with education insurance (always), after it was
deepened through interviews they stated they had never invested KJP funds with insurance, because insurance requires them to pay each month the agreed nominal, it is certainly very burdensome so they only invest by way of saving because saving is not enforced nominal and whenever possible.

Based on the description of the two tables above, it shows that goal free evaluation provides an opportunity for the possibility of negative and positive effects of the implementation of KJP as presented by Stevan, Arikunto and Jabar, and Wirawan, that a program can have two types of effects, namely: 1) negative side effects, that is, side effects that are not desired by the program, 2) positive effects that are the effects expected by the program designer.

4. Conclusion

Based on the evaluation conducted, it was concluded that the Jakarta Smart Card program at the Madrasah Aliyah level in Cakung Subdistrict, East Jakarta had not been fully effective, it needs to improve for to be well organized. There are two findings in this research, namely:

1) Negative Side Effects
   Found a deviation of management and use of KJP funds by 39.84% which is not by KJP provisions. The deviations were made by parents of students, students, KJP operators and other parties related to KJP. In this deviation, it is known that the deviation occurs because it is intentional ie they know it is prohibited but it is still being done and also unintentional ie they do not know it is prohibited but they do. The deviation is still being done because there are no sanctions that make a deterrent.

2) Positive Side Effects.
   There are 17.19% of the deviations from the positive KJP provisions. These deviations occur because of creative and innovative thinking among KJP recipient students, and other parties involved in KJP. Positive deviations that occur are not optimal, because KJP recipients are afraid that the funds they receive will be stopped and they are still in a consumptive mentality. With the existence and KJP, it is expected to improve the quality of education and be more innovative. This positive deviation is indeed outside the KJP rules and guidelines, but not all deviations are bad, so it is expected that a positive deviation will be able to have a positive impact on KJP recipients.

5. Recommendation

Based on the research findings, there are some recommendations on KJP implementation policy:

1) In registering KJP, KJP recipient schools need to be more selective, especially in terms of filing KJP applications, especially for private schools.

2) Need to socialize to parents about KJP funds they receive and the relationship between the person and the school so that the conditions for using KJP can be known by the school and KJP funds.

3) Need additional incentives from the school for KJP operators so that the program can run according to the applicable rules and it is hoped that operators can run the program or work better so that KJP is right on target.

4) Need supervision for the seller of school needs so that the price of goods sold by the actual sales price of goods, meaning that the selling price of goods is not too high.
5) Need to legalize the school cooperative managing (Electronic Data Capture) EDC to provide the needs of students in spending KJP in schools, because if there is no regulation the existence of EDC in schools becomes illegal.

References


Constructing A Prototype of Developing Students’ 21st Century Skills; Soft Skills, Hard Skills and Competitiveness at a University in Indonesia

Hadiyanto, {hadiyanto@unja.ac.id}  
Universitas Jambi, Jl. Lintas Jambi - Muara Bulian Km. 15, Mendalo Darat, Jambi Luar Kota, Kota, Indonesia

Abstract. This study aims to report the result of a development process of the prototype of developing students’ and graduates 21st century skills at a university. Analysis, Design, Development, Evaluation and Revision (ADDIE) Model were used in this development. Four phases were applied in the process of the development; analysis, design, development and evaluation. The constructed model was validated by three approach, expert validation, users’ validation, and try-out validation. The result of the development is a validated model of students’ SHC Development that has three main phases: Input, Process and Output. Input consists of three components; course content, SHC component, strategy of students’ center approach. Process consists of blended course design, Instruction and students’ engagement, and evaluation. While output phase consists of soft skills and hard skills achievement, and students’ competitiveness level. This study contributes to current issues of students’ 21st century skills.

Keywords: 21st Skills, core skills, employability, entrepreneurship, professional competencies, lifelong learning.

1. Introduction

The Higher Education in Indonesia is facing unprecedented challenges arising from the convergent impacts of Asian Societies Market. As understood by educators and experts, higher education is as an engine of growth for triggering a country to be able to meet with currents need and to get ready for future challenges. The issue is not only related to curriculum changes in HE but more urgently is related to the ability of fresh graduates to compete in Asean job market, meet employer’s expectation, adapt and update their competencies beyond then today challenges. The fresh graduates’ competencies should be gained during their education at universities level, which is ideally embedded with curriculum and its implementation. Furthermore, the students are demanded to acquire more soft skills rather than hard skills during their learning at Universities. It is expected that students possess individual competitiveness not only at job market but also in their career development in the future. It is understood that hard skills can be acquire and developed through soft skills practices in the classroom [12], [13]. To response the new policy, most of universities in Indonesia state that soft skills, hard skills and competitiveness as outcome of graduate quality standard of Universities [14]. However, there is no yet clear guidance how the quality standard of graduate achieved and how to embed soft skills and hard skills into teaching and learning process.
To meet the issues above, specifically at a University, model of students’ SHC Development, measurement of Students SHC and manual book of implementation have to be developed. The current study is funded by RISPRO LPDP-Menkeu Indonesia. It developed a model of developing students’ SHC. It will be implemented in blended learning activities at a university. The model was developed to be applicable for all fields of study and subjects of teaching. This article aims to define, describe and discuss the process and outcomes of development model of developing students’ and graduate soft skills, hard skills and competitiveness (SHC) at a university.


The terms used among universities to reveal 21st century skills needed by graduates Universities today are soft skills, professional skills, interpersonal and personal skills, generic skills, key skills, adaptive skills, and this study is using the terms Soft Skills, Hard Skills and Competitiveness or abbreviated by SHC. Thought the different terms used by researchers and academician to express the quality output of graduate, however there is an agreement view that teaching and learning at University are about verifying the students with knowledge and skills which carried out been how to come out with the outcome of university that produces employability, good citizenship and lifelong learners [8], [10] and [20].

The term of 21st Century Skills consist of soft skills, hard skills and competitiveness (SHC). It is defined as a blended ability that possessed by someone in an effort of obtaining his/her objective. At university Level skills developed during teaching and learning process at university in order to provide students with three competencies; Soft Skills and Hard Skills, and competitiveness as outcome of soft kills and hard skills.

**Soft skills** is defined as practical activities applied to generate and developed hard skills in the students’ learning context and graduates’ working context. This definition based on analysis and synthesis from related articles as stated in [6], [14] and [23], soft skills include communication skills, IT Skills, numeracy skills, learning skills, problem solving skills and working with others.

**Hard skills** relate to major and minor knowledge skills. Specifically, in this study, it is defined the ability of person using and generating his/her major specific knowledge skills in real context of learning and working, and it is blended with soft skills. With this competetiveness will be practically embedded in the practice of soft skills and hard skills [14], [16], [24] and [25].

**Competitiveness** refers to the eagerness and the effort of a person to apply, maintain, and improve and promote his/her soft skills and hard skills in his/work, task and learning consistently. Competitiveness categorized into three capacities; lifelong learning, entrepreneurship and employability. The level of competitiveness level was assumed to be affected by the level of his/her soft skills and hard skills [4], [23], [26], [27]. and [33].

3. Method to Model Construction and Validation

Research and development design were applied in this research. The phases and steps of development in this research were adapted from ADDIE model by [17], [18] and [19]. Main phases of the development applied were Analysis, Designing, Developing Evaluation and
revision. Quantitative and Qualitative method were applied to obtain data and analysis in every phase. The instruments for data collection were literature, questionnaire, interview protocol, SHC assessment rubric, FGD Protocol and document. Three groups of participants were involved; they were stakeholders, lecturers and students.

The first phase of development was analysis of previous researchers’ research and publication, HE curriculum, Vision and Mission and strategic plan of a university, survey on students’ needs, current literature review, stakeholders’ system recruitment and interview. The second phase was designing that included categorizing and defining components of SHC, designing phases and features of students’ SHC development in subject learning process and learning strategy for developing students’ SHC. The third phase was developing model of students’ SHC Development (input, Process, and Output), expert validation, users’ validation and try-out validation. The last part of development is evaluation and revision. Due to the aim of the article is to report the construction and validation of the model, the evaluation and revision phase could be covered in this article.

4. Result of Literature Analysis

One of step that had been done in students’ SHC development model was analysis of literature. It include the content analysis on KKNI-Indonesian qualification framework curriculum, vision and mission and strategic plan of a university, stakeholder interview, FGD and document of system recruitment. Amongst the resources used are such as [1], [2], [3], [4], [5], [6], [7], [8], [11], [15], and [20]. Analysis was also conducted to employee system recruitment of 10 Lts they are PT. Telkom Indonesia, PT. Toyota Corp, PT. Unilever Oleochemical Indonesia, PT. Petrocina Indonesia, PT. SHELL, PT. Pertamina, PT. NESTLE, PT. Rajawali Indonesia. The overall number of resources and references used in developing the model is shown in Table 2.

<table>
<thead>
<tr>
<th>Constructs of SHC</th>
<th>Literature Studies</th>
<th>System Recruitment</th>
<th>Interview Stakeholders</th>
<th>FGD Lecturers</th>
<th>TOTAL Resources</th>
<th>TOTAL References</th>
</tr>
</thead>
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<td>Communication</td>
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<td>29</td>
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<td>10</td>
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<td>10</td>
<td>10</td>
<td>6</td>
<td>11</td>
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<tr>
<td>Competitiveness</td>
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<td>18</td>
<td>9</td>
<td>10</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Employability</td>
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<td>47</td>
<td>10</td>
<td>9</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>GRAND TOTAL OF SHC</td>
<td>113</td>
<td>277</td>
<td>101</td>
<td>107</td>
<td>49</td>
<td>87</td>
</tr>
</tbody>
</table>

4. Result of Literature Analysis

One of step that had been done in students’ SHC development model was analysis of literature. It include the content analysis on KKNI-Indonesian qualification framework curriculum, vision and mission and strategic plan of a university, stakeholder interview, FGD and document of system recruitment. Amongst the resources used are such as [1], [2], [3], [4], [5], [6], [7], [8], [11], [15], and [20]. Analysis was also conducted to employee system recruitment of 10 Lts they are PT. Telkom Indonesia, PT. Toyota Corp, PT. Unilever Oleochemical Indonesia, PT. Petrocina Indonesia, PT. SHELL, PT. Pertamina, PT. NESTLE, PT. Rajawali Indonesia. The overall number of resources and references used in developing the model is shown in Table 2.

5. Result of Constructing Students SHC Development Model

All phases of R & D as described in part 2 in this article had been conducted and resulted a model of Students 21st Century Skills development those are consists of soft skills, hard skills and competitiveness (see figure 1). The students’ SHC Development model is integrated with curriculum, syllabus and lesson plan. Students SHC development occur in blended learning activities in every subject of a program. These theories based on literature studies as discussed above. The phases of students’ SHC development are divided into three phases they are input, process and output.

6. Result of Try-out Implementation

Try-out was conducted to 6th semester students at English Department Class for research seminar and proposal course. The try-out was conducted in four meetings. Qualitative and checklist observation were taken by two lecturers. Checklist observation was referring to the SHC rubric assessments indicators [14]. The most frequent indicators that perform by the students in four meetings in the try-out classroom are shown in Table 4. The result implies that the model would be more optimized if it is applied in full 16 meetings of courses along semester.

Table 4. Observation Findings of students 21st Century skills in try-out classroom.

<table>
<thead>
<tr>
<th>Soft Skills</th>
<th>Indicators practiced by the students</th>
</tr>
</thead>
</table>
| Communication | • Communicating or presenting ideas.  
                  • Responding with a clear and straightforward manner |
| IT           | • Searching for and select the information through online resources. |
7. Discussion

The purpose of this study was to develop model of students’ SHC development through teaching and learning process at a university. This purpose was taken based on initial analysis on Indonesian HE curriculum, current trend of HE curriculum, Vison and Mission of a university, graduates today and future challenges and to meet the global stakeholders’ expectation on graduates’ quality. The findings of the study is not only implicated to the use of students’ SHC development in the teaching and learning process at a university, but it can also implicate to other Universities curriculum changes due to this development has developed on national and global issues of current curriculum changes. Basically, the theoretical analyses had been done since 2007 through the Ph.D thesis, and through this research project the model was reconstructed, adapted, and updated based on current local, Asian and global issues toward the quality of University graduates.

The model is picture out in three phases input, process and output, that is easy for the user to comprehend this model conceptually and practically. Components in each phase had been developed and described concisely and clearly, and supposed to be a friendly reader as well. The teacher then interpreted into their own context of learning. Input is the phase where the teachers selecting resources of learning and defining soft skills and hard skills based on his and her course content. Reading and selecting learning strategies of students centre approach to be embed in the process phase. In process phase, soft skills and hard skills is blended in course description, objective and evaluation. Learning strategies must be defined and matched with the topics of a course in order to be able to generate students’ softs skills practices and acquire hard skills. Evaluation conducted observation using rubric SHC assessment and students SHC self-report assessment and specific course assessment. Lecturer can modify assessment based on his/her course need. Output phase will analyse and report the level of student SHC. Lecturer is suggested to calculate Students’ score based on instrument of assessment as mentioned at the process phase.

The advantage of using this model is the course contents are delivered by learning strategies based on students’ centre approach that allow the students to practice and develop their soft skills to acquire hard skills. The teachers’ role in the classroom is outlining the material, guiding, facilitating the students to generate their basic knowledge toward the topics of a course. In this model, the students’ soft skills and hard skills development were observed by using rubrics assessment and student’s self-evaluation questionnaire. Both instruments
consist of indicators that had been developed in different task of this model development [7] and [14]. Both the instrument of students SHC measurement should be used one packet in evaluation students SHC Development through the teaching and learning process. Moreover, it is suggested to combine for measuring students course academic achievement by using both instruments, the score is can be converted into standard score 1 to 100 of University. Though the model was design to be practiced embedded with course content through the teaching and learning process, however the model also applicable to be used for extra curricula program to develop participants’ as professional skills training, it depends on the user to adapt based on their need.

8. Conclusion

This article presented the process of development of Students’ SHC Development Model through the teaching and learning activities at Jambi University. Four phases had been applied and each phases had three steps. The phases are analysis, designing, developing and Evaluation and revision. Though the phases of development is refer to Design, Development, Evaluation and revision (ADDIE) by [17], [18] and [19], steps of development process were adjusted based on need and challenges in order that the model accepted by users (teachers) and policy maker at University. The result of development come out with a model of students’ SHC Development in teaching and learning which is break down into of three main parts, input, process and Output. Input is consists of course content, components of SHC, and Students’ center learning. Process is consisting of blended course design, instructional and students’ engagement, and evaluation for measuring SHC. Output had two sub-parts soft skills and hard skills achievement. Soft skills are output analysis of SHC assessment rubric, and Students SHC self-assessment. The last component of Output was students’ competitiveness level. Based on theoretical analysis, it assumes that students’ level of soft skills and hard skills level impact on the students competiveness level; entrepreneurship, employability and lifelong learning. In the whole development process, this study can serve as a model of validation research as well as an application and adaption of research and development theory.

References


Spirituality in Pedagogy
A Qualitative Study of Teachers Values in High School

Erba Rozalina
{erba.rozalina@uinjkt.ac.id}
UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. This study aims to develop the spirituality to be used in education by exploring many concepts in it, such as: education meaning, the educators examining of their own spiritual perspective and practices, and education illustrating the value of spirituality as both an analytic tool and a course topic. Spiritual in pedagogy is a practice of education that is based on the sublime and transcendent values, both those originating from religion and culture, that guide, support, and motivate a teacher in doing his or her profession; values that are inherent in the teacher’s behaviors as an authentic way of living his or her life. Understanding the origin of this spirituality is very important in the developing millennial generation. So that teachers should be continuously guided in order to adjust their knowledge and skills to the need of the contemporary world. This study was conducted in SMK Perbankan Syariah Al-Izhar School Pekanbaru, which is established under Daar En Niswah Foundation. The achievements are the part of best school life years. Those achievements may include personal academic and sports or an extracurricular achievements. The findings of this study are that the spiritual values include religiosity, sincerity, discipline, affection, responsibility, patience, hard work and consistency.

Key Words: Spirituality, Pedagogy, Achievements

1. INTRODUCTION

Education is one of the key vehicles for the intellectual dan professional development of our people and plays an increasingly role in supporting a stronger and more globally competitive Indonesia. The future of Indonesia is the quality of education today. The moral crisis that is now endemic in the midst of the nation, especially our young generation is not because of the poor education system that we apply today, but rather because what we have done has lost its essence.
The flow of diverse physical and non-physical resources (data, informations and knowledge) from one place to another freely and openly is phenomena that occur in the 21st century. The winner is a country that has a quality human resources and superior characters, the best and cheapest quality of goods and services as well as a conductive work, free of extortion and legal certainty.

Indonesia peoples that holds a philosophy of life based on religion, believe that progress is not merely measured by material progress, but essential progress is when nation can harmonize all its life activities with religions guidance. There for the happiness can be felt dan the blessing of life can be achieved, as an according to the Law of National Education System No 20 of 2003. In one a moment time Nelson Mandela analogied the education as a powerful weapon. Everyone can use this weapon to change the world. Education is used to be moral, social, and economic well being of the societies, cultivates knowledge, understanding and values among citizens, and enhances human capacity to create a generation future.

Answering these challenges, it’s time to develop and use spiritual-based education, where Daniel Goleman’s research shows that the importance to emotional intelligence for one’s success should make scientist and education practitioners continue to develop spirituality-based education whose aim to provide religious education [1].

Raising awareness of the fact that humans being are highly complex creatures and individual multisystems is driving the emergence of various scientific studies arounds spirituality. According to Jung that humans being is not only psychosexual and psychosocial creatures, but also psychospiritual beings [2]. Spirituality is a concept that have many prespectives. It can be interpreted as transcendental which is the highest achievement in individual development, as a motivation that encourages individual to seek meaning and purpose in life. In general, Spirituality includes a sense of connection to something bigger than humankind and meaning in life. Maslow on spiritual life said that spiritual life constitutes the most essential humanity and this value made distinguishes humans being from other creatures.[3].

The above statement point that spirituality is a part of individual development. Spiritual can encourage humans to look for the nature of their existences. Finally, can guide the individual in achieving self-actualization as the creation of Allah. Any individual are able to appreciate the beauty of life, honesty, unity, and sacrifice in life. Furthermore, individuals can appreciate their other living creatures.

Not easy to provide the term of spiritual, but the reserchers believe its more important, therefore they offered a description instead. Howard Gardner who has known as a founder of the multiple intelligence sistems, formed the spiritual studies as a framework of his teori. Emotional Quotient (EQ) and Spiritual Quotient (SQ) are the most recently suggested by him. As well as Gardner, Daniel Goldman in 1995 has suggested that Emotional Quotient (EQ) give mankind an awareness of their feeling. It provides human with many values like: empathy, compassion, motivation and the ability to respond appropriated to pain or pleasures. At the last of his statement, Goleman has pointed out that Emotional Quotient (EQ) is a basic requirement for the effective use of Intellectual Quotient (IQ). In other view, Danah Zohar and her husband, Marshall have applied the concept of Spiritual Quotient (SQ) to the discussion concerning IQ and EQ. According them, SQ helps people to assess the most meaningful course of action. With Spiritual Quotient (SQ) address and solve problems of meaning and value of people. The autors claim that SQ is the
necessary foundation for the effective functioning of both IQ and EQ. SQ is human’s ultimate intelligences [4].

Danah Zohar and her husband Marshall, have equated spirituality with super intelligence. According both of them, spirituality may be defined as contextualizing, meaning giving and transformative intelligence. Spiritual Intelligence helps humankind to assess the most meaningful course of action. With Spiritual Quotient (SQ), human being address and solve their problems, meaning and value.

As well as scientist above, the idea of spiritual intelligence has also been studied by Robert A. Emmons [5]. Emmons describes spiritual intelligence as the adaptive use of spiritual information to facilitate everyday problem solving and goal attainment.

Khalil Khavari in his book said that the spiritual intelligence is the faculty of non material dimension of the human soul. Everyone has this dimension. They can recognize its well, as well as they know their body. This intelligence is an endless diamond that everyone has, rub it to its glitter with great determination and use it to achieve lasting happiness. Like other forms of intelligence (intellectual and emotional intelligence), spiritual intelligence can be enhanced and reduced [6].

Based on some of the above understanding can be concluded that the definition of spiritual intelligence is the potential ability of every human being that makes him able to realize and determine the meaning, values, morals, and love of the greater power and fellow living beings, because they feel as part of the whole. So as to make humans able to put themselves and live more positively with wisdom, peace, and ultimate happiness.

Spiritual intelligence is human intelligence that must be sharpened with both being used to relate to God and to place meaning in a broader context so that they can interact among fellow humans with good interaction.

In the third millennium, also known as the new age, ethical values and spirituality play an important role in various aspects of human life. Speeding of change and global competition has leads to uncertain life patterns. On the other hand, ethical values and spirituality will plays an important role not only in the field social and religious, but also in the world education as a noble industry (noble industry). An education is the most responsible institution for the quality of human resources and the quality of civilization in the future. Therefore an education requires teachers who have spiritual insight in fostering and developing education.

The idea of the value of spirituality in the educational dimension, is a concept that is being developed by educational reformers [7]. It is recognized that this concept is an ijtihad in order to realize the vision of spirituality in all aspects of the education process. In this context, education is a truly and noble struggle to build souls, and personalities so that human beings are created ahsani taqwim (humanization), and instead liberate (liberalization) from the fetters that prevent the emancipation from various forms of immorality, poverty and ignorance.

An education has not been integrated in understanding humans. Education so far is more properly called teaching which has a goal to make children have knowledge but does not make them smart. Therefore, education must look at humans as a whole and integrated. It must be interpreted that education must look the humans as a whole and integrated in order to liberate humans.

Educational researchers in the western country have an interest in spiritual pedagogy. This theory applies many values that derived from religion and culture in the practice of school’s
education. These values most important to the teacher to guide their behavior. The teachers teach not only to carry out their duty but in order to get something meaningful and useful.

Shimabukuro (2008), quoting the ideas of Cambron McCabe and Dutton, asserted that the approaches in teaching and instruction have experienced changes and development that narrow into three (3) types of approaches: 1). Transmissional Approach, 2). Generative Approach and, 3). Transformative Approach.

The transmissional approach positions learners in the passive position, as a receiver of materials, and object of instruction. Teachers have the position of material deliverer, while students merely accept the subject that the teachers gave as necessary to for them. This approach we can find in many school in Indonesia.

The generative approach encouraged the studenst to create knowledge constructed on the basis of their own knowledge through interaction with learing the materials, teachers, and facilitators. Students knowledge is created layer by layer.

And the last approach, transformative approach. Through this approach the students can to penetrate into a deeper layer of instruction, which provides meaning to think critically about the world. Thus, learning is simultaneously an individual and transformative process. This approach is based on social activities. Through this approach students are encouraged to use their knowledge in social transformation.

Today, in industry period, we need a new approach, pedagogic practices based on spiritual values. Through this approach, the teachers implement the education and instruction on the spiritual value that also become the foundation of their profession such as lovely, patience, humility, empaty, sensibility, holistic, tolerance and many values else. Understanding the origin of this spiritual values is very important in developing the millennial generation, so that the teachers should be continuously guided in order to adjust their knowledge and skill to the needs of the contemporary world. Teachers should be aware that today, students are the native speakers of the computers language, video games and internet. There for, the teachers have to be able to do the spiritual values in their teaching in the school.

Awareness of the importance of pedagogy of spiritual-oriented teaching, has become a common concern. According to Shimabukuro (2008) there are five (5) characteristics of teachers in spiritual pedagogy; 1). Teachers understand students spiritual development and experience. 2). Teachers take the contemplative attitude. They closed to their students, and always think of their students future, knowledge, and the way to guide them. 3). Teachers show magnanimity. This is shown by being open to the presence and dynamics of the holy spirit within themselves, and the school community. Magnanimity here has a broad meaning, which among others include being magnanimous towards different views among teachers, children displeasing behaviors, and less conduct school environment. 4). Teachers have interpersonal sensibility in performing their profession, namely during interacting with the students, other teachers, school principal, and students’ parents. 5). Teachers do various activities with the main motivation to teach. If teachers look weak and unmotivated, students will be negatives impacted; their motivation to learn will decline. In this case, teachers should take advantage of instruction.

Teachers who active the spiritual values within students through certain instructional models should have spiritual leadership. Spiritual leadership should be guided and developed through routine spiritual practices, so that eventually they will embody into the characters of a teachers.
Based on the above explanations, a question arises concerning what values are made the foundation by teachers in performing their profession.

2. METHODS

This research was approached with a qualitative. The qualitative used in this research is to know and describe clearly and in detail the thoughts, feelings, and ideas of spiritual-oriented teaching at the SMK Al-Izhar School Pekanbaru. Data were collected through an observations on 10 teachers activities, in-depth interviews them with the researcher that plays the role of research instrument and documentations. The data sources in this study are teachers as key informants. Data sources from documents are chosen based on their relevance with research purposes. When will visit location and informant, local time and conditions be considered by researchers. The data that has been collected is then verified by the criteria recommended by Lincoln & Guba (1985), namely (1)credibility with continuous observation, peer discussion and member check, (2) transferability by providing a description detailed research findings, (3) dependability by asking several people the auditor to audit it, and (4) confirmability, namely research results of research by expert

3. RESULTS

Based on data analysis, the results obtained research formulated in the form of propositions as follows.

1. The Values of The Foundation for Professional Practice
   The finding show that the spiritual values has applied by teachers SMK AL-Izhar School to make the foundation in their performing are:
   a. Lovely: teaching with love makes class fun, always smiling, say salam when they meet each others, giving appreciation to students whatever the results, playing together with students during a break.
   b. Responsibility: responsible to guidance the students physically and spirituality, understanding the students as an individual or as a group, providing various information that needed in the learning process, promoting thes students access and success.
   c. Sense of Sincerely: doing a work always with heart that clean from purpose (expecting a reward) and pure from the bottom of the heart not because of coercion from others and with a healty heart (a healty soul), doing something solely because of God.
   d. Innovativeness and Creativities: tobe able to create something unique and different for himself and his students progress, tobe able to use technology well, such as computers, laptops, and internet, creating new ideas, looks different, not rigid but still has principles, likes to make an experiments or trials in learning methods.
Disciplines: discipline in performing tasks, comes earlier, performing all his tasks in orderly manner.

2. The Source of Value:
   a. Religion: For respondents the most common source of guidance is religion belief to reach the benefits in the world and the hereafter. If someone does something based on religion, the act will produce good results and beneficial and positive impact for himself and his environment.
   b. Family: For respondents, their family is the main vehicle for the inheritance of the their civilization and culture, because within the family the basic values of human relations are formed and practiced.
   c. Friends: Friends can change the teacher’s value system and learn to understand more meaning into their lives.
   d. Books: Books are a source of various information that can open teacher horizons about various things such as science, economics, social, culture, politics, and other aspects of life. In addition, by reading, can help change the future, and can increase the intelligence of teacher minds.

4. CONCLUSION

Spiritual pedagogy is a field of study which explains the source of values through the religions, families, friends, and books. The spiritual values include lovely, responsibility, sense of sincerely, innovativeness, creativities and disciplines. Finally, these values encourage them, and become the foundation for the teacher inside carrying out his profession as an educator, teacher, or parents. The dominant values for the teachers in carrying out their profession is religion which is the main source and the most complete guide for humans life in various fields. Thus, education is held based on religious values can be categorized as pedagogical spiritual, if the religious value is really coloring the educational process operationally, actual, and consistent.

5. REFERENCES


The Impact of Daily Prayers Multimedia Application towards Student’s Learning Interest

Eka Prasetya Adhy Sugara¹, Guntoro Barovih², Nurussama³
{eka_p@palcomtech.ac.id¹, guntoro@palcomtech.ac.id², nurussama@palcomtech.ac.id³}
¹,³Politeknik PalComTech, Jl. Basuki Rahmat No. 05 Palembang, 30129 Indonesia
²STMIK PalComTech, Jl. Basuki Rahmat No. 05 Palembang, 30129 Indonesia

Abstract. Multimedia is one method that can help improve the learning process. Several previous studies which stated that multimedia can help increase children's interest and learning motivation. Some other studies even state the application of multimedia in the learning process can improve student understanding and value in learning. However, not a few studies that state otherwise. Some research states that the application of multimedia in the learning process can disrupt student concentration. This study aims to determine whether there is an impact in using daily prayer learning applications on children's learning interests. The object of research is students who study at the Darul Quddus Al-Qur'an Education Park. The research method used was descriptive statistical analysis. Based on the results of testing with a simple linear regression analysis, it can be concluded that the use of daily prayer learning applications has a positive impact on the learning interest of students at Darul Quddus TPA.

Keywords: Multimedia, Daily Prayers, Student Learning, Learning Interest, Analysis Statistic Descriptive.

1. Introduction

Childhood is a golden period for children's growth and development in all aspects. Aspects that continue to grow and develop include physical, motor, language, emotional and cognitive abilities. The childhood is a highly eventful and unique period of life of the child's growth in this phase which is very vital to the next life [1]. This period is also a golden period for the development of a child's brain. There are studies that state that children's intelligence capacity has reached 50% at 4 years of age and will increase to 80% at 8 years of age [2]. This shows the importance of providing the right stimulus as an educational medium for children. One stimulus that can be used as an educational medium is through the use of multimedia.

The application of multimedia as an educational tool for children is not a new matter. Much research has been done to develop multimedia-based applications as media aids in the learning process. Some applications are developed, for example in the form of educational games to learn shapes and colors of objects [3], multimedia applications for learning to read, write and count (calistung) [4], multimedia learning to recognize letters and numbers [5], games to stimulate cognitive aspects and child language [6], profession recognition application [7] and speech and animal object recognition application [8]. According to Yamin in [9] there are no less than five multimedia benefits in learning, namely the delivery of subject matter can be uniformed, the learning process becomes more interesting, the learning process becomes more interactive, the amount of teaching and learning time can be reduced and the quality of student learning can be improved. It remains to be understood that the use of
multimedia cannot replace conventional learning, but can improve and have an impact on activities outside and inside the classroom [10].

The many uses of multimedia as a learning aid media also have an impact on student learning interests. Slameto in [11] defines interest as a sense of love and interest that is so great towards something without coercion from anyone. Interest in learning has four main indicators, i.e. feelings of pleasure, interest, attention and student involvement. Many previous studies have stated the positive effects of using multimedia as an educational medium on student interest in learning. References [12] states there is a positive influence on the use of instructional media on elementary school students in Islamic Religious Education subjects. References [13] states that there is a positive influence on the use of animated interactive media on interest in learning mathematics in elementary school students. However, reference [14] states the negative effects of the use of multimedia elements on students aged 3-6 years. This means that the use of multimedia as a means of education does not always have a positive impact.

This study aims to determine the impact of the use of animation-based daily prayer learning applications for the learning interests of Darul Quddus Al-Qur'an Education (TPA) students. The application was developed as a media to help daily prayer learning as an alternative to conventional learning. Utilization of the application is one of several forms of Community Partnership Program (PKM) activities carried out by [15]. The partners involved in the PKM activities are teaching staff or Ustadzah and TPA Darul Quddus students. The research method uses descriptive statistical analysis to determine whether there is an influence between the use of learning applications with student learning interests. The hypothesis proposed is there is a positive effect on the use of daily prayer learning applications to the learning interest of students at TPA Darul Quddus.

2. Methods

The method used in this study consisted of several stages. The first stage begins by determining the type of research. This research belongs to the type of quantitative research, which examines how much influence the independent variable has on the dependent variable. This research method is used in certain populations or samples taken randomly, collecting data using research instruments and analyzing quantitative or statistical data to test the hypotheses that have been established [16]. The approach used is an approach with simple linear regression analysis, which analyzes the linear relationship between one independent variable with one dependent variable. The independent variable measured in this study was the use of multimedia-based daily prayer learning media, while the dependent variable was the learning interest of TPA Darul Quddus children. The study population was students who study at TPA Darul Quddus.

The next stage is gathering data. The data collection technique used was a questionnaire. Questionnaire is a data collection technique that is done by giving a set of questions or written statements to respondents to be answered. Questionnaires are efficient data collection techniques when researchers know the variables to be measured and know what respondents can expect. Questionnaires can be closed or open questions or statements, can be given to respondents directly or sent by post, or the internet [16]. The use of questionnaires in data collection has several advantages including practical, economic and people can answer openly and freely [17]. This study uses a closed questionnaire where the questions provided by researchers use predetermined answers with a check selection model with varying value criteria. The statements used consist of positive and negative statements. For positive statements, the "always" answer is 4, the "often" answer is 3, the "sometimes" answer is 2 and
the "never" answer is 1. While for negative statements, the evaluation of the answer is the opposite. The questionnaire consisted of 10 questions for both independent variable and the dependent variable. It were filled out by 50 children who were studying at the Darul Quddus TPA with the assistance of the ustadzah.

The last step is data analysis. Patton in [18] states that data analysis is the process of arranging data sequences, organizing them into patterns, categories and basic units of description. Through the process of analysis, data can be given meaning and meaning that is useful in solving research problems, research data analysis aims to simplify and limit the findings to become one organized data, arranged and more meaningful. The steps taken to analyze the data of this research are by conducting instrument testing and analysis prerequisite testing. Instrument testing consists of validity and reliability tests, while analysis prerequisite testing is done by testing data normality and hypothesis testing.

2.1 Instrument Testing

a. Validity Test. Validity is the accuracy of an instrument in measuring what it wants to measure [19]. The validity test in this study uses Bivariate Pearson correlation. Item-total correlation coefficients can be searched using equation 1:

\[
r_{ix} = \frac{n \sum i x - (\sum i)(\sum x)}{\sqrt{[n \sum i^2 - (\sum i)^2][n \sum x^2 - (\sum x)^2]}}
\]

Information:
- \(r_{ix}\) = item-total coefficient (Bivariate Pearson)
- \(i\) = item score
- \(x\) = total score
- \(n\) = number of data

Items from daily use of learning media and students’ learning interest are tested and the results are then compared to \(r_{table}\) at a significance level of 5% or 0.05. With the amount of data (n) = 50, the \(r_{table}\) amount is 0.279 (table r product moment)

b. Reliability Test. Reliability refers to a consistency of results if the measurement is repeated twice by the same person or different people [20]. Reliability Test uses the Cronbach Alpha value. The instrument in this study was declared reliable if the alpha value was greater than 0.60 (\(\alpha > 0.60\)) and vice versa, if the alpha value was less than 0.60 (\(\alpha <0.60\)) then the research instrument was declared unreliable.

2.2 Prerequisite Analysis Test

a. Normality Test. Normality test is used to determine whether the population data is normally distributed or not [21]. This test is usually used to measure data on ordinal scale, intervals, or ratios. If the analysis uses parametric methods, then the requirements must be fulfilled, i.e. the data comes from a normal distribution. If the data are not normally distributed, or the number of samples is small and the type of data is nominal or ordinal, the method used is nonparametric statistics [19]. This study uses the Komlogorov-Smirnov test to detect whether data normality is normally distributed or not. If probability or Asymp. Sig. (2-tailed) is greater than the level of significant (\(\alpha\)), then the data is normally distributed.

b. Hypothesis Test. Hypothesis test in this study consisted of a simple linear regression test and t test. Simple linear regression analysis is used to analyze the linear relationship between one independent variable with one dependent variable [22].
This analysis allows researchers to determine the direction of the relationship between the independent variable with the dependent variable and to predict the value of the dependent variable if the value of the independent variable has increased or decreased. The regression equation for simple linear regression is shown by equation 2:

\[ Y' = a + bX \]  

(2)

Information:
- \( Y' \) = Dependent Variable
- \( X \) = Independent Variable
- \( a \) = Constant
- \( b \) = Regression Coefficient

T test is done to show whether there is an influence of one independent variable as an individual on the related variable. The T test is used to test the significance of the relationship between the variables \( X \) and \( Y \), whether the independent variables really affect the dependent variable separately or partially. To interpret the coefficient of the independent variable (independent) can use the unstandardized coefficient and standardized coefficient by looking at the significance value of each variable at the significance level \( \alpha = 5\% \) (0.05). If the significant value of \( t_{\text{count}} < t_{\text{table}} \) and \( \alpha > 0.05 \) then there is no significant effect of the independent variable on the dependent variable. If significant \( t_{\text{count}} > t_{\text{table}} \) and \( \alpha < 0.05 \) then there is a significant influence between the independent variables on the dependent variable.

3. Result and Discussion

Based on the results of data processing the independent variable use of daily learning media based on animation (x) and the free variable children's learning interest (y) towards 50 respondents, the following results are obtained:

3.1 Instrument Testing Result

a. Validity Test Result. The results of correlation testing with Bivariate Pearson on 10 instrument items from the use of daily learning multimedia application are shown in Table 1. The results of correlation testing with 10 items of student’s learning interest are shown in Table 2.

<table>
<thead>
<tr>
<th>N of Item</th>
<th>( R_{\text{count}} )</th>
<th>( t_{\text{table}} )</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1.1</td>
<td>0.423</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.2</td>
<td>0.404</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.3</td>
<td>0.667</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.4</td>
<td>0.371</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.5</td>
<td>0.413</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.6</td>
<td>0.627</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.7</td>
<td>0.783</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.8</td>
<td>0.705</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.9</td>
<td>0.610</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.10</td>
<td>0.681</td>
<td>0.279</td>
<td>Valid</td>
</tr>
</tbody>
</table>
The test results shown in Table 1 and Table 2 show that all items on the instructional media instrument and learning interest, both of them show a $r_{count}$ value higher than the $r_{table}$ value. Based on this, it can be concluded that the instrument used is valid.

b. Reliability Test Result. The results of reliability testing using the Cronbach Alpha value of 10 items of learning media are shown in Table 3, while the results of the reliability test for 10 items of children's learning interest are shown in Table 4.

<table>
<thead>
<tr>
<th>Item</th>
<th>R_{count}</th>
<th>R_{table}</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>X1.1</td>
<td>0.550</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.2</td>
<td>0.461</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.3</td>
<td>0.453</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.4</td>
<td>0.740</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.5</td>
<td>0.491</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.6</td>
<td>0.630</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.7</td>
<td>0.431</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.8</td>
<td>0.527</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.9</td>
<td>0.345</td>
<td>0.279</td>
<td>Valid</td>
</tr>
<tr>
<td>X1.10</td>
<td>0.388</td>
<td>0.279</td>
<td>Valid</td>
</tr>
</tbody>
</table>

The results of the reliability testing of the instructional media instrument and learning interest, both showed Alpha Cronbach values greater than 0.6. Based on the measure of alpha stability with a range of values of 0.61 - 0.80 [23], it can be concluded that the instrument used is reliable.

3.2 Hypothesis Test Result

a. Normality Test Result. The results of data normality testing using the Kolmogorov-Smirnov one-sample method are shown in Table 5.
### Table 5. 1-Sample Kolmogorov-Smirnov Normality Test Result

<table>
<thead>
<tr>
<th></th>
<th>Daily Prayers Application</th>
<th>Students Learning Interest</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Normal Parameters</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>39.6000</td>
<td>38.6000</td>
</tr>
<tr>
<td>Std. Deviation</td>
<td>3.77964</td>
<td>3.30121</td>
</tr>
<tr>
<td>Most Extreme Differences</td>
<td>.104</td>
<td>.108</td>
</tr>
<tr>
<td>Positive</td>
<td>.104</td>
<td>.082</td>
</tr>
<tr>
<td>Negative</td>
<td>-.072</td>
<td>-1.08</td>
</tr>
<tr>
<td>Test Statistic</td>
<td>.104</td>
<td>.108</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
<td>.200^c,d</td>
<td>.199^c</td>
</tr>
</tbody>
</table>

The results of the One-Sample Kolmogorov-Smirnov test show that learning applications and children's interest in learning both have Asymp. Sig. values greater than 0.05. Learning media has a value of 0.200 while interest in learning has a value of 0.199. These results indicate that the data used in this study are normally distributed.

### Hypothesis Test Result

The results of the simple linear regression analysis are shown in Table 6 and Table 7. Table 6 shows the results of the model summary while Table 7 shows the coefficient values of the simple linear regression analysis.

### Table 6. Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R Square Adjusted R Square Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>.4 .21 .196 2.95943</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Student's Learning Interest

### Table 7. Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Constant)</td>
<td>22.647 4.449</td>
<td>5.090 .000</td>
</tr>
<tr>
<td>Daily Prayer's Application</td>
<td>.403 1.12</td>
<td>.461 3.602 .001</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Student’s Learning Interest

Table 6 shows how much influence the use of learning applications variables on student learning interest variables. In the R Square column of the table, a value of 0.213 or 21.3% is obtained. These results indicate that the learning application variable affects student learning interest by 21.3%, while the remaining 78.7% is influenced by other factors. Further research is needed to be able to find out other factors that can influence children's interest in learning.
Based on the results of the multiple linear regression test in Table 7, it can be obtained the results of the equation \( Y = 22,647 + 0.403X \). The regression coefficient of the variable use of learning applications \( (X) \) of 0.403 shows that if the use of learning applications has increased 1 point, then the students' interest in learning \( (Y) \) will increase by 0.403 point. Positive coefficient means that there is a positive relationship between the use of learning with students' learning interest, the higher the use of learning applications, the more students' interest in learning increases. Table 7 also shows the values of the t test. T test is used to find out how significant the effect of the use of learning applications on student interest in learning is partial. Based on Table 7, the value of \( t \) is 3.602 which is greater than the value of \( t \) table of 1.677 and the value of sig. amounted to 0.001 which is much smaller than the value of sig. 0.05. These results indicate there is a significant influence between the use of learning applications with student learning interests.

4. Conclusion

Based on the results that have been described, it can be concluded that the use of daily prayer learning applications has an influence on the learning interests of students of Darul Quddus TPA students. The effect of learning applications on student learning interest is partially at 21.3%, of which another 78.7% is influenced by other factors. Based on the t test, the value of \( t \) is 3,602 with sig. 0.001, so the resulting effect is significant. However, this study cannot determine differences in student learning interests before and after using the application. Further research is still needed to find out whether there is an increase in student interest in learning before and after using the learning application.

Acknowledgments. The author's would like to express their deepest gratitude to the Directorate of Research and Community Service, the Directorate General of Research Strengthening and Development, the Ministry of Research, Technology and Higher Education (Kemenristekdikti) for funding this research through the PKM grant scheme at the TPA in Palembang City, which this research is one of the outcomes of the PKM at TPA Darul Quddus as mentioned.

References


Uncovering the Function of Taboo Words Used in “Not Another Teen Movie”

Dian Mukti Primasari\textsuperscript{1}, Alek\textsuperscript{2}, Didin Nuruddin Hidayat\textsuperscript{3}, and Dhuha Hadiyansyah\textsuperscript{4}

\{dian_mukti17@mhs.uinjkt.ac.id\textsuperscript{1}, alek@uinjkt.ac.id\textsuperscript{2}, didin.nuruddin@uinjkt.ac.id\textsuperscript{3}, atisura@yahoo.co.id\textsuperscript{4}\}

\textsuperscript{1,2,3,4}UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. The study investigated the use of taboo words in a specific movie, namely Not Another Teen Movies. Taboo stimuli are exceptionally stirring, yet it has been recommended that they likewise have inborn explicit properties, for example, taboo, offensiveness, disagreeableness, or even shock value. Nonetheless, taboo words frequently contrast from different words on something beyond excitement and forbidden properties. In the present study, the researchers replicated both of these discoveries and directed detailed item analyses to figure out which word properties drive a few impacts. The study concludes that the taboo words have several functions. Those are expressing desire, insulting people, expressing pride, cursing and disappointment, metaphor, literal meaning, openness, and hatred expression.

Keywords: taboo, words analysis, word function

1. INTRODUCTION

Swear words and taboo words can heighten what are stated, yet they can stun or give offense. Swearing and the utilization of forbidden words and articulations are very basic in talking. We frequently hear and use them both in private and in open settings and in movies, on TV and on the radio. The utilization of forbidden articulations recommends that speakers have, or wish to have, a nearby close to home association with others [1]. We additionally utilize unthinkable articulations and swear words when we express solid sentiments, or when we wish to undermine or to be upsetting to other people [2].

People employ interjections when swearing [3]. These can be single words or short expressions or provisos. We most regularly use them to express solid sentiments, particularly sentiments of outrage. The quality of the words and articulations here is set apart in stars. An exceptionally solid articulation has five stars and a less solid articulation has one star. Individuals have various perspectives about which articulations are more grounded than others [4].

In the early 2000s, there were a great number of movies which used taboo words especially in the teenager movies, such as American Pie, Saw, Scary movie or even Hangover. The time has changed, so does language preference. Exploring this kind of trend, the researchers were intrigued to access more about the developing language or words choice. Although not all are taboo words, yet in several scenes might be found several or many taboo words used.
2. LITERATURE REVIEW

Taboo words itself, is defined as “a class of emotionally arousing references with respect to body products, body parts, sexual acts, ethnic or racial insults, profanity, vulgarity, slang, and scatology” [5]. It is additionally expressed that while many would concur on the mark of certain words as being “forbidden”, there is a deficiency of investigation into the impact of unthinkable words on subjective procedures. In addition, linguist also defining taboo words as “words that sanctioned or restricted on both institutional and individual levels under the assumption that some harm will occur if a taboo word is spoken” [6]. In reality, individuals are commonly reluctant to utilize taboo words, which additionally make their event all the more striking [7]. Other notable linguistics study on taboo argues that the handling of taboo words is affected by particular arrangements of variables, and that taboo words are not only high-excitement enthusiastic words, yet in addition have an inherent taboo property [8]. It was also stated that there are factors which can be simplified related to function of the taboo words [9]. There are desire expression, insults, pride expression, curse, disappointment expression, metaphor, literal meaning, hatred, reference and emphasizing meaning [10].

By having this theory, the researchers would like to explore what are the functions of taboo words used in a movie. The movie chosen is “Not Another Teen Movie” because it is one of the movies launched in the early 2000’s. It was when the taboo words were knowingly found on the movie especially for the teenager movies. The objective of this research is to find out the function of the taboo words on the above mentioned movie.

3. METHODOLOGY

3.1 Research design

This research study was conducted qualitatively using the literature as the material to be figured out. It consisted of three sequential tasks: (a) watching the movie online, (b) download the subtitle, (c) analyze the subtitle.

Watching the movie. The movie length is about 1:48:00. The researchers watched it from the website of https://indoxx1.com/ then typed the title on the searching panel.

Download the subtitle. The subtitle needed to be downloaded to ease the researchers conducted the analysis. After the movie was successfully downloaded, the data can be researched by highlighting the taboo words. Until then, the file was then printed out. The file was downloaded from http://www.divxmoviesenglishsubtitles.com/N/Not_another_teen_movie.html. It is a free download site base. The subtitle was only provided from 00:00:12,086 until 01:28:58,835

Analyze the subtitle. Analyzing the subtitle by reading the text and highlighting the taboo words. It can be helped also by the searching engine by typing the keywords on the panel before finally found the words desired. The category of taboo words is based on the previous theory.
3.2 Participant and the Materials

In this case the researchers employed movie “Not Another Teen Movie” as the object. A parody of movies marketed to teens, “not another teen movie” depicts what happens when popular jock Jake Wyler (Chris Evans) wagers his companions that he can transform any young lady into the prom ruler just by partner with him - even geeky craftsman Janey Briggs (Chyler Leigh). The film acquires generously both from '80s high schooler works of art like The Breakfast Club, Sixteen Candles, and Pretty in Pink and famous '90s adolescent flicks like 10 Things I Hate About You, Can't Hardly Wait, and Jawbreaker to fiercely parody the stories, characters, and settings that have turned into the signs of the youngster sort. Simultaneously, it spots sex in the frontal area yet not the becoming flushed, credulous interests for the sake of desire and love so normal to high schooler flicks. Or maybe, it selects intergenerational lesbian sex, mother-child and sister-sibling interbreeding, and a lot of extra explicitly express references. Not Another Teen Movie is both uncouth and intemperate. The storyline is mixed with a couple of genuinely amusing references to the racial legislative issues of teenager comedies like Bring It On (where the white team promoters took the moves from a cheerleading squad at a prevalently African-American secondary school). Likewise included are awesome appearances by Paul Gleason (who played the head in The Breakfast Club), Mr. T, and ‘80s youngster flick staple Molly Ringwald.

Nonetheless, the snapshots of motivation are rare, and they are frequently overwhelmed by the relentless dispatch. What's more, even the interesting bits are best delighted in by those mature enough and develop enough to perceive that the sexual components here are planned to be unnecessary. Families can discuss whether the film is attempting to make a specific point about high school sexuality amidst all its creepiness. The movie was exposing the sexual desire of the teenager. That is why the movie uses so many taboo words to express the message. The writers are the researchers themselves. Hence, the analysis is taken authentically by the researchers.

4. FINDINGS AND DISCUSSIONS

The downloaded subtitle is 21 pages. The length of the subtitle is approximately 116 minutes. The commonly found words are mostly related to having sex, bitch, lesbo, whack, shit, damn, fuck, dick-fag, and others. Those words are used for either emphasizing the meaning or only for cursing. It will be shown from the table following.

<table>
<thead>
<tr>
<th>No.</th>
<th>Taboo words</th>
<th>Description</th>
<th>Analysis</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>I can't have sex before you.</td>
<td>The brother of the main character is underage. He wants to have sex with somebody. He stated it to her sister.</td>
<td>The brother doesn’t have any communication barrier to the sister. He expressed it openly.</td>
<td>Desire expression.</td>
</tr>
<tr>
<td>2.</td>
<td>More like you're a lesbo.</td>
<td>The brother said it to the sister who were captured in masturbation.</td>
<td>The brother feel sorry of the sister’s act. He says it because he worried that the sister doesn’t have any attraction to the man.</td>
<td>Insults</td>
</tr>
<tr>
<td>3.</td>
<td>&quot;Damn,&quot; &quot;Shit,&quot; and</td>
<td>It had been said many times in</td>
<td>Saying it to express the</td>
<td>Curse</td>
</tr>
<tr>
<td>Number</td>
<td>Word(s)</td>
<td>Context</td>
<td>Function</td>
<td></td>
</tr>
<tr>
<td>--------</td>
<td>---------</td>
<td>---------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>American pussy.</td>
<td>It was stated by one of the boys on the group when they were chatting.</td>
<td>Express the ability of getting one of the girls.</td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Goddamn it</td>
<td>Yelled many times in the movies. Especially the boys who were on the conversation with their friends. It sated the most among any taboo words.</td>
<td>Some of the expressions or the words were used to curse and some for emphasizing the deep intention of disappointment.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>I'd say you're one big fucking train wreck.</td>
<td>Spoken by the one boy who were about to have bad intention to the main character.</td>
<td>The expression of pointing the point or the most crucial part. Or telling the literal meaning.</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>I'm going to go fuck a complete stranger.</td>
<td>Said by the little brother when he was on the party.</td>
<td>Literal meaning that he would try to have sex with somebody.</td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td>Limp-dick fag fucker!</td>
<td>One of the girls said it to the boy in the party. Her name was Sandy Sue.</td>
<td>Expressing the hate of the speaker to the listener. In this case the girl to the boy. It is said so because the girl considered that the boy is pervert.</td>
<td></td>
</tr>
<tr>
<td>9.</td>
<td>Damn, those bitches represent!</td>
<td>The friend of the main character said referring to the group of the girls.</td>
<td>Expressing of reference to the girls.</td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td>You'll call me a slut.</td>
<td>Literal meaning had spoken to the girls who had slept with many boys in the movie.</td>
<td>Expressing literal meaning to the cheating girlfriend.</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>Son of a bitch!</td>
<td>The main character said it to the boy who were trying to steal the girlfriend.</td>
<td>Expressing disappointed and curse</td>
<td></td>
</tr>
<tr>
<td>12.</td>
<td>I'm not kidding Somebody please fucking help me</td>
<td>The main character was asking for help. The “fucking” word is used for emphasizing the help.</td>
<td>Emphasizing the intention by saying taboo word.</td>
<td></td>
</tr>
</tbody>
</table>

From the data above, it was found that the taboo words have several functions. Those are expressing desire, insulting people, expressing pride, cursing and disappointment, metaphor, literal meaning, openness, and hatred expression. Past research taking a gander at contrasts in LD among passionate and impartial words found that distinctions because of feeling were wiped out once the difference clarified by non-enthusiastic word properties was controlled for [11]. This error is most likely because of a mix of methodological and factual contrasts. Methodologically, didn't acquire excitement, valence, and forbidden evaluations, yet rather embraced passionate classifications that were recently decided. The words gave generally communicated the capacity which had been expressed after on the hypothesis part. Those are Desire articulation, affronts, pride articulation, revile, disillusionment articulation, allegory, exacting significance, scorn, reference and underlining meaning. Each capacity at any rate indicated one finding. It is demonstrated that the hypothesis of Christopher is significant and relevant.
5. CONCLUSION

The study was resulting several results that might be beneficial for the words and language analyzers. The present study examines on the early 2000’s movie. It is suggested to the other researchers to explore the newest movies as the language has been growing since then. The benefit of the research can be applied for the audience who is considered guidance in-needs, especially the teenager who likes to copy the current popular expressions.

REFERENCES


Effect of Learning CD Based on the SAVI (Somatic Auditory Visual Intellectual) Approach to Student Learning Outcomes on the Concept of Global Warming

Devi Solehat¹, Ai Nurlaela², F.N. Fauzia³
{devi.sholehat@uinjkt.ac.id¹, ai.nurlaela@uinjkt.ac.id², fathiafauzia72@gmail.com³}
UIN Syarif Hidayatullah Jakarta, Indonesia¹,²,³

Abstract. This study aims to determine the effect of the application of learning CD media based on the SAVI approach (Somatic Auditory-Visual Intellectual) on students learning outcomes on the concept of symptoms of global warming. This research was carried out at 11 Bekasi Senior High School in March 2019. The research method used was a quasi-experimental design with a nonequivalent control group design. The sample in this study was taken by purposive sampling which consists of class XI MIA 3 (experimental class) and class XI MIA 4 (control class). The instruments used were test instruments in the form of essays and non-test instruments in the form of questionnaires. Based on the results of the hypothesis testing of the posttest data by using the parametric statistical test in the form of the t-test at a significance level of 0.05, the sig value was obtained. (2-tailed) of 0.001 which means that sig. <0.05, then H0 is rejected and H1 is accepted, with the learning CD-based mechanism of the SAVI Approach proven to influence student Learning Outcomes on the concept of symptoms of global warming. In addition, the overall response of students also shows excellent responses with an average percentage value of 81%.

Keywords: Learning CD; (Somatic Auditory-Visual Intellectual Approach; Learning outcomes; symptoms of global warming.

1. Introduction

Education is a way to gain knowledge. Basically, science is discovered, formed, and developed by students themselves actively in the learning process in the classroom and outside the classroom [1]. With education, students can cause changes in themselves so that they play an active role in the learning process.

This time in the classroom learning process is still dominated by a teacher-centered approach (Teacher center). The teacher has not provided access for students to develop independence through discovery in their thought processes [2]. So that teaching and learning activities make students not play an active role and not produce many ideas that ultimately affect student learning outcomes and this is evidence that Indonesia is still lagging behind in the field of science.

Learning style is the easiest way that is owned by individuals in absorbing, organizing, and processing information received. Every student has their own learning style but cannot be activated in school because the learning process tends to be difficult to regulate the learning styles of all students in the classroom. If students understand their learning styles and learn according to their learning styles, and choose appropriate teaching materials, then they will get better achievement [3]. Therefore, we need a media and learning approach that can activate all student learning styles. Media and approaches that are suitable for activating the entire
learning style of students one of them with CDs based on the SAVI approach. The advantage of learning CDs is that students can study independently, not depending on the teacher [4].

One approach that concerns students’ learning styles is SAVI (Somatic, Auditory, Visual, Intellectual) because in this approach learning uses the senses of the body such as listening, speaking, seeing and concentration of the mind and then practice using it through reasoning is the best way of learning if everything is used simultaneously [5].
The use of media and learning approaches by activating all learning styles can support students to create learning conditions that deliver students to be able to understand the concepts of global warming symptoms and be aware of the surrounding environment so as to achieve optimal learning outcomes.

Environmental problems that occur at this time are the responsibility of all elements of society are expected to instill the young generation of heirs of the earth to love the environment for the sake of the continuity of life on earth [6]. One of the causes of global warming is the increased concentration of greenhouse gases caused by human activities. Awareness and care to follow up are needed to respond to the consequences of global warming [7]. With environmental problems that occur students must be able to realize and care early on from the effects of global warming in order to find the right way to deal with it.

2. Research Methods

In this study, the method used was a quasi-experimental method (Quasi-Experimental Design). The research method with this design has a control group, but it cannot function fully to control the external variables that influence the implementation of the experiment. This method is used to examine the possible influence of learning CD media based on the SAVI Approach by providing treatment to the experimental group then the results are compared with the control group.

The design used in this study is a nonequivalent control group design to determine student learning outcomes before and after learning is treated by using a learning CD based on SAVI Approach.

In this design, the experimental group and the control group were not randomly selected. The two groups used as a sample will be applied to different treatments and selected on the basis of certain considerations so that the level of homogeneity between groups is relatively the same.

The first group was treated with the learning CD learning media based on the SAVI Approach as an experimental group while the second group was made a control group with a conventional learning approach in accordance with what is commonly used by teachers in the school where the research took place.

Both groups will be given a pre-test (pretest) before treatment and a final test (Posttest) after the treatment and the results of the two groups are compared by the researcher. This study design can be seen in the draft as follows:

<table>
<thead>
<tr>
<th>Group</th>
<th>Pretest</th>
<th>Treatment</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>O₁</td>
<td>X₁</td>
<td>O₂</td>
</tr>
<tr>
<td>Control</td>
<td>O₁</td>
<td>X₂</td>
<td>O₂</td>
</tr>
</tbody>
</table>

There are three stages in the data collection techniques in this study, namely the first stage by conducting interviews with several physics teachers in Bekasi City to find out the learning process carried out and student learning outcomes. In the second stage when the learning takes
place by giving tests to the experimental and control groups. A test is a collection of questions or exercises that are used to measure a person's knowledge, skills and talents.

The test used in the form of a pretest given before treatment and posttest given after applying the learning CD based on the SAVI Approach in the experimental group and conventional learning approach in the control group. Then the third stage is after learning to use data collection techniques in the form of non-tests (not tests) with a questionnaire method that aims to see student responses to learning using learning CDs based on the SAVI Approach to the experimental group.

Data analysis techniques used in this study include test data analysis and non-data data analysis. Before testing the research hypothesis, a prerequisite test was conducted which included a normality test with the Shapiro Wilk test and a homogeneity test with the test Levene using Software SPSS.
3. Result and Discussion

Results of the data obtained during the study in the experimental class and the data control class described are the result of the pretest and posttest from both classes. The results of the study are described in the following table:

Table 2. Summary of the results of pretest and posttest Experiment Class and Class Control

<table>
<thead>
<tr>
<th>Data Dissemination</th>
<th>pretest</th>
<th>posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experiment Class</td>
<td>Control Class</td>
</tr>
<tr>
<td>Lowest Value</td>
<td>26.00</td>
<td>26.00</td>
</tr>
<tr>
<td>Value Highest</td>
<td>76.00</td>
<td>80.00</td>
</tr>
<tr>
<td>Average</td>
<td>51.92</td>
<td>62.47</td>
</tr>
<tr>
<td>Mode</td>
<td>56.00</td>
<td>60.00</td>
</tr>
<tr>
<td>Median</td>
<td>53.00</td>
<td>56.00</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>11.32</td>
<td>16.26</td>
</tr>
</tbody>
</table>

Based on Table 2 above it can be seen that student learning outcomes are relatively low. It can be seen from the achievement of the average value pretest for the experimental class of 51.92 and the control class of 62.47. Some factors that cause low student learning outcomes are teaching and learning activities with a teacher-centered approach (teacher center) so that students do not play an active role and do not produce many ideas. During this time the learning process of physics in the classroom, especially on the concept of global warming, tends to be less than optimal. This resulted in low student learning outcomes. Student learning outcomes will improve if learning is interesting, activities throughout the body, involving all the senses, and considering the learning styles of each student are different [8].

Student learning outcomes improved after being given different treatment in each class. The increase was seen in the average score posttest obtained. In the experimental class given treatment in the form of learning by using learning CDs based on the SAVI approach obtained an average value of 71.44. Whereas in the control class there was no change in the increase in the average value or equal to the average value pretest of 62.47. Based on these data it can be concluded that the experimental class learning outcomes that use learning CDs based on the SAVI approach are superior compared to the control class. On the learning CD there is a syntax or stages of the SAVI approach that contains elements somatic, auditory, visual, and intellectually with syntax that has several advantages compared to conventional learning approaches, so as to optimize student learning outcomes.

This is because, at the delivery stage in the learning CD, students can be trained to be able to ask questions and express their arguments through the sheets that have been provided. in applying the SAVI Approach, students are given the opportunity to learn independently at the training stage. Somatic is a body movement that requires learning by doing and doing. The process of learning while listening, talking, presenting, debating, and responding. Visual is learning by using sensory meta through collecting, drawing, showing, reading, using media, and teaching aids [9].

At this stage, students are trained to get used to analyzing knowledge based on evidence so that students experience what they are learning.
Students are also required to learn auditory by finding solutions to the problems contained in the learning CD through discussion, asking questions and expressing their arguments. Furthermore, students are trained to rethink concepts learned by utilizing their intellect in solving a problem.

In connection with the stages of SAVI that have been described, an increase in learning outcomes using learning CDs based on the SAVI approach. The strengths of the SAVI approach include (a) generating full integrated student intelligence through the incorporation of physical motion with intellectual activity, (b) creating a better, interesting and effective learning atmosphere, (c) able to arouse creativity and enhance students' psychomotor abilities, (d) maximizing the sharpness of student concentration through visual, auditory and intellectual learning, (e) learning is more interesting with the learning game, (f) the approach offered is not rigid but can vary greatly depending on the subject matter, and the learning itself, and (g) can create a positive learning environment [10]. The results of students' final abilities based on the cognitive domain as a whole the experimental class is superior to the control class can be seen in the table below.

![Fig 1. Data Posttest Learning Outcomes of the Experimental Class and Control Class](image)

C1 cognitive domain is presented as an animated video related to the symptoms of global warming so that students become easier to remember learning. C2 cognitive domain, namely instructing students to compare temperatures inside and outside the room so that students can more easily understand the concept of global warming symptoms.

C4 cognitive domain that is presented an image related to global warming so students are able to analyze the phenomena that occur related to global warming symptoms. The results of the largest percentage of the three cognitive domains used are in the realm of analysis (C4) of 73%. This proves that learning CD based on the SAVI approach can improve students' cognitive abilities.

The results of the normality test of the results pretest and posttest in this study using the Shapiro Wilk test with the help of Software are SPSS declared normally distributed with the provisions of the data distribution normally distributed if the value of sig. > 0.05 (5%) then H<> accepted.

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Pretest</th>
<th>Posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Experiment Class</td>
<td>Control Class</td>
</tr>
<tr>
<td>Df</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.368</td>
<td>0.302</td>
</tr>
</tbody>
</table>
Results Homogeneity Test uses test Levene with the help of Software SPSS. Homogeneity test decision making is based on the terms of testing the homogeneity hypothesis that is if the value of sig. ≥ 0.05 then H₀ is accepted, the data revealed to have the same variance (Homogeneous). It can be seen in the following table.

| Level of significance (α) | 0.05 | 0.05 |

<table>
<thead>
<tr>
<th>Statistics</th>
<th>pretest</th>
<th>posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levene Statistic</td>
<td>0.685</td>
<td>0.396</td>
</tr>
<tr>
<td>Level of significance (α)</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Conclusion</td>
<td>Second Class Homogeneous</td>
<td>Second Class Homogeneous</td>
</tr>
</tbody>
</table>

Based on statistical analysis prerequisite test, obtained information that the data pretest and posttest are normally distributed and have the same variant. Therefore, the use of parametric statistical test analysis in the form of a t-test is carried out for hypothesis testing. Hypothesis test results can be seen in the table below:

<table>
<thead>
<tr>
<th>Statistics</th>
<th>pretest</th>
<th>posttest</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sig. (2-tailed)</td>
<td>0.168</td>
<td>0.001</td>
</tr>
<tr>
<td>Level of significance (α)</td>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>Conclusion</td>
<td>H₀ accepted</td>
<td>H₁ accepted</td>
</tr>
</tbody>
</table>

Research conducted has several advantages and disadvantages. Of the several advantages that have been described, there are some weaknesses in the use of learning CDs that are found when learning at school.

First, learning CDs can only be operated using computer equipment in the school computer lab that is prepared by each student and requires time to prepare so as to reduce the effective time of learning.

Second, there are differences in the time of completion of the use of learning CDs on each student, so that makes students who have finished learning using the learning CD must wait for other students who have not finished so that the learning planning stages are carried out simultaneously. Nevertheless, the use of learning CDs in the learning process has been able to improve student learning outcomes and get positive responses from students.

The positive attitude of students towards learning the symptoms of global warming by using a learning CD based on the SAVI Approach is shown in the table below:

<table>
<thead>
<tr>
<th>No.</th>
<th>Indicator Questionnaire</th>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Use of learning CDs based on SAVI Approach</td>
<td>81%</td>
<td>Excellent</td>
</tr>
<tr>
<td>2.</td>
<td>Student Learning Outcomes</td>
<td>80%</td>
<td>Excellent</td>
</tr>
</tbody>
</table>
The results of student questionnaire responses overall received responses that were excellent with a percentage of 81%. In addition, the results of the questionnaire were also known that students agreed that the use of learning CDs could improve learning outcomes.

This shows that the learning CD can be a solution to the problem of the lack of active students in the learning process that makes students become bored in learning and teachers can optimize student learning outcomes. That is, overall the use of learning CDs in the learning process can have a positive influence on student learning outcomes, especially on the concept of global warming symptoms.

4. Conclusion

Based on the results of research and discussion, it can be concluded that:

a. The learning CD based on the SAVI approach influences student learning outcomes on the concept of global warming symptoms. The influence is evident from the results of hypothesis testing which obtained sig values. (2-tailed) (0.001) < significance level value (0.05).

b. Improved learning outcomes of the experimental class are higher than the control class. This is evidenced by the average value of N-Gain in the experimental class that is superior to the control class. N Gain is the experimental class in the medium category and the control class in the low category.

c. The response of students to learning CDs based on the SAVI Approach in the learning process on the concept of global warming symptoms as a whole received an excellent response of 81%.

References


[8] Satria, Erwinsyah. “Improving Students’ Activities And Learning Outcomes In Natural


Challenges of Islamic Religious Education Due to The Implementation of 4.0 Industrial Era

Dede Rosyada¹, Andriyani²
{dede.rosyada@uinjkt.ac.id, andriyani@umj.ac.id}

¹Syarif Hidayatullah State Islamic University of Jakarta, Indonesia
²Muhammadiyah University of Jakarta, Indonesia

Abstract. Islamic religious education is a compulsory subject for all students from all school levels in Indonesia, by the goals to promote the strength of belief, piety and noble morality, for being smart and competitive citizenship in the future. Religious competence isn’t a main skill and expertise for commons students, because it isn’t a profession except the students from religious education department that prepares the students for being religious teachers. Even so, it has a significance position to develop and maintain motivation, creativity and innovation, in facing the competition in the professional market. Moreover, nowadays, the world is facing a big problem with humanity as a result of industrial trend to optimise the position of Cyber Physical System (CPS), Internet of Thing (IoT), dan Internet of Service (IoS) in almost all production processes. So, Islamic religious education should extend the goals of learning process, not merely strengthening belief, piety and noble morality, but also openness, cross cultural relationship, and expanding the field of professional works, regional and global context. Along with it, Islamic religious education process also should upgrade the creativity and innovation competence for all the students through participative learning, problem solving, and project.

Keywords: Islamic religious education, creativity and innovation

1. INTRODUCTION

Islamic Education is a compulsory program at all levels of formal schools in Indonesia. Such a very strategic educational policy is underlined by Government Regulation No. 55 of 2007, as it is stated that religious education is an educational program to develop knowledge, attitudes, and personalities, as well as upgrading skills of students to practice religious teachings. This religious education program is implemented at least through subjects / lectures on all levels, and types of education [1]. At the same time, the Ministry of Religion Affairs as it is mandated ministry to organized the implementation religious education, is very serious in constructing planning, controlling learning processes and outcomes in the formal education pathway, both general and vocational education.

Religious education functions to form Indonesian people who believe and have faith in God Almighty and have good character and are able to maintain peace and harmony between religious and inter religious relations [1]. And Religious Education aims to develop the ability of students to understand, appreciate, and practice religious values that harmonize their
mastery in science, technology and art [1]. This regulation is already very ideal, visionary and also very inclusive, namely that Religious Education, in the context of PAI, is expected to be able to bring students into children of faith, piety and be able to maintain harmony, peace and be able to live in mutual understanding of one another. If their souls have been formed like that, then they and the PAI are expected to make partnerships with anal-children Malaysia, Singapore, Vietnam and others from ten ASEAN countries. At the same time, PAI aims to become a professional spirit.

At the same time, the world is now entering the phase of the industrial revolution 4.0. Many explanations can be read about this industrial revolution 4.0, and why education people are always busy discussing sociological and pedagogical impacts that must be adjusted, so that those produced through education can enter the labor market well, do not experience maladjustment, so that their expertise or skills can be used for the advancement of his professionalism, and in a larger context can participate for the progress of the nation. The challenges of the industrial revolution 4.0 that have entered the era of digitalisation, automation, and do not require a lot of people, because industrial machines are driven by computers, many artificial intelligent models are displayed by robots, so the industrial needs of people are getting smaller, the cost of production is increasingly efficient, and manufactured industrial goods increasingly compete in the market to reach consumers.

This progress is a challenge for PAI teachers in all lines and levels of education to prepare students who will compete in the market, so that their presence in the labor market can be absorbed by industry, not because of labor-intensive policies from the government, but because industry does require skills and expertise they. Then, the industrial revolution 4.0 is also often referred to as a period of disruptive innovation, namely new innovations that were never unexpected and disturbing to established players, both in the manufacturing and service industries. For these two aspects, what should PAI teachers do? What can be done by PAI so that children of school and university alumni become creative and innovative people, so that they do not have problems with limiting employment, or encouraging them to be someone whose industry requires their expertise.

2. INDUSTRIAL REVOLUTION 4.0

Industrial revolution 4.0, a revolution in the industry which was originally in the 3rd generation industrial phase, only relying on the power of automation, computers and electrical energy, in phase 4.0 changed and developed into a Cyber Physical System (CPS), the Internet of Thing (IoT), and Internet of Service (IoS), and networks. All of these components are integrated into industrial processes both manufacturing, logistics and others [2]. Industrial revolution 4.0 is a shocking progress in the world, once the production process is controlled by a computer through CPS, production divisions are no longer needed, and once the cyber-based production process is over, marketing of goods and transactions are already using the internet and even by using applications in mobile phone. People presence in the production process is no longer needed, as well as transactions, once banking transactions are done online, the teller function is getting smaller, and there is a reduction in labor. Many functions of the human workforce are eroded by the presence of digital technology. Slamet Rosyadi firmly emphasized, that the fields experiencing breakthroughs thanks to new technological advances include (1) artificial intelligence robots, (2) nano technology, (3) biotechnology, and (4) quantum computer technology, (5) block chain (like bit coin), (6) internet-based technology, and (7) 3D printers [3].
The presence of intelligent artificial, digital technology and internet as a server that can store thousands or even millions data, is also supported by nano technology, so that over time the need for human labor will diminish. However, at the same time, Industrial Revolution 4.0 has opened up new opportunities with the presence of the internet as a server for big data, and open for everyone to access, without restrictions by power, because the data is presented so it can be accessed by many people as possible. People nowadays doing business through disruptive innovation, which is innovation that disrupts the key business. Reiterated by Slamet Rosyadi, that the era of disruption not only disrupted or damaged pre-existing markets but also encouraged the development of products or services that the market had not expected before, creating diverse consumers and impacting lower prices [3].

The term of industry 4.0 is a term that was introduced by Prof. Klaus Schwab [4] in his writing "the Fouth Industrial Revolution", and was officially introduced by the German government at the 2011 modern industry exhibition at the Hannover Fair, in order to launch the High Tech Strategy 2020 program [5]. Industrial Revolution 4.0 emphasizes the integration of cyber and industrial tools in an automated production process, connected to the internet, can read each other, so that the production process all runs mechanically and does not use much energy [6]. Thus, the production process is more efficient, and the price of goods is more competitive in the market. At this level, it is inevitable that there will be a reduction in human labor, because there is no need for industry anymore. This condition has been recognized by all nations in the world and there will be an explosion of unemployment everywhere, social crisis, and continues to spread to various sectors of economic, political, social and cultural life. The industrial era 4.0 is almost in all lines of production, marketing, shipping, and transactions, all involving computers and the internet. Therefore, this era is also commonly referred to as the digital era. Then, along with that, the use of computers as the main tool in the industry, and computers as data storage, non-confidence data is also stored on cyber devices, and everyone can access the data. This is the most modern new business, business people by calculating the frequency of access, and obtain the proportion of profits from the owner of the bandwidth. A new business term appears now, namely disruptive innovation, which is innovation that was never expected, and disturbing the main players in the business, and carried out by new players who may not be linear with their knowledge.

The industrial revolution is a new opportunity for everyone, unlike the previous generation who relied heavily on professionalism with a very narrow definition of linearity in education with work and profession. Nowadays in the digital era, the cyber era and big data can be accessed by everyone, and they can compete without having to register with formal institutions that want formality and linearity. Competencies that are really needed now are creativity and innovation, as well as communication and collaboration skills with each other, without being blocked by primordial differences. Thus, education must now train creativity, innovation, good communication and universal collaboration skills.

3. CHALLENGES AND REORIENTATION OF ISLAMIC RELIGIOUS EDUCATION CURRICULUM

Curriculum is not limited to documents containing Competency Standards, Basic Competencies, Competency Indicators and various planned topics of teaching materials, but the curriculum is all the experiences experienced by students, content of learning, methods of teaching and learning, assessment and even the whole experience students in the school in
extra-curricular activities, student interaction with the teacher, administration and the entire school apparatus, is the curriculum [7], because everything is the part of the process of changing students' attitudes and personalities. To facing the industrial era 4.0, the definition of curriculum must be broadened in this sense.

Islamic Religious Education (PAI) obtains a mandate from God as the process of preparing the present and future generations as the best generation on earth (Ali Imran 110). In this verse it is emphasized that to be the best people must do three things, always ordering to do good deeds, always preventing Muslims from doing bad deeds, and always maintaining and strengthening the faith in God. As an effort to realize this ideal, the Indonesian government has adopted a strategic policy on religious education, which is affirmed in Government Regulation no. 55 year 2007, article 2 paragraph 1 and 2, which reads: Religious education functions to form Indonesian people who believe in and fear God The Almighty and noble character and able to maintain peace and harmony interfaith religious relations. Religious education aims to develop the ability of students in understanding, living, and practicing religious values that harmonize their mastery in science, technology and art [8]. Based on this regulation, the functions of Islamic Religious Education are:

3.1. Forming students to become believers, religious beliefs are the basis of all professional, social and personal actions, religious beliefs are the control of professional, social and personal actions, and religious beliefs are the destination of all of the human activities.

3.2. Forming a pious human being, that is carrying out all acts of worships, and also valuing of worship for all professional and social deeds, avoiding everything that is prohibited by religion, and guarding himself for not committing wrong to anyone and to anything.

3.3. Forming students to become noble morality, in all contexts of their professional, social and personal lives.

3.4. Forming students to be able to maintain peace and harmony, respect to the different ethnic, cultural, and religion differences, and be ready to collaborate on diversity.

Then, the aims of Islamic Religious Education are:

3.1. Teaching the students to understand, live and practice the teachings of the religious doctrines

3.2. Teaching the students to be able to harmonize their mastery of Islamic Religious Education with the mastery and implementation of science and technology. So, main goal of Islamic Religious Education is integrating their religious belief systems in the professional and social lives.

The industrial era 4.0 is characterised by two very severe situations:

3.1. Industry will rely more on computers and robots, so that human labor will be radically reduced. Thus, the employment of school and university alumni will face great difficulties in finding professional works.

3.2. However, the cyber era also brings great benefits if it can be optimized for all its opportunities. Therefore, this era is often referred to as the era of disruptive innovation. This innovation is open to anyone, because everyone becomes his own boss, for his own ideas and dreams.

The demand for success in the industrial era 4.0 are as follows:

3.1. Must be a creative citizens, so they can become very independent

3.2. Must be an innovative people, in order to succeed in his own creativity-based business.

3.3. Must be an inclusive citizen, so they can collaborate across ethnic, cultural and different religious followers, so that their world view is not narrow, but at least ASEAN as a single market can be optimized.
Does the Islamic religious education reach the areas of creativity, innovation and inclusiveness? Theoretically, creativity and innovation have no specific subject matter. Therefore, these two skills are entrusted to the pedagogical process, for this reason, Indonesia shifted from the behaviourism paradigm of teaching to constructivism of learning process, in an effort to maximize educational outcomes in order to produce intelligent, creative and innovative citizens. While inclusiveness is the subject of discussion that has long existed in teaching materials for school students, both middle and high school, maybe even since elementary education level.

Based on this description, the reorientation of the Islamic Religious Education curriculum requires that the output of Islamic Education in schools, which should be developed, guided and taught by alumni teachers majoring in Islamic Education study programs are:

3.1. Having great competence and commitment in the religious doctrine of belief
3.2. Having enough competence of obedience and piety
3.3. Having great competence of noble morality
3.4. Having competence and commitment to live tolerance amongst diversity
3.5. Having the competence to integrate the spirit of religious doctrines into professional, social and personal behaviour
3.6. Having openness behaviour and outlook, so that they can work together across cultures, ethnicities and religions
3.7. Become creative people, so they can be more independent in development. Life through partnership in business with all ASEAN people nations.
3.8. Become innovative people, so as to produce something that people in the world need the results of their work.

Islamic religious education Nowadays is challenged by industrial revolution 4.0 with disruptive innovation, which is innovation based on creativity, and does not demand linearity. Students who are studying in schools / Madrasah, and even students who are studying in tertiary institutions, will eventually become professionals in their work environment, whether as entrepreneurs, employees, or providing services to the community. The development of business since industry 4.0, is very interesting because everyone can become a business person with his creativity, because the opportunities are wide opened for everyone. Based on such reason, Islamic religious education should be reoriented, to open students’ mind, for extending cross religion partnership. And the chaining should be done comprehensively not only content of learning but also learning methodology, and learning orientation.

Frequently the word creativity is attached to works of art, music performances and painting exhibitions, whereas creative words are also related to business, manufacturing, health and medical services, education, and various other activities. Thus, creativity exists in all parts of life. Creativity is, the ability to give birth to a new innovation, original, never thought before, quality and as expected, can be used for a job which is useful for achieving goals. In creativity, there is something new, original and useful for an institution in achieving its goals [9]. Then there are those who interpret that creativity is a serious desire to explore, do imagination and rethink something based on the knowledge, experience, and feelings they have, to produce an original product and effective or efficient, as needed [10].

There are several characteristics of creativity, or in other words someone who is creative will have these characteristics. Based on the results of his research which was very old in 1973, JP Guilford concluded that a creative person would have the following characteristics1 [11]:

3.1. Flexibility, which has the ability to get out of tradition and habits, to get new ideas, differences and unusual results.
3.2. Fluency; Having the ability to think a lot of ideas, and many alternative problem solving.
3.3. Elaboration; Having the ability to work out the details of every idea and solution
3.4. Tolerance and ambiguity; Having the ability to reconcile ideas that conflict with one another, without creating new tensions.
3.5. Originality: Having the ability to give birth to ideas, thoughts, models, which are completely new, different from the others, and able to give birth to something that is truly outside of the existing.
3.6. Sensitivity: Having sensitivity to problems that arise in the environment.
3.7. Curiosity: Having an open attitude towards new inputs, new information, and having a strong desire to use the various information that it has to solve the problems it faces.
3.8. Independence; Having the ability to think and think about problems with their own abilities.
3.9. Action; Having the ability to turn his ideas into reality, with enthusiasm and energy.
3.10. Commitment; Having a high commitment and concern to resolve the problem with new ideas and ways.

Based on the definitions and explanations of the characteristics above, then the attitudes and creative actions can be done by anyone [12], as long as they have a strong desire to do it, and have a commitment to continuously maintain consistency to always be involved in solving problems in the company, in government offices, in schools and universities, and even in social settings. Someone who has the ability to be creative will always think of existing problems, based on existing knowledge, and give birth to ideas, ideas, and maybe even new models that others have never found. Thus, creativity can be developed. And the only development is through the education process. However, so far, there are no "Development of creativity and innovation" subjects or courses, because they are not one discipline, but one subject in certain subjects or subjects. Therefore, developing attitudes and creative behavior can only be developed through the learning process, which inserts creative themes in relevant subjects or subjects. Nevertheless, these attitudes and behaviors must be evaluated in the final evaluation of the relevant subject or subject. Indicators about create, invent, discover, imagine, suppose, must be detected in the development of their affection for students through evaluations [13]. Then, in addition to inserting content in relevant subjects or subjects, the creativity of students and students can be developed through learning that trains them to become creative people. Creativity is not born, but developed, creativity is not a factor of heredity, but the result of coaching.

4. PEDAGOGY REFORM IDEAS FOR THE DEVELOPMENT OF CREATIVITY

The need for variating and pedagogical dynamiting between high school and university students is different. Need to find a great mastery of the learning materials for the students of university is more then the students of high and secondary school. The focus of this pedagogical reform is dedicated to high school students, but it does not rule out the possibility, it is also needed for students in the early undergraduate programs. This pedagogical reform was put forward by a team of writers from an educational, research and development institute called the Innovation Unit based in London UK. This book was written as an idea facing the millennial era, which at the same time they are in the digital age and in the era of disruptive innovation. They have a very different character from the new generation of the 20th century.
The educational process in the past, was very bound by the classroom, limited by four areas of the wall, set the time of learning hours as well as the schedule of lessons, the frequency of learning in each subject. Students are bound to the recommended textbooks in the curriculum, and the teachers are also bound by some finite learning programs, and students must learn whatever the teachers are coming in or not, and even they are mastering materials or not. New ideas are now being developed that may be relevant to the needs of the 21st century, and relevant to the changing of educational policies due to the coming of industry 4.0 era, which require extraordinary creative abilities. The pedagogical model they learn must be different when learning resources are very diverse, easily accessible, inexpensive and allow to learn teaching materials beyond the limited plans that have been designed in the documented curriculum. These ideas are as follows [14]:

4.1. Open up lesson (open learning). The learning process of students are regulated and controlled by the teachers. It is common in many classes in many schools. The teacher conveys the topic, subject matter, sometimes they explain the material then give a test.

Even though the offerings are not necessarily in accordance with what students need, so their motivation decreases, students become unenthusiastic about learning, time is wasted, just because teachers do not understand the needs of their students to learn. It is better to let the students and / or students set themselves, what they want to learn in order to achieve the goals that have been formulated by the teacher, and the teacher is enough to provide support and assistance more closely, so they feel they receive serious attention from their teachers. Students must be respected for their freedom to learn, but are burdened with the responsibility of achieving standard competencies (learning objectives) that have been set in the learning program. Instead of the teachers only accompanies them to learn, and the interaction between students and teachers can be closer and more meaningful.

4.2. Think outside the Classroom. Traditional classrooms are usually neatly arranged, students sit on benches or chair with small tables facing the teacher, and the teacher has a role to convey the lesson for them. Now the paradigm has changed, economic development, science and technology and even world civilisation is moving very fast. While students are circled by easily accessible sources of science and technology. Thus, it is very likely that students entering the classroom already carry a lot of information that they have an access to in cyberspace, and even the class becomes an arena to pursue scientific and technological information for them to learn, not as an arena for exposing scientific and technological information. Thus, it is not possible to pretend and even design a class for presentation space, but leave the class as an arena for students to find their own knowledge according to what they need to learn. The teacher only facilitates class library, modules, textbooks, and supporting books, and most importantly internet access, and provides several PCs for students who do not carry a laptop or accessible tools to the information.

4.3. Get Personal. Usually in the world of education there are classifications of students with special needs, and they are specially served by teachers. Now all children with special needs, also need special services. All of the children can not be combined in the same class, and at the same time, in the same subject learn the same material from one teacher, because it is possible that what the teacher presented is already well understood by some students, and still needed by others, so, on that day, some certain students become losers, because they don't get what they need. And it won't be enough time if the teacher has to present everything that the students want to know, because each of them has different needs. Therefore, services for students in the classroom must be more personal, leaving
the class as an arena for students to find their own knowledge according to what they need for them to learn. The teacher only facilitates class library, modules, textbooks, and supporting books, and most importantly internet access, and provides several PCs for students who do not carry a laptop or.

4.4. Tap in to Students' digital expertise. Students should be accustomed to using the internet as a learning resource, student interaction with teachers or lecturers can use digital communication media, teachers can give their assignments via the internet, and students/students deliver their assignments also through the same media. They can share information with their friends through social media, Facebook, WA, Twitter, Instagram or others. And many schools allow their students to use Android to access teaching materials as a substitution for laptops that may cost more.

4.5. Get Real With The Project. Now high school students are familiarized with research assignments in the mini research scheme. The activity is usually referred to as a project. Projects in the academic tradition are an excellent policy, because students are trained to conduct studies and analysis of a comprehensive, multi-disciplinary focus and go beyond the scientific boundaries of each discipline. This kind of project, besides being able to increase students' scientific maturity, they are also trained to work in teamwork, practice managing time to work, and at the final stage present their work in a school forum with a variety of listeners and observers. These skills and competencies will be needed to be successful in their career and profession after they leave school.

4.6. Expect students to be Teachers. Giving trust to students to act as teachers to their peers in the learning process in the classroom. The task of the teacher is to provide assistance, guidance and assistance and training to students including the task of transforming knowledge that is very broad, as well as training skills that are appropriate to the needs of their profession. However, there is also a small part or maybe even a large portion among students that already have very broad and varied knowledge and skills with their own efforts to access various learning, training or other sources. In this context, the teacher can portray students to become teachers in their peer group or peer tutors, especially to their classmates, and maybe even become teachers for their own teachers. This method will greatly enable students to shape and develop their own education, without being limited to the curriculum prepared by the school.

4.7. Help Teachers to be Students, which is helping or reminding teachers to become students, or to become learners and continue to learn without stopping even though they have become a teacher. The 21st century challenges young people to be good learners, they are required to always be learners and can learn from the mistakes they have made. They must become independent learners, not because of the teacher's orders or school work, but to learn on their own, and the learning process is theirs, not the school's or teacher's. They must be familiar with a flexible learning process, use different strategies, and keep abreast of the changing world very quickly. If students are able to achieve changes quickly and independently, the teacher must be able to balance these changes. Only one of the best ways for teachers is to be a continuous learner, in more extreme terms, the teacher must be prepared to be an occasional student.

4.8. Measure What Matters (Measurement of learning outcomes). Measurements, what we want to measure for sure are the materials that have been taught, and how to do measurements, will greatly affect the way of teaching. Therefore, it is reasonable to ask whether the measurement was carried out to ensure that the students had become what they wanted. In fact, developments outside the school are so advanced and students are individually demanded to be able to follow progress outside of school in order to enter the
world of profession properly. Thus, the measurement and assessment of learning outcomes becomes insignificant, because the development is very dynamic and the curriculum has not been able to keep up with these changes. Nevertheless, this paper is not denying assessment, but is illustrating that education is very dynamic, and students can be more advanced than the curriculum and can also be more advanced than the teacher himself. Because the assessment and measurement must be done at all times, continuously and not dependent on class or school curriculum, but instead, they do it themselves in the learning process.

4.9. Works with Families not Just Children. Working with families not only with children. It has been widely recognized that parental involvement in children's education has a very strong positive correlation with student achievement. Some schools collaborate with people in various ways so that their children are the best they can be. And even some schools collaborate with families for a greater interest, not just the achievement of their children's academic achievement, but instead discussing to design curricula that can meet the external challenges of the school for their profession later.

4.10. Power to the Student, is sharing power for students. Students' voices, is the way they can say whatever they want to say as a form of understanding of the issue or situation experienced or faced. In fact, students may be given the opportunity to take control of the school, so that they continue to make improvements in increasing their contribution to students studying at the school.

These ten ways of learning are really the result of reflection of education activists from the Innovation unit in London, by trying to see the practices carried out in several schools that carry humanistic education in the paradigm of democratic learning. All of the above ideas still require the study of technological formulations and instruments, as well as testing of these technologies and instruments in implementation at school or university. Indeed, it is very rational, like what for a test, if it will only narrow the knowledge of students, because students can learn from a variety of sources they have, laptop, Ipad, android or others who can access on the internet, which presents very much information in science and technology that many students need to become professionals.

Similarly, students who can be teachers or peer tutors in their class, and vice versa teachers who must be students. Thus, the teacher can assign them to share their fellow peer groups in the classroom, or outside the classroom, or maybe even become a teacher for their own teacher. Relationships in the classroom are no longer teachers and students, but senior learners with junior learners, who can share with one another. All of these formulations are interesting reformist ideas to try to be instrumented and validated empirically, so that they can really be utilized to produce new pedagogical models and be able to produce competitive, and intelligent students. This learning model gives students the opportunity to study teaching material far from what the teacher is targeting, and may even reach relevant but not programmed topics. And the most important that all these ways of learning can be used on teaching Islamic religious education, to accelerate and optimise students’ understanding to all learning materials and to reach the goals of learning.

5. CONCLUSION

The industrial era 4.0 is a big challenge for educators, especially for Islamic religious education, because all the Islamic religious teachers have to teach religious education, at the same time they are also requested to promote creativity and innovation, disruptive innovation
through pedagogical approach by giving a wide opportunity for all students to learn. The Islamic religious teachers should give some projects for the students to observe the reality amongst social life, relevance to the substance of learning materials in classroom. And then, the teachers are also expected to extend the academic activities for all students by assigning them to read some books, summarising, and presenting it in the classroom, to be discussed together in the learning hours.

Beside of all those noble works of the teachers of Islamic religious education, they are also expected to enrich learning material by inserting some titles concerning inclusiveness, pluralism, and cross cultural relationship and collaboration, because the students will enter a border less market to enhance productivity of the nation through its people, by extending social communication and partnership. It is hopefully requested for the teachers to encourage their students for the international human resource. So, they should think globally, and work locally to develop the economic life of the country. Islamic religious education isn’t a subject to develop skill and expertise, but mostly as the spirit power for the students to grow up as a smart and competitive citizen in the future.

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[8] Government Regulation No. 55 year 2007, article no. 1 paragraph no. 1 and 2.


Attribute of Thematic Learning Innovation on Elementary School
(A Diffusion Of Innovation Research)

Asep Ediana Latip¹, Atwi Suparman² and Nadiroh³
{asepediana_pd17s3@mahasiswa.unj.ac.id¹, atwisuparman@gmail.com², nadiroh@unj.ac.id³}

Universitas Negeri Jakarta, Indonesia¹,²,³

Abstract: The purpose of this study is to describe thematic learning innovations that can be defined within a certain period of time to a social system using certain communication channels. The research method used is diffusion research. Data collection techniques used were questionnaire with Likert scale models. The sampling technique used was purposive sampling by setting research target schools in accordance with the research objectives. Analysis of the data used is descriptive quantitative. The results showed that thematic learning innovations were positively perceived by Elementary School teachers with low levels of difficulty and had benefits, appropriateness, trials and observables, so that thematic learning could be diffused in a social system in elementary schools.

Keywords: Diffusion Research, Thematic Learning Innovation, Elementary School.

1. Introduction

Thematic learning is one of the innovations in primary school learning. In elementary school age children, their learning ability is built constructively from a theme developed, so that the learning theme provides ease of presentation of subject matter for students. This psychological foundation is based on the Gestalt theory of holistic learning. The existence of learning themes illustrates the holistic way of thinking that is suitable for the learning abilities of students of primary school age children. Elementary school-age students can easily understand the lesson if learning is directed meaningfully learning, in accordance with their environment, clear the direction of behavior change, and contextual. Meanwhile, these criteria are inherent in thematic learning.

Thematic learning innovations in elementary schools are in line with the implementation of the latest curriculum in Indonesia, called the 2013 curriculum. Thematic learning innovations are developed in the form of teacher books and student books that guide the implementation of thematic learning in elementary schools. In the teacher's book and the student book illustrates the thematic learning model developed in the Forgatty perspective which is the Integrated learning model and the webbed learning model. The integrated learning model requires thematic learning processes to be carried out in an integrated manner and does not show the identity of the subjects but emphasizes the learning themes discussed in the framework of...
learning activities since introduction, core and authors. The Webbed thematic learning model is illustrated in the teacher's book which illustrates the attachment of concepts, facts, principles, procedures and metacognitive between all subjects captured by the learning theme so that the teacher can still show the identity of the subject being taught.

The problem is that as an innovation, thematic learning is not easily accepted by a social system that adopts thematic learning, namely elementary schools. This could be due to teacher resistance to innovation, it could also be because thematic learning innovation is innovation centric so that it becomes a barrier for members of the social system to be able to adopt thematic learning innovations and or may be caused by not having the opportunity to learn it or other underlying causes.

Therefore it is necessary to conduct a research study that can illustrate the process of adopting a thematic learning innovation by an elementary school social system. Diffusion research is the right choice for conducting innovation research, because the term diffusion is only attached to innovation or a new idea. Therefore diffusion research is defined as research that describes an innovation that is communicated in a span of time, in a particular social system [1]. In the context of this research, the diffusion of thematic learning innovations.

There is not yet a result of diffusion research on thematic learning innovation, but there are many diffusion innovations in research including diffusion of contextual learning innovation by Komlasari [2], Tayo Abass & Ayo [3] diffusion of technological innovation, Diffusion of technological innovation in integrated language education by Thayer[4], and William's [5] research on the diffusion of Instructional Management by Parent Community and Teachers (IMPACT) innovation. However, there are many studies on the implementation of thematic learning but it is not positioned as an innovation and moreover researched using diffusion research methods, such as research on the implementation of thematic learning as conducted by Chumdari, Sri Anitah, Budiyono, & Nunuk Suryani [6], Narti, Setyosari, Nyoman Sudana Degeng, & Dwiyogo [7], John's Research[8].

The significance of the diffusion research of thematic learning innovation can describe an innovation in a particular social system. Diffusion research can explain thematic learning innovations received by the teacher from time to time, or an innovation that is rejected by the teacher, or it could be that the teacher experiences dissonance and discontinuation of thematic learning innovations or even is quickly adopted by a particular social system and can also caused by teacher resistance to change.

Many factors can be the cause of the diffusion of an innovation or the rejection of an innovation. Meanwhile, thematic learning is an innovation that is appropriate and in accordance with the needs of students at the moment because of the flexibility of learning and giving meaning to the lives of learners from the material studied requires a scientific study of the diffusion of thematic learning innovations in an elementary school social system. So it is hoped that the results of research can provide an empirical picture and can be a reinforcement of the innovation needs process of a social system, so that the adoption of learning innovations can be quickly accepted by a social system.

Therefore, this research is about the diffusion of thematic learning innovations in South Tangerang Elementary School. Furthermore, the results of this study are also expected to be a relevant research base for conducting diffusion research on the same aspects of a different social system. In the diffusion research design there are four main research elements namely innovation, communication channels, time and social systems. In this research, it will be examined the diffusion of thematic learning innovations from an Innovation element. In diffusion research, the rate of adoption of innovation is determined by the teacher's perception of innovation itself, if the innovation is economically profitable, cheap, according to need,
simple, can be tried and can be easily promoted the assumption that the rate of adoption will be quickly adopted by a social system.

To find out, innovation diffusion research is carried out. The research question is how is the diffusion of thematic learning innovations in South Tangerang Elementary School? based on these questions, the purpose of this study is to describe the diffusion attributes of thematic learning innovation in South Tangerang Elementary School.

2. Literature Review

The diffusion of thematic learning innovation is a process of thematic learning innovation communicated within a certain time span in a social system [1] Thus there are four elements in the thematic learning innovation diffusion research namely thematic learning innovation, communication channels used in the diffusion of thematic learning innovation, the time span needed for the diffusion of thematic learning innovation and social systems that are the target of diffusion of thematic learning innovation.

Underlying this diffusion research there are many research results that use this diffusion research design including Lazar Stosic[9], Spiering & Erickson[10], Meeplat [11], Shea & Pickett [12], Alshmrany & Wilkinson [13] as well as those of states that thematic learning as an innovation in learning is John [8] and Narti, Setyosari, Nyoman Sudana Degeng, & Dwiyogo [7].

3. Methodology

The method used in this research is diffusion research. Rogers [1] explains that diffusion research is research on the generalization of the process of innovation diffusion involving elements of innovation, communication, the time span of adoption and a social system adopting innovation. In a diffusion is determined by the quality of an innovation. Meanwhile the quality of an innovation is built based on user satisfaction of an innovation. Meanwhile the underlying criteria are called the attributes of innovation which consist of relative advantage, compatibility, complexity, triability, and observability. Therefore, in the context of this study, it will be examined the diffusion of thematic learning innovations from the aspects of thematic learning innovation attributes. Because this aspect is a factor that can determine the diffusion process of thematic learning innovation.

Data collection techniques used were questionnaire with Likkert scale consisting of strongly agree, agree, neutral, disagree and strongly disagree. Data analysis was performed as a quantitative descriptive method by simplifying the data in the form of tabulation, generalizing and making the percentage then qualitatively described by comparing to the generalization standard developed by Rogers. The data collected was then analyzed descriptively, by calculating the average score on each statement item, processing it based on its aspects, dimensions, and arriving at the focus of the research, and then calculating the overall average score of the research on the diffusion of thematic learning innovations subsequently converted into a presentation and presented in graphical form. The research sample consisted of teachers who were at elementary school level. The sampling technique used was purposive sampling technique. Purposive sampling is done by setting schools that are knowledgable informants or schools that are seen by strategic researchers as a source of information and can produce accurate information.
4. Attribute Of Innovation

An innovation has certain characteristics that can be used as a basis for innovation adoption, hereinafter referred to as innovation attributes. Rogers [1] explains the five attributes of innovation consisting of, namely: 1). Relative advantage, 2). Compatibility, 3). Complexity, 4). Triability, and 5). observability. An innovation that has these innovation attributes can be quickly adopted by a social system. Based on the results of the study it can be stated that the diffusion of thematic learning innovation based on its attributes 93% is perceived to be positive. As the details are illustrated in the graph below:

![Attribute of Thematic Learning Innovation](image)

**Figure 1. Attribute of Thematic Learning Innovation**

A. Relative Advantage

In the context of the diffusion of thematic learning innovation, relative advantage as one of the attributes of innovation is used as one of the standards for the diffusion of thematic learning innovation. These thematic learning innovation attributes subsequently as a standard of perception of the diffusion of the implementation of thematic learning.

Thus based on the results of research from the above data it is known that thematic learning is stated by 52% of teachers having a relative advantage. This means that thematic learning innovation has economic advantages in its implementation, can represent the quality of the teacher, fun, obtained psychological satisfaction, can streamline the learning time, and can make the teacher's effort effective in learning.

In he other word, the South Tangerang elementary class teachers, on average they agreed that the application of thematic learning required a lot of money, on average they agreed that
the application of thematic learning could represent the quality of the teacher, that the application of thematic learning was fun learning, that the application of thematic learning could encourage psychological satisfaction in increasing students' high-level abilities, that the application of thematic learning could make learning time effective and that the implementation of thematic learning made the teacher's effort effective in learning activities.

B. Compatibility

Based on the research data above it is known that 53% of elementary school teachers state that thematic learning innovation has positive compatibility attributes. This means that thematic learning is compatible with existing values, compatible with previous learning experiences, and is needed to improve the quality of learning.

In other words, the South Tangerang elementary class teachers, on average they agreed that the application of thematic learning was consistent with the values of the elementary environmental character, that the implementation of thematic learning was consistent with the values of the elementary school environmental character, that the implementation of thematic learning was consistent with the teacher's previous learning experience, and that the implementation of thematic learning was consistent with the quality needs of learning.

C. Complexity

Based on the above data, it is clear that thematic learning innovation has a low level of complexity, as stated by 48% of elementary school teachers stated the attributes of thematic learning innovation are very simple. This means that the level of difficulty of thematic learning innovation to understand its concepts, planning and implementation is very low or thematic learning innovation is an innovation that is not difficult for teachers.

In other words, the South Tangerang elementary class teachers, the average states are neutral that the thematic learning innovation is difficult to understand the concept, that the planning of thematic learning was difficult to understand, and that thematic learning innovation was difficult to apply in elementary school.

D. Triability

Based on the data above, that thematic learning innovation has positive triability attributes, as stated by 52% of teachers in elementary schools. This means that thematic learning can be trialled within a certain time frame and updates can be made to the concepts, planning, and implementation of thematic learning.

In other words, the South Tangerang elementary class teachers, on average they agreed that thematic learning could be tried within a certain time frame, that thematic learning could be tried by updating the concept, that thematic learning can be tried by updating their plans, and that thematic learning can be tried by updating the implementation.

E. Observability

Based on data from the above research results show that 51% thematic learning innovation states that thematic learning perceived positively can be observed by elementary school teachers. This means that thematic learning conceptually, its planning and implementation can be promoted and know its superiority.

Then thus from South Tangerang elementary class teachers, the average states are neutral that thematic learning can be seen from the characteristics of the concept, that the thematic
learning could be seen by other elementary teachers from their planning characteristics, and that the thematic learning could be seen by other Madrasah Ibtidaiyah teachers by their performance characteristics.

However, the rate at which innovation is adopted between social systems can differ depending on the members of the social system. The characteristics of a member of a social system in adopting innovation are classified in the social groups of innovators, early adopters, early majority, late majority and laggard.

Innovative social members can quickly adopt an innovation if it is known that the innovation has a positive investment attribute, generally this group is only no more than 5%. This group can also be called venturesome.

Early adopter social system members are groups that follow the steps of innovators who are dominated by economically profitable innovation attributes. This group generally consists of 13% of the total members of the social system.

Members of an early majority social system are those who follow their predecessors, usually consisting of 34%, as well as those who are late majority. Members of laggard social systems are social groups that are passive to an innovation, may even adopt or change the view that has adopted not to adopt or stop adopting innovation.

Besides that, a social system can have a rapid adoption rate of innovation or even slow. This can be based on the innovation decision process of a system member based on known innovation attributes. Social system members who are quick to know the attributes of positive innovation, can quickly adopt it, but after knowing it is not necessarily also to adopt innovation. Therefore in the process of adopting an innovation it cannot be guaranteed that those who know must adopt but there is a long process to be able to adopt an innovation. This process is called the innovation decision process.

The innovation decision process consists of knowledge, persuasion, decision, implementation, and confirmation [1]. In the knowledge stage, a social system to the attributes of an innovation is at the stage of trying to find information, understand the need for information, approve an information, and find out the effectiveness of adopting innovation. This means that in the context of this research has not yet reached the decision to adopt the thematic learning innovation.

At the stage of persuasion, after knowing the attributes of innovation, a social system may feel attracted to an innovation, interested in discussing a new thing with others, interested in accepting an innovation, forming a positive image of an innovation and getting support for an innovative behavior from a system social.

In the decision stage, after being attracted to innovation based on its attributes, a member of the social system can try to find information, understand the need for information, approve information, and know the effectiveness of adopting innovation.

In the confirmation stage, a member of the social system based on the innovation attributes that he knows recognizes the benefits of using an innovation, an innovation is made as a routine activity, promotes an innovation to another, stops adopting an innovation, and can just replace a previous innovation with better, or even refuse to continue because they are not satisfied with an innovation.

5. Limitations And Future Research

The data of this study are only on a small scale conducted at the South Tangerang elementary school, Indonesia. Meanwhile there are a number of elementary school-level educational institutions in the territory of Indonesia that can be used as research samples for
the diffusion of thematic learning innovations. Therefore in further research it is recommended that diffusion research be carried out in a large sample size so that conclusions can be obtained about the diffusion of thematic learning innovations in primary education in elementary schools. In addition, the diffusion of thematic learning innovations other than in this study can be followed up by examining the role of social system members as change agents, the use of communication channels, and the consequences of adopting thematic learning innovations.

6. Conclusions

Thus, the results of this study indicate that thematic learning is diffused in primary school with a positive perception by South Tangerang elementary school teachers, Indonesia. The positive perception is seen from the aspects of its usefulness, suitability, difficulties, trials and observability. In other words, thematic learning is economically beneficial, better than other learning, represents teacher quality, convenience, psychological satisfaction, effective, efficient, valuable, as needed, can be applied, is flexible, can be proven and has a low level of difficulty in its application.

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References


The Effect of Fishbone Diagram on Students’ Writing of Analytical Exposition Text

Ardianto1, Didin Nuruddin Hidayat2 and Ismailaning Eviyuliwati3
{ardianto.aa70@gmail.com1, didin.nuruddin@uinjkt.ac.id2, ismailaning@uinjkt.ac.id3}

1,2,3 UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. As writing in English is seen to be highly demanded in schools, this study was conducted to obtain the empirical evidence of the effect of Fishbone Diagram on students’ writing of Analytical Exposition Text. The research design in this study was quasi-experimental design with 64 samples of the eleventh-grade students of SMAN 4 Tangerang Selatan. The samples were taken through purposive sampling technique and classified into two classes; experimental and controlled classes. The controlled class was treated with conventional teaching method without using Fishbone Diagram while the experimental class was treated by using Fishbone Diagram as the tool to enhance their writing. The instrument of the data collection was writing tests which were given as pre-tests and post-tests. The data collected from this study were analysed using t-test in order to identify the significance level of the results. This study resulted that both classes gained their scores in post-test. However, the experimental class has performed more significant improvement than the controlled class. Thus, it can be concluded that Fishbone Diagram had significant effect on students’ writing of Analytical Exposition Text at the eleventh-grade of SMA Negeri 4 Tangerang Selatan in Academic Year 2018/2019.

Keywords: Writing, Fishbone Diagram, Analytical Exposition Text.

1. INTRODUCTION

In Indonesia, writing seems to have a special attention since materials about writing existed in many places in the curriculum. The curriculum demanded the students to have sufficient abilities to produce or write several text types. The goal of learning writing is to enhance students’ ability to think critically about social phenomenon and build good literacy. One of them is Analytical Exposition Text which is given to the students at the eleventh grade of senior high school. Based on the English syllabus of eleventh grade in 2013 curriculum, students are required to master Analytical Exposition Text in order to be able to differentiate social function, text structure, and language features of spoken and written Analytical Exposition Text by giving and asking information regarding actual issues with suitable contextual usage [1].

Analytical Exposition Text is different from the other text types which are taught in senior high schools in Indonesia. It requires more complex and creative thinking and reasoning since it deals with ideas that should be based on facts, data, and evidence. Students often feel difficult to understand the construction of the ideas, to produce good ideas, and to find corresponding ideas for their topic. They cannot just bring the ideas instantly, but they have to bring also the facts for supporting it to make it convincing. The ideas in the text also should be arranged and organized systematically. Moreover, the ideas should be logically linked to one
another. So, it can be said that the process of creating Analytical Exposition Text is more complex and longer than making the other types of the text.

To help students in making mind-mapping concepts, a tool called Fishbone Diagram may be an overcoming solution. It provides several branches to make details to construct the main idea. This kind of diagram is actually used to identify the root cause for an effect or problems in improving quality of a product. It is generally known as “cause and effect diagram” which was developed by Kauro Ishikawa. However, Omachonu stated that Fishbone Diagram can be used also as a guide for discussion [2]. Therefore, there are so many possibilities of using this kind of diagram in writing especially in building a good idea in detail. It may help students to first think about what aspects are going to be written after they decided the topic and the thesis statement. Then, they can start to construct the diagram with details under each aspect. It also may give greater opportunities for the students to explore more ideas and detail about the topic of the writing.

Therefore, the researchers decided to investigate the effectiveness of Fishbone Diagram as a mind mapping technique in teaching writing, especially in writing Analytical Exposition Text. The research is trying to answer the following research problem: “Is there any significant effect of using Fishbone Diagram on students’ writing of Analytical Exposition Text?”

2. THEORETICAL FRAMEWORK

2.1 Writing an Exposition Text

Analytical Exposition Text, also known as expository text, is a text that informs explanation about specific subject which should be supported by facts, data, and evidence in detail. Amer stated that “Expository writing differs from narrative and descriptive writing in that it expresses an idea about a topic and uses supporting details to inform or explain to the reader that the idea is sound” [3]. Expository text is different from argumentative text. While argumentative text provides more personal opinion than facts, expository text give true explanation about a subject based on facts, data, and evidences. Also, expository is definitely different from narrative text. While the narrative text is written to form a story, the expository writing is used to form information books [4]. In this text, the perspectives should be introduced in non-opinionated, and non-argumentative way [5]. So, Analytical Exposition Text idea should not be based on opinion or personal thoughts, but it should be based on scientific facts that may come from books, articles, journal, etc.

The purpose of Analytical Exposition Text, generally, is to analyse the topic and persuade the readers to have same view point with the writer. According to Martin and Rose, an exposition has social purpose which is to persuade readers to the writer’s point of view [6]. Analytical Exposition Text also has a purpose to communicate factual information to the readers [7].

Generally, the generic structure of an essay consists of introduction, body, and conclusion. The generic structure of Analytical Exposition Text is simplified into title, introduction, body, and conclusion [8]. In the introduction, the writer often generalizes the topic and then narrows it into specific idea called thesis statement. In the body, the topic is provided and generated into more specific ideas or arguments. Each paragraph has its own idea or argument supported with evidences in detail to convince audience or readers. The paragraphs in the body should be logically linked to one another. In the last paragraph or conclusion, the writer can restate the thesis statement and summarize the ideas. In the last paragraph, the writer should not state any new ideas.

2.2 Fishbone Diagram

Fishbone Diagram is a tool for analyzing and exploring relation between a cause and an effect or a problem. After placing the problem or effect in the head of the diagram, the causes of the effect can be analyzed and investigated. According to Omachonu and Ross, cause-and-effect diagram is a tool to analyze root cause for a problem and organize the mutual
relationships [9]. This kind of diagram is also called as ‘Fishbone Diagram’ because it looks like fish skeleton or bone [10]. Fishbone Diagram was designed, actually, to generate improvement ideas of a product quality with investigating the root cause of a problem. However, as already mentioned, Fishbone Diagram also can be used in educational settings.

This diagram is imagined as bone of a fish which has several branches. Each branch of the bone become each aspect to be analyzed, which probably has a cause to be a problem. The bone can be identified as each measure aspect. Those aspects can be changed to any aspects depending on what kind of problem that needs to be analyzed. Fishbone Diagram can assist the user in gathering and organizing ideas or possible cause of an effect, grasping a common understanding of the problem, analyzing gaps in present knowledge [11].

The main function of Fishbone Diagram is to analyze the root cause of an effect or problem and investigate the relationships. It can determine detailed factors of a cause. It is very useful to evaluate systematically the causes of an effect. It means that Fishbone Diagram can be powerful tool for brainstorming and mind mapping ideas. Ishikawa described several ways to use Fishbone Diagram.

First, Fishbone Diagram actually can be used for educational purposes. It can get many ideas from involved members. Everyone will gain new knowledge as well as there are many people involved in making Fishbone Diagram. Second, Fishbone Diagram can be a guide for discussion. When it is focused for discussion, every member will discover the topic and how far the topic or the discussion has developed. Third, the causes can be found clearly and the results can be written clearly on the diagram. Fourth, Fishbone Diagram can reveal the technology level. When it analyzes the production process, then the level of technology used in the factory can be determined. Fifth, aspects of brainstorming can be combined by Fishbone Diagram systematically in order to make powerful technique [12].

As already mentioned, Fishbone Diagram was used for analyzing root cause of a problem in manufacturing industry. Here is the example of Fishbone Diagram adopted from Dale.

![Fishbone Diagram Analysis: purchasing department non-value-added work analysis](image-url)
Fishbone Diagram above shows some aspects causing problem for non-value-added work in a purchasing department. The problem was analyzed by creating the Fishbone Diagram in order to investigate the root causes of the problem. The causes of the problem then were analyzed by determining the possible factors or aspects. Each aspect is investigated at what factors influencing the aspect. For example, the first aspect is procedure which has some sub-causes that could influence how the procedure is implemented. Each sub-cause then will be analyzed whether it has significant effects to the aspects of procedure and how does the sub-cause influence the implementation of the procedure will be questioned.

2.3 Teaching Writing of Analytical Exposition Text by Using Fishbone Diagram

Since Analytical Exposition Text requires students to think critically about a phenomenon or topic, students need to have good logical reasoning in building ideas to construct the text. The Fishbone Diagram can be used to help students in organizing the ideas into good structured text. It can be said that at least students can get three beneficial advantages. First, it helps students to think rationally and systematically. Second, it can help students to write the text with good ordering of the ideas, because students can directly see the diagram while they are writing the text. In addition, students also can use Fishbone Diagram to understand and analyze the structure of an Analytical Exposition Text.

In writing, Fishbone Diagram can be used as a mind-mapping tool to help writers to organize and develop ideas in pre-writing process. It simply illustrates the construction of the ideas in the writing. It also stimulates the user to collect more ideas as long as the contents developed and elaborated.

To simply help the readers to understand the function of each part of the Fishbone Diagram, the researchers adapted a model of Fishbone Diagram when it serves as mind-mapping tool in writing.

2.3.1 Steps to Use Fishbone Diagram

There are several steps to use Fishbone Diagram in the classroom learning activities:

2.3.1.1 Provide students with a text along with its Fishbone Diagram. Students can identify the pattern or structure used in the text by matching with the structure of the Fishbone Diagram.
2.3.1.2 After the students understand the works of Fishbone Diagram, provide the students with a new text and an empty Fishbone Diagram. The students can be asked to put the ideas and detail from the text into the Fishbone Diagram as practice.

2.3.1.3 After the Fishbone Diagram have been introduced to the students, they should be ready to produce a text by using the Fishbone Diagram. Provide the students with familiar topics to write.

2.3.2 Procedural Instructions
Here are procedural instructions of how to use Fishbone Diagram to construct the organization of the ideas:

2.3.2.1 After determining the topic and the thesis statement of the writing, put the thesis statement to the head of the Fishbone Diagram.

2.3.2.2 Students should determine what aspects or areas that are going to be written and explained in the body paragraph. They can put the details, supporting evidence, or example in the root of each aspect.

2.3.2.3 Students can write the conclusion by looking back to the thesis statement or summarizing the ideas.

2.4 Research Hypotheses

2.4.1.1 Null Hypothesis (H₀): There is no significant effect of Fishbone Diagram on students’ writing of Analytical Exposition Text.

2.4.2 Alternative Hypothesis (H₁): There is significant effect of Fishbone Diagram on students’ writing of Analytical Exposition Text.

3. RESEARCH METHODOLOGY

It is a quantitative research using quasi-experimental design. The samples of the research were 64 eleventh grade students of SMA Negeri 4 Tangerang Selatan, located at Jl. Yaktapena Raya Pondok Ranji, Ciputat Timur, Tangerang Selatan in the academic year 2018/2019. The samples were divided into one experimental class and one controlled class to see the effect of the given treatment. The experimental class was taught analytical exposition text using Fishbone Diagram, while the controlled class was not given Fishbone Diagram to learn how to create organized analytical exposition text. The pre-tests and post-tests to both classes were as the instruments of data collection to know the improvement of the students’ achievement on writing analytical exposition text before and after the teaching processes. The students’ writing was then assessed by using Heaton’s Rubric for Assessing Writing adopted from Weigle, consisting of some areas, such as content, organization, vocabulary, language use, and mechanics [13].

The data was analyzed and calculated using t_test through SPSS software. It included several steps in the process, such as normality, homogeneity, and hypothesis testing. Normality test was used to determine whether the sample data was normally distributed or not. It was also used to determine whether the sample data were parametric or non-parametric, while the homogeneity test was used to find out whether the sample data from experimental and controlled class were of the same variants. The next step of data analysis process was testing the hypothesis using t_test. If the data are of the same variant, then the hypothesis can be tested with t_test. The t_test is formulated as follow:

\[ t_o = \frac{M_x-M_y}{SE \ M_x-M_y} \]

Explanation:
- \( t_o \) = The value of ‘t’ count
- \( M_x \) = Mean variable of experimental class
- \( M_y \) = Mean Variable of controlled class
- \( SE \ M_x-M_y \) = Standard error of experimental class
- \( SEM1 \) = Standard error of controlled class
After \( t_{\text{test}} \) was conducted, then an effect size calculation was needed in order to determine whether the effect is strong or weak because the significance of the relationship does not determine the strength or weakness of the effect [14]. In this research, to determine whether the effect was strong or weak, the researcher used Cohen’s \( d \) analysis [15].

After the calculation of effect size was done, the result could be interpreted with following criteria:

- \( 0-0.20 \) = weak effect
- \( 0.21-0.50 \) = modest effect
- \( 0.51-1.00 \) = moderate effect
- \( >1.00 \) = strong effect

3.1 Statistical Hypothesis

The hypothesis can be proved with following criteria:

3.1.1 If \( t_{\text{test}} (t_o) > t_{\text{table}} (t_t) \) in significance degree 5%, null hypothesis (\( H_0 \)) is rejected or alternative hypothesis (\( H_a \)) is accepted.

3.1.2 If \( t_{\text{test}} (t_o) < t_{\text{table}} (t_t) \) in significance degree 5%, null hypothesis (\( H_0 \)) is accepted or alternative hypothesis (\( H_a \)) is rejected.

4. RESEARCH FINDING AND DISCUSSION

4.1 Data Description

The sample size of 64 students were taken from Class XI IPA 4 as the experimental class (32 students) and from Class XI IPA 1 as the controlled class (32 students). The selection of the experimental class and controlled class was determined by considering previous performance of the students and discussion with their English teacher. Figure 3 and 4 below present the students’ writing scores.

![Bar chart showing the difference between students' mean score in experimental and controlled class](image)

**Fig. 3.** The Difference between Students’ Mean Score in Experimental and Controlled Class
Figure 3 showed that in the pre-test, the mean score of the controlled class (20.41) is higher than that of the experimental class (18.28). However, in the post-test, the mean score of the experimental class (80.56) turns out to be higher than that of the controlled class (74.53). This means that the controlled class performed better in the pre-test. However, the experimental class successfully gained their score and performance in the post-test. This would mean that the Fishbone Diagram has significant roles in enhancing their writing of Analytical Exposition Text.

Based on the figure above, there were two main aspects of writing which are content and organization. The experimental class got the mean score 18.28 for the content in pre-test and they eventually gained the mean score to 23.72 in the post-test. Meanwhile, the controlled class gets the mean score 20.41 for the content in pre-test, and they gained the mean score to 21.81 in post-test. In the content aspect, the gained score of the experimental class was higher than that of the controlled class. In the organization aspect from pre-test result, the mean score of the experimental class was 15.03 and the mean score of controlled class was 14.84. Meanwhile, in the post-test, the experimental class eventually gained their mean score to 17.53 and the controlled class also gained their mean score to 16.31. It means that the experimental class also gained more score in the organization than the controlled class. This would mean that the students from experimental class did better organization and content management in their writing after using the Fishbone Diagram. Fishbone Diagram helped the students to organize and collect ideas in depth and detail. To sum up, both the experimental class and controlled class improve their scores of content and organization aspects from the pre-tests to the post-tests, but the gained score of the experimental class was higher than that of the controlled class.

4.2 Data Analysis

The data in this study are analyzed using t-test in order to test the hypothesis. Before conducting the t-test, the data are first analyzed using normality and homogeneity test. The normality test is aimed to discover whether the data are normally distributed or not. It was also used to determine whether the sample data are parametric or non-parametric. Homogeneity test is aimed to check whether the data are homogenous or not. The data analysis was conducted by using SPSS Version 24, yet manual calculation was also used to verify the results from SPSS.
4.3 Normality Test Result

The normality test used a significance level $\alpha = 0.05$. If the results of significance form Shapiro-Wilk are higher than 0.05, then the data is normally distributed. The results of normality test of the pre-test in both experimental and controlled classes indicate that the collected data are normally distributed since the significance level of Shapiro-Wilk from those classes is 0.947 from the experimental class and 0.122 from the controlled class. In which they are higher than the significance level $\alpha = 0.05$.

The results of normality test on post-test in both experimental and controlled class were also showing that the data were normally distributed. It can be seen from the results of Shapiro-Wilk significance which shows 0.320 as significance level from experimental class and 0.230 as significance level from controlled class. Both results are higher than the significance level $\alpha = 0.05$. In conclusion, the data of pre-test and post-test from both classes are normally distributed.

4.4 Homogeneity Test Result

This test is aimed to discover that the samples of the data are homogenous or have same distribution of the same variable. The result shows that the significance of Pre-Test is 0.524 which is higher than the significance level $\alpha = 0.05$. Meanwhile, the homogeneity test of the post-test shows 0.631 as the significance value of the data. Both result of the pre-test and post-test are higher than the significance level $\alpha = 0.05$ which means that the data are homogenous.

4.5 Hypothesis Testing

The hypothesis testing is conducted to investigate the existence of significant differences in the results of the post-test between experimental and controlled classes after the treatments are given. This test will determine how significant the effect of the Fishbone Diagram is, used in the treatments, on students’ writing of Analytical Exposition Text. This hypothesis testing is done not only by using IBM SPSS version 24 but also by calculating the test manually in order to create reliable support and verification.

The SPSS resulted that $t_o = 3.466$. In addition, the manual calculation resulted that $t_o = 3.48$ with degree of freedom = 62. Therefore, in significance degree of 5%, the $t_{table}$ ($t_i$) = 2.000 was used.

The research hypotheses can be proved with following criteria:

4.5.1 If $t_{test}$ ($t_o$) > $t_{table}$ ($t_i$) in significance degree 5%, null hypothesis ($H_o$) is rejected or alternative hypothesis ($H_a$) is accepted.

4.5.2 If $t_{test}$ ($t_o$) < $t_{table}$ ($t_i$) in significance degree 5%, null hypothesis ($H_o$) is accepted or alternative hypothesis ($H_a$) is rejected

The hypothesis then can be interpreted with following formula:

$$H_a = t_o > t_i$$

$$= 3.48 > 2.000$$

Then, it could be concluded from the calculation above that $H_a$ is accepted. This means that there is a significant effect of Fishbone Diagram on students’ writing of Analytical Exposition Text.

4.6 Effect size

The calculation resulted 0.88 as the value of the effect size. Based on Cohen’s criteria of measuring the strength of the effect, the result is in between the interval 0.51-1.00. It can be concluded that Fishbone Diagram has moderate effect on students’ writing of Analytical Exposition Text.
5. DISCUSSION

Based on the hypothesis testing (3.48) and the calculation of the effect size (0.88), there is a significant effect of Fishbone Diagram on students’ writing of Analytical Exposition Text. It is showed by the statistical calculation that the $t_o$ is higher than $t$-table (3.480 > 2.000), therefore the $H_o$ is accepted. Moreover, the effect size calculation put one more emphasis to the result. It showed that the Fishbone Diagram has moderate effect on students’ writing of Analytical Exposition Text. It means that the effect is neither strong nor weak. However, it proves that students who are taught Analytical Exposition Text using Fishbone Diagram have better comprehension and show better scores in the post-test. It can be concluded that Fishbone Diagram has a significant effect on students’ writing of Analytical Exposition Text.

In the process of data collection, the experimental class has lower mean score in pre-test, which is 67.81, compared to the pre-test mean score of the controlled class which is 70.81. It means that the controlled class has better ability in writing the Analytical Exposition Text. Eventually and surprisingly, the experimental class has successfully gained their score significantly in the post-test after given the treatments. The mean score of the post-test of the experimental class is 80.56 which is significantly higher than the mean score of the controlled class in post-test which is 74.53. Both classes show some improvement on their writing but the experimental class showed better improvement.

Fishbone Diagram, as a mind-mapping tool, in this research was acknowledged as an effective way to collect more ideas and thoughts. This is in line with Buzan who states that mind mapping is far more creative and effective to collect ideas rather than using note taking [16]. In pre-writing process, it is easier to follow graphic rather than to follow a note. Fishbone Diagram can be used as a tool for making pre-writing process easier and more organized. It can control the ideas of the topic to be focused in the line. It can be said that Fishbone Diagram can provide simple guidance to follow in the writing process.

The result of this study is also in line with Nadell, Langan, and Comodromos who stated that mind-mapping generate ideas continuously and stimulate the free flow of the ideas [17]. Mind-mapping simply encourage more to collect more ideas related to the topic being discussed. From the result, it can be seen that experimental class gained their content and organization scores in both pre-test and post-test. This also means that Fishbone Diagram helps them to develop their brain to collect more ideas and make the ideas more organized. This study proves that Fishbone Diagram can be used not only for analyzing root cause of a problem, but also for growing up the ideas in the writing.

The finding of this study supports some related theories. This study proves that mind-mapping is a good way to be conducted in the writing process. This study focuses on the use of mind-mapping tool called Fishbone Diagram in teaching writing. Writing consists of the pre-writing process which requires the writers to build good construction of the ideas. Therefore, Fishbone Diagram is investigated in order to prove that it is statistically effective to be used as a helping tool for the pre-writing process. From the result, it can be seen that Fishbone Diagram can enhance the quality of the writing in term of structural organization of the ideas. By using Fishbone Diagram, the students can focus more to the discussed topic of the text so the ideas can be maintained well. In addition, the Fishbone Diagram also can help students to organize the order or the sequence of the ideas so the ideas will not be disordered. Although it was not designed specifically for writing, but actually it can be implemented in learning and teaching in the school especially for writing. When the students are involved to the writing process, Fishbone Diagram guides them to write in an organized order of the ideas. In addition, the students are more triggered to learn writing by using Fishbone Diagram.

6. CONCLUSION

The aim of this study is to obtain empirical evidence whether Fishbone Diagram has a significant effect on students’ writing of analytical exposition text for Eleventh Grade students of SMA Negeri 4 Tangerang Selatan in Academic year 2018/2019. It is also aimed to support
related previous study in order to provide additional information about teaching writing using a mind-mapping tool.

Since writing was relatively important in the curriculum for high school, the conduction of teaching writing cannot remain ineffective. This study had revealed that Fishbone Diagram can be used as a tool to help students in dealing with writing specially in producing an essay with organized ideas. Based on the finding, Fishbone Diagram has a significant effect on students’ writing of analytical exposition text at Eleventh Grade of SMA Negeri 4 Tangerang Selatan. It is also proved by looking at the effect size result (0.88) that Fishbone Diagram has moderate effect on the students’ writing. Students who are taught using Fishbone Diagram perform better than those who are not. It is proved by the calculation of hypothesis testing using significance of 5% (0.05). Alternative hypothesis ($H_a$) is accepted and Null Hypothesis ($H_0$) is rejected since $t_0$ (3.48) is higher than the $t_t$ (2.00).

To conclude, it can be interpreted that there is a significant difference between the results of students’ writing of Analytical Exposition Text by using Fishbone Diagram and by not using Fishbone Diagram at the Eleventh-Grade students of SMA Negeri 4 Tangerang Selatan.

7. SUGGESTION

From this study, there are several suggestions that may be useful for English teachers or other researchers who are interested in teaching writing of Analytical Exposition Text by using Fishbone Diagram in order to improve their understanding on how to create well-organized Analytical Exposition Text.

For students learning English, in order to gain their ability in writing, they can use Fishbone Diagram to help them building structured ideas of the writing. They also can learn how to analyze the organization of the ideas in an essay by using Fishbone Diagram. In addition, they should have more comprehension in building ideas starting from general statement to specific or detailed information supporting the general statement. Moreover, the students should encourage themselves to be more familiar with written English language by practicing more learning activities such as reading, writing, listening, speaking, discussing, etc.

For institutions related to teaching and learning English, students should be provided with more relevant facilities related to English language learning such as adding more books to the library and giving them opportunities to improve their proficiency in English as an extracurricular organization such as English club.

Lastly, this research is designed in a quantitative research. It is expected that other researchers can conduct further research related to this study using qualitative method in order to explore more about the teaching learning process using Fishbone Diagram and teacher-students perceptions through class observations, interviews and questionnaire distributions. Moreover, since this research makes use only two classes from a school as the research samples, further research is expected to use bigger samples from a bigger population to make the results more reliable.

REFERENCES


Problem Based Learning Models With Student Worksheets: Effect on Higher Order Thinking Skills in Digestive System Concept

Anggun Wicaktini¹, Nengsih Juanengsih², Meiry Fadilah Noor³

¹,²,³UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. Problem-based learning is used to develop high order thinking skills, in problem-oriented situations, including how to learn. Problem-based learning is a learning model dependent on the rule that issues can be utilized as a beginning stage to get or coordinate new information. This study aimed at determining the effect of problem based learning models with student worksheets on students' high order thinking skills on the digestive system concept. In this study problem solving steps were developed in a student worksheets. This student worksheets contains questions that can develop students' thinking skills, from low-order thinking to high-order thinking. High order thinking skills measured in this study is limited to Bloom's taxonomy of cognitive revisions analysing (C4), evaluating (C5) and creating (C6) The research method used was quasi experiment with the design of the non-equivalent controlled group design. The subjects in this study were students of SMAN 8 Tangerang Selatan Academic Year 2015/2016. The sampling technique in this study was by simple random sampling. The sample in this study consisted of two classes: XI IPA 1 as the experimental group and XI IPA 5 as the controlled group, each had 32 students. The instrument was in the form of subjective tests using 13 items, each of 5 questions to analyse (C4), 5 questions to evaluate (C5) and 3 questions to create (C6). The data of the test results were analysed by using the t-test, at a significance level of 0.05. Based on the result, it has found that problem based learning models with student worksheets had a significant effect on students' high order thinking skills on the digestive system concept. This study aims to identify the impact of problem-based learning (PBL) to students' higher-order thinking skill. The notion of higher-order thinking is designed based on Bloom’s taxonomy, and implemented into students’ worksheet particularly on the topic of digestive system concept. 64 students from two science classes at a secondary high school in South Tangerang participated in this experimental study. Findings of the study revealed that problem-based learning models with student worksheets had a significant effect on students' high order thinking skills on the digestive system concept.

Keywords. Problem-based learning, Student worksheets, high order thinking skills.

1. Introduction

Education is a cognizant and arranged exertion to make a learning climate and learning process so student can effectively build up their potencies to have religious profound power, restraint, character, insight, respectable character, and abilities required by them, society, country and state [1]. Education is one aspect of life that plays an important role. A country
can achieve progress if education is in good quality. Education that has good quality must be supported by teacher's ability to carry out learning and teaching activities in the classroom. Teachers must master various active and interactive learning methods so that teaching and learning activities become more interesting and meaningful.

In reality, education in Indonesia today still has low quality. A number of member countries of the ASEAN Economic Community (MEA) are making optimal preparation efforts by improving the quality of education. Indonesian Human Resources competency is still very low. In terms of the quality of education, Indonesia is still ranked lowest in the world. One of the contributing factors is the low quality of teachers or teaching staff in Indonesia. Minister of Education and Culture Muhadjir Effendy emphasized that the thing that most determines the quality of education is the teacher [2].

The results of the Trends of the International Mathematics and Science Study (TIMSS) in 2007 ranked Indonesia as the lowest in Science and Mathematics. In fact, Indonesian students have not been able to answer the questions well. This is because Indonesian students are not accustomed to working on questions that require high-order thinking skills. The unfamiliarity of students in working on questions that demand high-order thinking skills is suspected because the teacher is not used to giving questions that require high-order thinking skills [3].

Learning thinking skills in Indonesia have several obstacles. One of them is the overly dominant role of the teacher in the school as a disseminator of knowledge or a source of knowledge, so students are only considered as blank papers that will be filled with knowledge by the teacher. Another obstacle is that the student achievement assessment system is based more on a low level cognitive ability test. The form of assessment conducted on student performance still tends to follow the old pattern, which is the multiple choice model that requires students to memorize [4].

The challenge faced by teachers now is how to help students to practice to be independent learners in learning. One way that teachers can do to overcome the obstacles and the challenges during the learning process is the use of media or learning aids that can facilitate students in the learning process. One of the media or tools that can be used in the learning process is student worksheets. Student worksheet can improve the learning accomplishment and make student logically powerful and compelling in learning[5]. Also student worksheet can improve the knowledge of student[6]. However, student worksheets used by teachers is usually taken from the publisher. Some schools also use student worksheets that are designed and developed by teachers in accordance with the conditions and situations of learning activities that will be faced.

Student worksheets purchased by publishers are actually books summarized subject matter accompanied by a collection of questions, such as multiple choice questions, essay questions and description questions. Those questions can be answered by students by looking at the material in student worksheets. These type of worksheets make students not independent and do not train students in applying their intelligence [7].

The analysis of the quality of the contents of student worksheets discovered that there were various ideas that could conceivably prompt student misconceptions, the entire Biology student worksheets both in the Middle School (between 40-88%) and High School (20-55%). The relevance of those contents of student worksheet with KTSP ranges from 59 - 100% (Middle School) and 50 - 100% (High School). It was revealed that both Middle and High School student worksheets could potentially not be of the appropriate age level, besides there were also many spelling mistakes, that lead to easy questions which are dominated by factual and informative questions on cognitive levels C1 and C2 [8].
Student worksheets are still dominated by factual questions and informative questions, namely asking what is observed and the relation of one object to another object, and answers to questions directly obtained by students from text or material summaries. That certainly does not activate students thinking skills. It can be said that the answers can be seen in the material summary in the student worksheets, and that does not activate the students thinking skills. Meanwhile, students should be accustomed to questions that can activate students thinking skills. In this case the question must be in the form of information-gathering questions or problem solving.

The questions contained in the Biology student worksheet tend to be dominated by questions with cognitive levels C1 (remembering) and C2 (understanding). This shows that the questions contained in the Biology student worksheet do not support the growth of high-order thinking skills [8]. A teacher in the class has responsibility in terms of improving students' thinking skills from thinking about real things to thinking about abstract things. Through problem-based learning students are taught to think gradually from identifying problems to being able to solve problems and it is a way to train students in High Order Thinking Skills (HOTS). HOTS is the skills to associate, control, and change the current learning and experience to imaginative deduction in settling on choices and taking care of issues in new circumstances [9].

One of the issues looked in the realm of training today is the frail learning process in schools, where students are less urged to create thinking skills. Media can be a necessary piece of learning exercises with the goal that its position can't be isolated and impacts the course of learning process. Learning is a procedure of correspondence among teacher and students, some teachers use learning resources in the form of Student Worksheet [10].

Problem based learning (PBL) is an instructional model that has been used accomplishment totally for over 30 years and continues getting affirmation in different controls. It is an instructional (and curricular) understudy centered that empowers student to direct research, facilitate speculation and practice, and apply data and capacities to develop an attainable response for a described issue [11]. Students in problem based learning gathering gave off an impression of being progressively capable in the utilization and association of significant data, in building information and pushing toward better ends [12].

Problem-based learning models are required to do problem solving presented by digging as much information as possible, then analysed and sought solutions to existing problems. The solution to these problems does not absolutely have one correct answer, meaning students are also required to learn creatively. Students are required to be knowledgeable individuals and able to see the relationship between learning and aspects in the environment. The concept will be tested through student worksheet based on Problem Based Learning [4].

PBL with the high-order thinking skills can be applied by the concept of the digestive system. There are some interesting problems to be solved by students regarding problems related to the human digestive system. The importance of knowing the digestive system has a positive impact on the daily lives of students. What can be done in developing students' higher-order thinking skills is with the help of media in the form of student worksheets.

Student worksheets can be used as support in classroom learning activities which are ways to achieve learning goals. Students worksheets can train students to develop thinking skills from thinking concrete things to thinking abstract things. Referring to the basic competencies in the cognitive and psychomotor aspects require students to be able to develop students' skills in analysing conceptual knowledge and to present the results of their analysis in the form of presentations. These basic competencies direct students to develop high-order
thinking skills such as at the level of the cognitive process of analysing, evaluating, and creating.

Regarding these problems, the research questions are: Is there an Effect of Problem Based Learning Models With Student Worksheets on High Order Thinking Skills in Digestive Systems Concept? My hypothesis is: There is a significant positive effect of Problem Based Learning Models With Student Worksheets to High Order Thinking Skills in Digestive Systems Concept.

2. Method

The research method used was the quasi experimental design. The design of this study used the nonequivalent controlled group design. This study used two class groups, namely experimental and controlled groups. In the experimental group, the learning was given by using the PBL model with Student worksheets based on PBL while the controlled group used a scientific approach with usual worksheets. The number of lessons for each group was 3 meetings. The stages of student activity on student worksheets for both groups can be seen in Table 1.

The subjects in this study were students of a public school in South Tangerang Year 2015/2016. The sample was class XI IPA 1 which then was called the experimental group and class XI IPA 5 which then was called the controlled group, each group of 32 students. This study measured high-order thinking skills in both groups.

The research instrument used was a subjective test in the form of a description question as many as 13 items. The description questions were arranged based on the components of the High Order Thinking Skills to be achieved, namely the question of the level of Bloom's taxonomy. Bloom's taxonomy contains six categories of cognitive skills going from lower-order skills that require less cognitive processing to higher-order skills that require further learning and a more noteworthy level of cognitive processing [13]. The categories included in the higher-order skills are analyzing (C4), evaluating (C5), and creating (C6). Each question has been tested for validity and reliability.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Experiment Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Found a problem</td>
<td>Observing</td>
</tr>
<tr>
<td></td>
<td>Write down the problem you found based on the fact analysis of the discourse above!</td>
<td>Observe the following picture and complete the names of the parts!</td>
</tr>
<tr>
<td>2</td>
<td>Define the problem</td>
<td>Asking</td>
</tr>
<tr>
<td></td>
<td>Define clearly with your friends the problem of fact 1, fact 2, fact 3 in the discourse!</td>
<td>Observe the picture, and make at least 3 questions from the picture!</td>
</tr>
<tr>
<td>3</td>
<td>Gathering facts</td>
<td>Exploring</td>
</tr>
<tr>
<td></td>
<td>Look for some fact literature from what is listed in the available sources and other sources based on a. what information do you know b. what information you need c. what do you do with the information available</td>
<td>Answer the question that you made in the column below!</td>
</tr>
<tr>
<td>4</td>
<td>Make a hypothesis</td>
<td>Associating</td>
</tr>
</tbody>
</table>
|       | Make a provisional guess or a provisional answer to the problem you identified! | Is there a relationship between the questions you make and the answers you have been
During the research process, the researcher conducted two tests, namely the pre-test (initial test) to decide the students' underlying capacity before being given treatment and post-test (final test) to find out the results of the treatment that has been given. The questions utilized at the pre-test and post-test were similar questions, so there was no influence on the quality of difference. Processing and analysing data were used by statistical tests. The steps in using statistical tests are as follows: Normality Test, homogeneity test, and hypothesis test by using SPSS 23 software.

3. Result and Discussion

The results of the study explained the general description of the data that has been obtained. The data described were the data from the pretest, posttest, Student worksheets, analysis prerequisite test, and hypothesis testing from the experimental and controlled groups.

### Table 2. Data of Pre-test and Post-test for High Order Thinking Skills

<table>
<thead>
<tr>
<th>Data</th>
<th>Experiment</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-test</td>
<td>Post-test</td>
</tr>
<tr>
<td>N</td>
<td>32</td>
<td>32</td>
</tr>
<tr>
<td>Top Value (Max)</td>
<td>54.90</td>
<td>90.20</td>
</tr>
<tr>
<td>Lowest Value (Min)</td>
<td>21.57</td>
<td>47.05</td>
</tr>
<tr>
<td>Average</td>
<td>41.61</td>
<td>74.02</td>
</tr>
</tbody>
</table>
The average in Table 2 illustrates that the two groups do not yet know the concepts to be taught so that the initial ability of students in high-level thinking skills is still relatively low. On Table 3, the acquisition of the posttest results of the two groups, the C6 level was the one that had the highest results compared to the other levels while the lowest level in the two groups was the C5 level. Based on the Table 3, it can be seen that the increase in the results of each level was good so that the two groups after being given learning can answer the question of Higher Order Thinking Skills. Although both groups experienced an increase after being given learning, the experimental group had a much better improvement compared to the controlled groups so that student worksheet based on PBL was felt to have more influence in improving students' Higher Order Thinking Skills. The results of student worksheets based on PBL in experiment group can be seen in Table 4.

Data of the Table 4 showed, the average value of Student worksheets worked by the students during the learning process in the first, second and third class meetings included in the sufficient category. Based on the calculation, the differences in each meeting were obtained. But, for student worksheets at each grade point average class meetings only experienced a slight increase in value. The highest average results of worksheets 1, 2 and 3 were at the C5 level compared to the levels of C4 and C6, so that it can be interpreted that in dominant terms the students can work on the C5 level problem contained in the student worksheet each meeting in a good category. The experimental group during the learning process was assisted by Student Worksheets based on PBL in which there were indicators of High-Order Thinking Skills while the controlled group was only given a student worksheet according to the scientific approach in which there were no indicators of High-Order Thinking Skills. High-Order Thinking Skills from Post-test data calculation results for each sub-concept are in Table 5. Table 5 shows that High-Order Thinking Skills in food sub-concepts has the highest percentage compared to percentages in other sub-concepts.
The results of the normality test on the pretest and posttest data of the two groups obtained results that, the data were normally distributed. The homogeneity test results, the pre-test and the post-test data of the two groups were homogeneous.

<table>
<thead>
<tr>
<th>Sub-concept</th>
<th>Experiment group</th>
<th>Category</th>
<th>Control Group</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Human Digestive System</td>
<td>73,91</td>
<td>Good</td>
<td>66,58</td>
<td>Sufficient</td>
</tr>
<tr>
<td>2. Food Substances</td>
<td>74,35</td>
<td>Good</td>
<td>69,40</td>
<td>Sufficient</td>
</tr>
<tr>
<td>3. Ruminant digestive system</td>
<td>72,66</td>
<td>Good</td>
<td>52,34</td>
<td>Less</td>
</tr>
<tr>
<td>Average</td>
<td>73,64</td>
<td>Good</td>
<td>62,77</td>
<td>Sufficient</td>
</tr>
</tbody>
</table>

**Table 6. Pre-test and Post-test Hypothesis Testing**

<table>
<thead>
<tr>
<th>Data</th>
<th>Experiment</th>
<th>Control</th>
<th>$t_{count}$</th>
<th>$t_{table}$</th>
<th>Conclusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>41.61</td>
<td>38.97</td>
<td>1.195</td>
<td>1.998</td>
<td>$H_0$ accepted</td>
</tr>
<tr>
<td>Post-test</td>
<td>74.02</td>
<td>66.79</td>
<td>2.331</td>
<td>1.998</td>
<td>$H_0$ rejected</td>
</tr>
</tbody>
</table>

Table 6 showed that the pre-test or initial ability of the students in the two groups had no difference, so the two groups were worthy of being used as samples because they had the same initial abilities. Table 6 also showed that the post-test of the two groups was significantly different, which means that there was a treatment effect on improving the students' high-order thinking skills.

The experimental group was treated using student worksheets based on PBL which contained indicators of High Order Thinking Skills. Obtaining the average value of the student worksheets for three class meetings belongs to a sufficient category, this is because the students were not yet used to using Student worksheets based on PBL that also measure the aspects of high-order thinking skills. However, the acquisition of average scores experienced a slight increase in each meeting, this shows that the students are increasingly getting used to working on student worksheets based on PBL. In student worksheets based on PBL indicators of students' high-order thinking skills can be explored through the stages in PBL. During the process of working on student worksheets, the students must be able to determine the problems identified from the discourse presented. Then the students made hypotheses and determine their own solutions chosen in solving the problems identified in the discourse. Student worksheets based on PBL contain stages of PBL oriented also on High-Order Thinking Skills indicators according to Bloom's taxonomy, C4, C5, and C6.

C4 level value data (analysing) contain several questions in the student worksheet including determining the subject matter, formulating the problem, comparing the hypothesis with the information that has been sought. These questions can help students develop analytical skills. Problem-based learning can develop critical and analytical thinking skills and open student to exercise to tackle issues, in actuality [14].

C5 level value data (evaluating) contain several questions including finding solutions to problems based on the information sought and examining selected solutions with hypotheses and facts found. These questions can help students develop evaluation skills, learning that involves problem analysis, postulating hypotheses, manipulating variables, and designing, as well as carrying out investigations, making predictions of interpreting the results of investigations which can develop the ability of analytical and logical thinking in students [14].

C6 level value data (creating) contain several questions in the student worksheet including seeking information in various sources, making hypotheses, and concluding selected solutions. These questions can help students develop skills in creating or generating ideas and designing problems. Problem-based learning is a learning model with students learning approaches to authentic problems so students can
develop their own knowledge, develop high-order thinking skills and inquiry, empower students and increase self-confidence [15].

In this study, the researchers used indicators that were in accordance with the stages of the PBL model. The stages in PBL can help and train the students' thinking skills so the students are more active, dare to express opinions and able to produce many ideas as an alternative problem solving. This is in line with at research conducted by Afcariono, that states that the types of answers C1 to C3 have decreased and increased in the types of answers C4, C5 and C6. These results indicate that the mindset during the learning process increases from low-order thinking to high-order thinking [16]. This increase can not be separated from the application of problem-based learning in the learning process.

The results of this study are in line with at research conducted by Noma et al., that the research target has been achieved because each aspect has increased. The students are getting used to using high-order thinking skills during the learning process. It was proven by students who began smoothly in formulating problems, arranging temporary answers, planning investigative activities, and making conclusions from learning material that had been studied [17].

Problem-based learning is a viable way to deal with train high-order thinking skills. This learning enables student to process data that has been shaped in their psyches and accumulate their own insight about the social world and its environment. This knowledge is suitable for developing basic and complex abilities [18]. Further, with the utilization of PBL student could build up the capacity of thinking in speculation in light of the fact that PBL puts accentuation on learning with an issue as premise [19]. The use of the PBL model trains students to have high-order thinking skills. In addition, assisted by student worksheets based on PBL students can practice to formulate problems, do hypotheses, conduct investigations, draw conclusions and make products/work that all require students with high-order thinking skills [20].

4. Conclusion

The findings of this study are that there was an influence of problem-based learning models with student worksheets toward students' high order thinking skills in the digestive system concept. This showed that there were differences in the results of the students' high order thinking skills between the experimental group and the controlled group where the experimental group has a better average value of 74.02 compared to the controlled group with an average value of 66.79. Further, it is advised for teachers to train the student with high order thinking skills.

References


The Formulation Of Management Standard For Karawang Kota Santri Program

Amirudin¹, Umar Mukhtar², Iqbal Amar Muzaki³
{amirudin@staff.unsika.ac.id¹, umarmukhtar2105@gmail.com², bayonline9013@gmail.com³}

Singaperbangsa Karawang University, Indonesia¹,²,³

Abstract. Karawang City of Santri is a manifestation of Islamic education that aims to form human beings who are then expected to provide a social effect in building a civil society. Thus, if the Santri City projection in Karawang goes well, then human quality will be able to be improved simultaneously. In terms of developing the potential of Islamic education, Karawang Kota Santri has an ideal goal, which is to build a prosperous, safe, and prosperous society through planting and practicing Islamic values in social life, so that if realized it will be able to provide positive implication for the community. But to realize it, all the supporting devices needed to support the success of the program are needed. The device consists of a governance system that must be made accommodatively along with the driving device, that is, the capacity in implementing the system that has been created. The system is then used as a standard in the management of Karawang Kota Santri starting from planning, implementation to evaluation.

Keywords: Standards, Management, City of Santri

1. Introduction

Human development is the core of the national development of every nation and state. Because in a nation, aspects of human resources are the most important element in building an ideal civilization. A developed nation will be directly proportional to the quality of its capable human, and vice versa, an underdeveloped nation is the implication of its low-quality human condition. So then humans become a determining factor in assessing the level of progress of a country with the calculation of the Human Development Index (HDI).

Indonesia as a developing country has a record that is not so satisfying in terms of HDI. M. Zaid Wahyudi [1] said that the Human Development Index (HDI) of Indonesia was ranked 110 of 188 countries and below neighboring countries like Singapore, Malaysia and Thailand. Meanwhile, Karawang as one of the regions that is continuing to pursue regional development, has an IPM report card that is not so proud. Fakta Karawang [2] reported that the Human Development Index (HDI) Karawang reached 67.60 ranks 16 out of 27 districts/cities in West Java and still below the regional neighbors, Purwakarta. This certainly is a whip for all elements of the Karawang community, especially the Regional Government to continue to improve the quality of life for the achievement of the ideal civilization as aspired by every human being.

In the context of human development, the most fundamental of various aspects of human development is the education sector. Why is that? Because this sector will have a major effect on changing people's lives. A good education will produce a good civilization. There is no
country in this world that wants progress without regard to its educational aspects which must be optimized to uplift the nation's dignity.

In practice, religious education should have a central position in community empowerment and the environment. This has implications for the beliefs held by the community so that it becomes a doctrination to be able to carry out life according to God's guidance and become a culture that is rooted, so that religion truly becomes a role model and guide in social life. Then it is the responsibility of every element of society to be able to carry out religious education, with the hope of the formation of social life that upholds the values of divinity and social culture. So that civil society will be formed from an ideal social life and in accordance with Islamic sharia values.

Some time ago, the Karawang Ministry of Religion had launched the Karawang into the City of Santri. This discourse seems to give a breath of fresh air for the implementation of religious education in Karawang, especially among Pondok Pesantrons, which in the era of industrialization like today seems to decrease public interest in studying religion. This condition is reinforced by the tendency of people who prefer to study at public schools compared to Islamic educational institutions with various stigmas that arise, both from students or their parents. As a result, Pondok Pesantrons and madrassas, which are Islamic-style educational institutions, are "not in demand".

Karawang City Santri is a manifestation of Islamic education that aims to form human beings who are then expected to provide a social effect in building a civilized civil society. So by rolling out the Karawang City of Santri discourse it should be able to boost the quality of religious education and invite all elements of society to be able to optimize religious education so that Karawang is able to become an upright pillar of Indonesia as a baldatun thayyibatun wa rabbun ghafuur. It's not too much if we hope so. Because the concept is a picture of a very ideal civilization, namely a good national life and be in the pleasure of Allah swt.

The problem is that it has been running for several years since the discourse rolled out, there has not been any satisfactory progress to realize Karawang Kota Santri. For this reason, it is necessary to formulate standards for the realization of the program so that there are clear benchmarks. In line with what was expressed by Jo Santoso [3], that if seen from its size, function, history and cultural background, each city has its own characteristics. So if we want to maintain the characteristics of a city, it is clear that a standard of evaluation that includes the existence of local characteristics is needed as one of the important criteria. Therefore, an in-depth study is needed to determine which indicators best represent the living conditions of people in a city.

2. Literature Review

When viewed from the phrase structure, the City of Santri consists of two words, namely city and santri. In terms of language, the city is a residential area and buildings which are a unity of residence [4]. In terms of, Tarigan [5] explains that the city can be defined as a concentration of people and activities. What is meant by a city in this term is not a city in the sense of division of territory based on the level of progress of an area such as urban and rural, but as a place of concentration that is the center of activity of the local population so that it becomes the character and even the culture of the community concerned.

Then the word santri comes from the Indian language, namely shastri which means literacy or sacred books or religious books. People called santri are people who have learned books written in Arabic and become aware of religion. Because studying religion, students' understanding of religion is getting deeper. So santri means a person whose religion of Islam
is profound. While the word sastri comes from the Tamil language which means the teacher of the Quran also has closeness with the word santri. The word sastri is influenced by the word shastri from India. The word shastri, which means literacy or religious books, is experiencing a development in the meaning of being a Quran teacher. Santri is a person who has a deep religious knowledge and because of his extensive knowledge, to some places where people learn or become teachers of the Quran [6].

From the above definitions, it can be concluded that the City of Santri is an area where the community is concentrated in religious activities, in this case there are many people who study religious knowledge, especially in Pondok Pesantrens in the region. This understanding also refers to some areas that are already known as the City of Santri or santri areas. For example, the writer took from the famous City of Tasikmalaya as the City of Santri because there are many Pondok Pesantrens and other Islamic educational institutions that stand in the city.

An area known as the City of Santri is inseparable from the lives of students who are actively studying religious knowledge and carrying out Islamic teachings. Then the atmosphere of the santri's life will not be far from the place where undertakes various activities related to the status of the santri bears, namely Pondok Pesantren. So that in the context of the City of Santri, it can be understood as an area in which stands many Pondok Pesantrens which become Islamic educational institutions along with elements that complement their existence. Therefore to know the characteristics of the City of Santri need to understand the ins and outs of Pondok Pesantrens and their lives.

Etymologically, the Pondok Pesantren consists of two words: pondok and pesantren. The word pondok comes from the word funduq (Arabic) which means hotel or hostel. While in the Bahasa has many meanings, one of which is a madrasa where learning Islam. Similar institutions, in the end, better known as pondok pesantren. In West Sumatra known as surau, while in Aceh known as rangkang [7].

Then word ‘pesantren’ comes from the santri, that began with pe- on the front and the suffix -an means abode of the students [8]. So it can be concluded that the Pondok Pesantren is a house that is used as a place for students in studying religious knowledge to their teachers (scholars or clerics).

Pondok Pesantrens as classical/traditional Islamic education institutions in Indonesia do have a very important role for the community. During the colonial period, santri from various pesantren contributed positively in taking the fight to seize independence from the invaders. The heroic struggle proves that Pondok Pesantrens are not only a place to study religion, but also as a center of people's struggle in fighting for a better community life. In its role as a center for Islamic education, pesantren also functions as a moral reference for the community, where ulama or kyai figures always become role models and their words become fatwas in taking a stand.

Horikoshi in Suparta and Haedari [9]said that from time to time the function of pesantren runs dynamically, changes and develops following the social dynamics of the global community. Imagine, at first this traditional institution developed a function as a social institution and religious broadcasting. More than that, Azyumardi Azra in Nata [10]offers three functions of pesantren, namely: (1) transmission and transfer of Islamic sciences, (2) maintenance of Islamic traditions, and (3) reproduction of scholars.

Then in the development of pesantren, there are five basic elements that are characteristic of each pesantren tradition that grows in various regions, namely [11]: (1) Cottage, (2) Mosque (3) Teaching classical Islamic books, (4) Religious person, students of Islam, (5) Kyai.
With a variety of distinctive characteristics inherent in the Santri City brand seen as able to reinforce the position of Islamic education as the main capital in human development efforts. Especially in this increasingly sophisticated era, the turmoil of thinking is increasingly uncertain given the development of the world referred to by Giddens as runaway world, as if running helter-skelter [12]. In such a situation, the position of Islamic education is needed as an effort to build a civilization that is tawasuth (moderate) and tawazun (balanced).

Abdurrahman an-Nahlawi [13] said that Islamic education with all its characteristics is a remedy for various diseases that plague the community, because Islam has offered a complete education system from the source to the principles, methods and paths. Therefore, the optimization of Islamic education is a necessity in human development with its nature that never goes out of date even though the times have undergone many transformations.

The urgency of Islamic education cannot be separated from ta'rif and also the concepts attached to it. There are several terms commonly used in defining education, namely tarbiyah, ta'lim and ta'dil. Abdurrahman an-Nahlawi [14] explains the term al-tarbiyah (التربيه) is rooted in three words, first, comes from the word rabba-yarbuu (رب - يربو) which means growing and growing. Second, rabiya - yarbaa (رب - يربي) with wazan (form) khafiya-yakhfa (خفي - يخفى). Third, rabba - yarubbu (رب - يرب) which means to improve, master the affairs, guide, maintain and maintain. Of the various scopes related to Islamic education, the most popular used to interpret Islamic education is tarbiyah. This is because the scope contained in the meaning of tarbiyah is more comprehensive, covering all educational activities so that it is considered representative in interpreting Islamic education, and interpreted as an effort made systematically by educators in developing one's potential by internalizing the values of Islamic education as provision in wading life in the world and the hereafter. Islamic education has a central role for a human being in his context as a servant of God, because with Islamic education he will find a way as a means of worship that is an obligation for God's creatures, as he said:

"And I did not create jinn and men but that they worship me." (Surah adz-Dzaariyaat: 56)

Hasan Langgulung [15] says that the objectives to be achieved by Islamic education can be summarized in two main objectives: the formation of a pious and faithful person in Allah and His religion, and the formation of a pious society that follows the instructions of the Islamic religion in all its affairs. The point is to realize pious people, because pious individuals will form pious societies in their community. So in Hasan Langgulung's opinion, the formation of righteous people is at the beginning, and then the righteous community. Then what is meant by righteous human beings is humans who are nearing perfection. What is meant by the formation of a pious person is the development of people who worship and fear Allah, human beings who are full of faith, relate to God by caring for and facing Him in all their deeds done and all their actions, all thoughts that are etched in their hearts and all feelings ticking in his heart. He is a human who follows in the footsteps of the Apostle in his thoughts and deeds.

3. Research Methods

In this study, the authors used a qualitative approach with descriptive methods to understand the phenomena about what happened in the field. In the data collection technique this research was carried out by using observation techniques (participation-observation), in-depth interviews, and documentation.

Interviews were conducted by the author to obtain data from government agencies such as the Head of the Karawang Regency Ministry of Religion, Deputy Regent, Karawang DPRD Members, community leaders, religious leaders and social institutions. Meanwhile, to collect
data in this study, the researchers made use of various data and theories obtained from books, the internet, and newspapers, and other non-human sources of information that supported the research. The collected data were analyzed using interpretive descriptive techniques. The process of data analysis includes the presentation of data, data reduction, drawing conclusions and interpretations. By using interpretive analysis, it also accommodates concepts that have been used as theoretical references. This research method is applied, so that the results of this study are not only descriptive, but also part of theoretical criticism and building new theories.

4. Research Results and Discussion

a. The Karawang City Concept of Santri

Basically Karawang Kota Santri is a discourse issued by the Karawang Regency Ministry of Religion to improve the quality of society by instilling Islamic values in daily life. This was explained by H. Sopian (Head of the Office of the Ministry of Religion Karawang). According to him, by applying and instilling the values of Islamic teachings, a prosperous, safe, comfortable, orderly, harmonious and beautiful society will form as the motto or motto of West Java, namely Gemah Ripah Repeh Rapih.

If quoting on the official website of the West Java Provincial Government (www.jabarprov.go.id), the motto in question is a slogan that comes from Sundanese and is a compound word that means:

- Gemah-ripah: fertile prosperous, sufficient clothing and food.
- Repeh-rapih: harmonious and peaceful or safe

So that when combined will have the meaning of rich and fertile prosperous and inhabited by many residents who live in harmony and peace.

The concept offered by the Karawang Regency Ministry of Religion is actually a form of practice of the values of Islamic civilization contained in the Quran, Allah swt said:

“And when Ibrahim said: My Lord, make it a secure town and provide its people with fruits, such of them as believe in Allah and the last day. He said: And whoever disbelieves, I will grant him enjoyment for a short while, then I will drive him to the chastisement of the fire; and it is an evil destination.” (QS al-Baqarah: 126)

And also in another verse Allah says with almost the same purpose:

“And if the people of the towns had believed and guarded (against evil) We would certainly have opened up for them blessings from the heaven and the earth ... ” (QS al-A'raaf: 96)

In fundamental understanding, the City of Santri is one of the programs that should be a concern in Karawang, so that if it is realized it will involve many parties, including the legislative element. H. Endang Sodikin (Deputy Chairperson of Commission D of the Karawang DPRD) defines the City of Santri as a future miniature of Karawang. The connection with the City of Santri, it is not enough just with discourse, it needs support from the local government and DPRD and the community, and even then naturally it must be supported by areas where there are resources. Karawang itself has the potential to be associated with heritage (historical heritage, traditions and values), with regard to Buddhism, Hinduism, as well as the Islamic site of Sheikh Quro which is older than the saints. Surely this is a natural potential, just how the local government designs so that the Santri City pattern is integrated with the destination and with the city center, pesantren-based sub-districts, so that this planning requires a relatively short period of time, there needs to be a clear political will from the government and careful planning. In accordance with the mandate of the law, the
DPRD together with the Regional Government is an element of government administration. Especially in Karawang itself there is some potential for the development of the religious sector, there is the tomb of Sheikh Quro, and there is also the potential associated with pesantren such as in Rawamerta, even when seen again, in every district in Karawang it has a pesantren. So, Karawang Kota Santri should not just be a jargon.

But H. Ahmad Zamakhsyari, Deputy Regent of Karawang stated that the naming of the City of Santri was inappropriate, because it would lead to different interpretations for those who heard it. In other words, Karawang Kota Santri means the entire region has a culture of santri and pesantren. This is considered difficult, because Karawang is an ethnic and cultural crossing area, where there is Sian Djin Ku Poh (the oldest Buddhist temple in Karawang), Soul Temple, several sites in Kutatarison and Mount Sanggabuana. So it can't be forced upon Karawang to become the City of Santri. For this reason, it should be noted also what parameters and definitions of the City of Santri are. The City of Santri is synonymous with the majority of Pondok Pesantrens, while in Karawang it is uneven. So it is more appropriate to be called Kampung Santri in the majority zone of Pondok Pesantrens, not for the entire Karawang region.

Apart from differences of opinion regarding the naming of the program, the most important thing is how this program can be realized properly so that it has a positive impact on people's lives. In fact, after the appointment of Rawamerta as the Santri City pilot project, it became an affirmation that the region did have a strong culture of santri and pesantren. KH. Bubun Bunyamin Bushaeri said that the community responded very well by participating in Islamic education activities both in Pondok Pesantrens, majlis ta'lim and in schools. To invite public response is actually not too difficult, because basically Islamic culture has been built in the midst of society. The culture can be seen from routine activities that are often carried out and are inherent in the daily life of the community, such as the Quran, recitation, tahliyan, reading ratib, and others. He further said that there were some changes in society after the realization of the City of Santri. Previously, every big day was often done entertainment programs, at this time such activities do not exist, replaced with Islamic activities, such as pilgrimage, recitation, and others.

Because of the diversity of cultures in Karawang, stakeholders who have the authority to initiate the City of Santri must design it in such a way that the City of Santri can be in line with development prospects, both human resources and infrastructure. H. Endang Sodikin said that the basic concept of the City of Santri emphasized more on the inculcation of Islamic values and gave rise to Islamic symbols as well as thick culture of santri and religion. In addition, the Karawang City Karawang must be able to introduce more intensively towards religious tourism destinations such as the Sheikh Quro site. In this case certainly there is a need for good cooperation from all elements, starting from the local government, DPRD, religious leaders, community leaders, even the community itself. Thus, in the process, the realization of program Pupils City This needs no persuasion is the responsibility together. Sociologically the target will continue to increase in 10 to 15 years.

Based on documentation studies it is known that the potential of Karawang in terms of Islamic educational institutions is enormous. This potential can be a good capital to be able to realize Karawang as a city of Santri.

Table 1. Data of Islamic Education Institutions in Karawang Even Semester 2018-2019

<table>
<thead>
<tr>
<th>No.</th>
<th>Islamic Education Institute</th>
<th>Amount</th>
<th>Amount of Santri</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pondok Pesantren</td>
<td>509</td>
<td>50,210</td>
</tr>
<tr>
<td>2</td>
<td>DTA</td>
<td>1015</td>
<td>93,923</td>
</tr>
</tbody>
</table>
If drawn back to the goals of the City of Santri in line with the objectives of Islamic education, KH. Bubun Bunyamin Bushaeri (Chairman of Al-Banin Pondok Pesantren Nihayatul Amal Rawamerta) said that along with the preparation of Karawang for the City of Santri, Islamic da'wah should be carried out more intensively. Pondok Pesantren have a responsibility in conveying Islamic sciences. The pesantren became the center of Islamic civilization, and made Islamic values a culture in society.

In its application, the Santri City program is one of the strategies to instill the values of Islamic education more intensively in the daily lives of students even in the community, where this policy is implemented. H. Endang Sodikin said that Islamic values would be maintained if the community applied the values themselves, so that with the City of Santri it was hoped that they could maintain Islamic values in the community. The City of Santri will also be a filter for the community towards western culture, because in an era like today modernization can no longer be dammed. The principle is to maintain a good old culture and take a good new culture. Then it must be emphasized the realization of Islamic values that are relevant to time and conditions like anything.

This principle has indeed long been held by most of the ulama in Karawang even in Indonesia. Especially if you look at the situation as it is today, where freedom of association and interaction with other nations and countries is no longer possible. So if you do not have a strong foundation, the local wisdom of the people who have become a cultural heritage will be eroded by time. A rule says:

"Maintain a good old legacy and take on new, better cases."

By implementing the values of Islamic education in the community means an effort to create a civilization that is ready for the challenges of the times but still adheres to the teachings of Islam. This can be seen from the meaning of Islam itself which is the way to a better human life. Sofyan Sauri [16] says that the meaning of Islam in Arabic comes from the word aslama which means:

a. Islam means obeying/submitting to Allah Almighty.

b. Islam means peace and compassion.

c. Islam means survivors, meaning that Islam is a clue to get salvation of life both in the world and in the hereafter.

a. Steps in Realizing the Santri City Karawang Program

In its realization, the Karawang City of Santri program will be applied zoningly, in this case the Karawang Regency Ministry of Religion has appointed Rawamerta as the Santri City pilot project. The appointment of Rawamerta as a Santri City pilot project is based on observations, that Rawamerta has the potential to be associated with excellent santri compared to other districts. Then the determination was socialized through a meeting between representatives of the Karawang DPRD Commission D, Rawamerta Sub-District Head, KUA Rawamerta Head, Village Head, MUI Rawamerta District and the community on January 12, 2016 [17].

The effort to make Karawang towards Santri City would not require a short time. This is because the necessity of improvement from various sectors related to the discourse. But since a few times, the Regional Government together with the Karawang Regency Ministry of Religion has made many innovations especially in the religious field that can support the
realization of Karawang towards the City of Santri. Among these innovations was the enactment of Regional Regulation No. 7 of 2011 concerning Compulsory Education for Diniyah Takmiliyah Awaliyyah (DTA) and al-Qur'an Education Park (TPQ) in Karawang Regency which was later strengthened by Karawang Regent Regulation No. 9 of 2013.

In addition, since 2016 the Government has implemented the Karawang Mengaji program, which is carried out in rotation in each sub-district in Karawang every month. From the observations that have been made it can be seen that the community is accustomed to holding an Islamic holiday commemorating such as the celebration of the Islamic new year with torch relay, tabligh akbar events, compensation and mass circumcisions. When the momentum of the birthday of the Prophet Muhammad SAW arrived, the crowd carried out the commemoration of the Prophet's birthday with a variety of activities. Likewise during other holidays such as the commemoration of the events of the isra mi'raj, nuzulul Qur'an and the feast of Eid al-Fitr and Eid al-Adha.

These various programs must certainly be used as the right momentum to continue to increase awareness of the importance of religious education and at the same time to socialize the objectives of the Karawang City of Santri so that it can be known by the wider community. Thus it is expected that policy makers can synergize well with one another, including with the layers of society, especially from the Pondok Pesantrens as implementers of religious education with a characteristic style as an Islamic educational institution.

In realizing the Karawang City Santri program requires careful planning and carried out in stages. H. Endang Sodikin said, with step by step, Rawamerta will serve as a pilot project to have a religious nuance each gate entrance gate to Rawamerta across borders. Then lafadz asmaul husna will also be installed in public spaces. After that the Regional Government must also make policies that encourage the improvement of the quality of madrassas and Pondok Pesantrens. Santri City Karawang will be implemented in stages, starting at Rawamerta. In the future, it might also be applied in other regions, so that later it will become a special treasure in Karawang. Maybe later Karawang will be made into zones, such as the granary zone, the industrial zone, the cultural zone, including the santri zone, so it becomes a color that does not touch each other.

In conducting program planning, an in-depth analysis needs to be done, because Karawang Kota Santri is a long-term program that can have impacts for years to come. H. Endang Sodikin explained in detail his various considerations regarding the City of Santri with a SWOT analysis including:

1) **Strengths**:
   - Karawang Regency is a base of Pondok Pesantren which gives birth to many qualified people
   - Every district in Karawang has a Pondok Pesantren
   - Madrasah potential, especially in the rural environment, is still in high demand by the community

2) **Weaknesses**:
   - Many pesantren do not meet administrative requirements
   - Karawang is still thick with Jaipong dance, especially during the festive season, and also cultures that are not in accordance with Islamic values, even though it is a local wisdom
   - Karawang is in the transition period from agrarian to industrialization which will bring expatriates from various countries
3) **Opportunities**: Can be developed in accordance with the pace of development of Karawang how to encourage it to be a solution for the existence of madrasas

4) **Threats (threats)**: With the transition of Karawang community culture, so it is feared that religious culture will be eroded

From this analysis will certainly result in careful planning the results of inter-line coordination involved in the realization of Karawang Kota Santri. But the thing that is no less important is the alignment of the vision first, so that it will produce unidirectional goals and benefits that can be felt by the community. After the vision is fixed, according to KH. M. Tholhah Hasan said in the epilogue the Ethics of the Santri Study; The New Face of Islamic Education [18] there are two important things that must be arranged. First, the problem of quality in educational human resources. At present, the teacher is a profession, in the sense of a task that demands certain expertise, and has special ethics for the position, as well as standard services in the community that needs it, with certain rewards a profession is an activity of someone with a standard of expertise to live his life (earning living). Islamic education institutions need to improve the quality of teachers or religious teachers. Second, the problem of education management. In order to improve the management of Islamic education, efforts must be made so that the application of its management can act as a process of organizational empowerment (the process of empowering the organization) and the formation of Islamic environmental culture (Islamic milieu).

**b. Formulation of Management Standards for Karawang City of Santri**

In a program or work plan, a standard has a very important position. This is based on its function as a basis and benchmarks in the realization of the program or work plan. In addition, the standard also serves to direct the running of a program so that it can be realized in a consistent, effective, efficient, systematic and well-managed manner so that the aims and objectives of the program can be achieved and on target. There is no program that runs successfully without a measure of success itself, so the standard then plays a role as a measuring tool as well as a basis for controlling the running of the program.

In conducting this research, the author tries to dig up data from various sources, especially from the Local Government so that it can be taken as a basis for the preparation of a standard in an effort to realize Karawang towards Santri City. In this case the Karawang Regency Ministry of Religion as the originator of the Karawang City of Santri plays a large role in the leading sector of the Karawang community's religious life. Then the executive and legislative sectors (DPRD) have a role in drafting regulations and steps that need to be taken.

So based on previous presentations, several important points can be drawn regarding the need for standards in the realization of Karawang Kota Santri, including:

1) Efforts to optimize the implementation of religious education in order to be realized comprehensively.
2) The purpose of religious education which is integrated with the community is organized by formal, non-formal and informal institutions.
3) Attract the role of various parties to improve the quality of the Karawang community through the optimization of education.
4) Increasing the role of Pondok Pesantrens and other Islamic educational institutions to foster and facilitate the community in facing the flow of change both globally and regionally.
5) Maximizing the potential of the Karawang Regency in the religious sector which has developed into a culture among the people.
6) Give encouragement to stakeholders in Karawang regency related to the realization of Karawang Kota Santri.
7) Reinforce Karawang's identity as an area of religious character.
8) Encouraging the reconstruction of the history of Karawang as one of the gates of the spread of Islam on the island of Java.

In an effort to realize the Karawang City of Santri, the author has not found a standard that is standard as a guide for the implementation of the program. For this reason, an implementation and management standard must be developed that can be used as procedural and technical guidelines formulated from various sources. The writer who has explored various data and information related to Karawang Kota Santri formulates the implementation standards as follows:

a. Planning

In this planning process, it is necessary to formulate carefully what needs to be prepared in the framework of Karawang towards Santri City, namely:

1) Periodic plan;
   • Short-term plan, which is to conduct a study of the discourse of the city of students and establish a pilot project. (This stage has been implemented by making Rawamerta District a pilot project from the City of Santri).
   • Medium-term plan, which is to develop the Santri City zoning in other areas outside Rawamerta after an assessment of the success rate of the previous pilot project.
   • Long-term plan, namely the distribution of the City of Santri throughout the Karawang regency by not eliminating local cultural identity and discriminating against non-santri groups.

2) Principles;

In organizing and realizing Karawang Kota Santri, basic principles need to be emphasized in order to avoid disorientation from social values that must be maintained. The principles include:

• Program description, that the branding of Karawang as the City of Santri does not necessarily erase the identity or other characters that have been formed in Karawang, such as Paddy City, Industrial City, Pangkal Perjuangan City, Cross-Religious and Cultural City, and so on. So that the determination of Karawang as the City of Santri must also be accompanied by strengthening other sectors as an affirmation of the identity of this very potential Karawang uniqueness.

• The purpose, namely the intention of the Karawang City of Santri which leads towards the improvement and equitable distribution of Islamic education as well as efforts to build quality human resources and build an ideal civilization for all Karawang people.

• Clarity is the target, so that the objectives of Karawang Kota Santri can be achieved effectively and efficiently. The main targets of the realization of the Karawang City of Santri are the Pondok Pesantrens and formal madrasa education, namely Madrasah Ibtidaiyah (MI), Madrasan Tsanawiyah (MTs), Madrasah Aliyah (MA) to Islamic Higher Education (PTAI) and non-formal madrasa education namely Raudlatul Athfal (RA), Al-Qur'an Education Park (TPQ) and Diniyah Takmiliyah Awaliyah (DTA).
3) Organizing;
   In the planning stage, various things needed before the program implementation must be prepared. Among those that must be prepared are the methods, tools and techniques and strategies that will be used to help facilitate the realization of Karawang towards the City of Santri.

b. Implementation
   The implementation phase is a form of actualization of all the plans that have been prepared. In this stage, which must be considered are:
   1) Environmental management
   2) Organizing activities

c. Evaluation
   The evaluation phase is carried out as a foundation for evaluating, improving and developing a program. This evaluation phase consists of:
   1) Techniques used
   2) The scope or scope of the evaluation carried out
   3) The evaluation process must be carried out periodically, intensively, thoroughly and continuously
   4) Management of the results obtained from the evaluation process
   5) Follow up after the evaluation is done thoroughly

5. Conclusion

From the discussion above, the author can conclude several points as follows:

1. Karawang City of Santri is a discourse issued by the Karawang Regency Ministry of Religion to improve the quality of society by instilling Islamic values in daily life. By implementing and instilling the values of Islamic teachings, a prosperous, safe, comfortable, orderly, harmonious and beautiful society. The concept offered by the Karawang Regency Ministry of Religion is actually a form of practice of the values of Islamic civilization contained in the Quran, namely Surat al-Baqarah verse 126. The verse describes a community life that is in a safe and secure country, and abundant fortune and its inhabitants who believe.

2. In realizing the Karawang City of Santri, it is necessary to take the right steps for successful implementation and maximum achievement of goals. In its realization, Karawang Kota Santri will be applied in zoning, but in the future there will be efforts to align in the field of Islamic education by optimizing the potential of Islamic educational institutions both formally and non-formally. The steps to be taken are:
   a. The initial step of the realization of this program is to make Rawamerta a pilot project.
   b. After Rawamerta is made as a pilot project, efforts will be made to have religious nuances.
   c. Must also be supported by making policies that favor the pesantren and madrasa.

3. In an effort to realize Karawang Kota Santri, an implementation and management standard must be made that can be used as procedural and technical guidelines formulated from various related sources. The standard is considered important as a benchmark as well as guidelines for achieving success in achieving goals, namely the realization of Karawang into the City of Santri. The implementation standards are as planning, implementation and evaluation.
References


The Feasibility and Effectiveness of Android-based Augmented Reality Learning Media on Mechanical Wave Material

Ai Nurlaela1, Taufiq Al Farizi2, Mayuriko Olivia Pertiwi3
{ai.nurlaela@uinjkt.ac.id1, taufiq.farizi@uinjkt.ac.id2, mayuriko.pertiwi14@mhs.uinjkt.ac.id3}

1,2,3UIN Syarif Hidayatullah Jakarta, Indonesia

Abstract. Learning media that are commonly used in schools are still conventional so they have several weaknesses in the transfer of learning information. Augmented Reality (AR) can be used as alternative learning media. This study aims to determine the level of feasibility and effectiveness of mechanical wave AR media in learning. The research method used is the type of Jan van den Akker development research, which has steps such as preliminary research, prototyping stage, summative evaluation, and systematic reflection and documentation. The sample was selected using a purposive sampling technique. Mechanical wave AR media was declared very feasible by learning media experts, learning design experts, and material experts with an average value of 91.7%, as well as assessment by students of 88%. The effectiveness of the media is shown by the average completeness of student learning outcomes by 70% and is very effective based on the physics teacher's assessment of 94%.

Keywords. Android, augmented reality, development research, effective, feasible, learning media, mechanical waves.

1. Introduction

The use of media will increase the effectiveness of the learning process. Learning media in the teaching and learning process can arouse interest, arouse motivation, and stimulate learning activities. According to Evgeny Aleksandrov and Anastasia Levitskaya [1], the use of media in learning can stimulate the development of social and professional competence.

Conventional learning methods that use media such as blackboards and drawings in books certainly have limitations to provide more visualizations that are tangible to students. Conventional schoolbooks do not represent actual sources of knowledge, so that electronic learning media covers the shortcomings of old media [2]. On the other hand, the use of digital media contributes to the improvement of teaching [3].

AR is one alternative media that can be used as an appropriate visual media for students. AR technology has been widely implemented in education [4]. Students can see physical phenomena in three dimensions (3D) through AR media. 3D media extends 2D representation because it can animate pictorial content and is a very effective method for handling excessive information such as text [5]. AR technology allows the addition of virtual objects into real environments that make users interact more real-time. Mariana Pohlmann and Fabio Pinto da Silva [6] argue that technology increases learning opportunities more effectively, given that visualization and interaction help students. Learning media using AR attract students' interest when learning because it is more interactive. Interactive media can arouse students' interest and motivation in finding information independently, so students will get information that is
more meaningful and improve their memory. Students prefer to use new media (AR) rather than using conventional teaching materials, students show interest and interact quickly and there is coordination between eyes and hands [7].

AR media has a good contribution value in the field of education. Since its introduction, AR has proven to have good potential in a more active, effective and meaningful learning process [8]. According to Su Cai, et. al. [9], AR greatly stimulates students' interest in learning and increases their learning activities. AR technology can minimize the use of practical tools that are vulnerable to equipment damage and facilitate the learning process wherever and whenever. Learning media using AR saves time and resources [10]. Julio Cabero Almenara, et. al. [11] said that AR gets more relevance in education because of its ease of use and availability of devices.

Mechanical waves are one of the abstract concepts in physics; we need imagination to understand them, so we need a media that can visualize the wave material more real so that the process of understanding concepts is easier. Mechanical waves are an important topic in most introductory physics curricula at the university level and many fields of physics depend on a strong understanding of mechanical waves [12]. Interviews with teachers in the preliminary research provide information that students have problems in understanding and imagining wave material in learning, one of them is due to the limitations of the existing visual media, so that AR can be used as an alternative learning media.

2. Methods

2.1 Research and Development Procedures

There are two models in development research, namely validation studies and development studies [13]. We use development studies models that aim to produce media products that can solve learning problems using existing knowledge. The steps of the development studies research model according to Akker et. al, including preliminary research, prototyping stage, summative evaluation, and systematic reflection and documentation.

2.1.1 Preliminary Research

The steps at this stage are the literature study and field survey. Literature study intended to look for problems related to learning in schools and the lack of existing media. Field survey intended to complement and strengthen the findings in the study of literature. The survey was conducted at a state high school in South Tangerang, which consisted of interviews with physics teachers and distributed questionnaires to 326 students.

2.1.2 Prototyping Stage

The making and improvement of product prototypes as a media for solving problems obtained after finding problems in the learning process at the preliminary research. The prototyping stage consists of designing the guidelines, optimizing prototypes, formative evaluations, and revisions.

The design of the guidelines is done by selecting teaching material, designing the concept of AR media design, and designing the media software. Optimization of design prototypes is done by selecting software and making AR media. Formative evaluation is the stage of product evaluation that has been made. Formative evaluation flow is illustrated in Figure. 1.
According to Tessmer [14], the prototype will be tested in several stages of Tessmer's formative evaluation including expert review, one-to-one evaluation, small group evaluation, and field tests. There are 5 learning media experts, 5 learning design experts, and 5 material experts who provide a feasibility assessment using a questionnaire. The one-to-one evaluation phase involved 3 students who had studied mechanical waves, consisting of each student with high, medium, and low ability. Suggestions and criticisms from the expert review and one-to-one evaluation stages will be followed up. The revised media will be tested at the small group evaluation stage involving 15 students who have studied mechanical waves, consisting of each 5 high, medium, and low ability students. Criticism and suggestions delivered at this stage are then followed up. The revised media will be tested in the field test involving 30 students who have never studied mechanical waves, consisting of each 10 students of high, medium and low ability.

The assessment of the feasibility of the media by students in the stage of one-to-one evaluation, small group evaluation, and field tests using a questionnaire. While the effectiveness of the media seen from the completeness of student learning outcomes by providing pretest and posttest.

2.1.3 Summative Evaluation Stage

The mechanical wave AR learning media is evaluated for its effectiveness by both students and teachers. Fifteen students who have not studied mechanical waves, consisting of high, medium, and low ability students are given a pretest and posttest. Next, the physics teacher was asked to fill in a questionnaire on the effectiveness of the AR-based Android learning media.

2.1.4 Systematic Reflection and Documentation

This last stage illustrates all studies to support the analysis, followed by the specification of design principles and connecting them with the conceptual framework [13].

2.2 Data Analysis Technique

The results of information from the teacher's interview will be studied and the conclusions taken as a whole. The feasibility of the media is known based on data from the questionnaire results. Questionnaire data obtained is quantitative data, which is translated into
qualitative data. Five alternative answers are provided on a graded scale ranging from 0 to 4, which are illustrated in Table 1.

<table>
<thead>
<tr>
<th>Score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Very feasible</td>
</tr>
<tr>
<td>3</td>
<td>Feasible</td>
</tr>
<tr>
<td>2</td>
<td>Feasible enough</td>
</tr>
<tr>
<td>1</td>
<td>Not feasible</td>
</tr>
<tr>
<td>0</td>
<td>Very not feasible</td>
</tr>
</tbody>
</table>

The percentage of answers from each question indicator can be calculated using the following formula [15].

\[
\text{Percentage} = \frac{\sum \text{score of all respondents}}{\sum \text{respondents} \times 4} \times 100\%
\] (1)

The effectiveness of the media can be seen from the number of students who get the test results $\geq$ of the KKM (Kriteria Ketuntasan Minimal –criteria for minimum completion) test (75) after learning using Android-based mechanical wave AR media. The effectiveness criteria based on cognitive learning outcomes can be seen in Table 2 below.

<table>
<thead>
<tr>
<th>Score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>100%</td>
<td>Very effective</td>
</tr>
<tr>
<td>75%</td>
<td>Effective</td>
</tr>
<tr>
<td>50%</td>
<td>Effective enough</td>
</tr>
<tr>
<td>25%</td>
<td>Not effective</td>
</tr>
<tr>
<td>0%</td>
<td>Very not effective</td>
</tr>
</tbody>
</table>

3. Discussion and result

Based on the results of preliminary research obtained information that AR media has advantages as a learning media that can increase student motivation, help students understand the material, and help teachers deliver the material. This supports the achievement of learning objectives and efforts to improve student learning completeness.

The developed mechanical wave AR learning media application is equipped with 3D animation, audio explanation, material, formulations, sample questions and discussions, video links, simulations, practice questions, based on Android, and using the user define marker method. User defined markers are markers that use patterned objects in the real world that are freely selected by users as markers to display virtual objects on AR media. These markers can be in the form of writing, drawings, patterned cloth, etc., which are patterned.

Through user-defined markers, users can use the AR application without having to have a special marker card. This supports the wider use of AR media. Users are not dependent on the presence of markers, do not need to spend money to print markers, and do not have to worry if the marker is damaged, so it is easier to learn wherever and whenever without using special markers.
Media that displays 3D objects overcome the weaknesses of 2-dimensional (2D) media because it provides a more tangible and concrete visualization, besides 3D objects attract students' attention to learn the material. Evaluation questions on AR wave media mechanics provide feedback in the form of scores obtained, completeness values, answer keys, and discussion of questions. Feedback is an important part in an evaluation because it is useful for measuring ability and monitoring student learning outcomes.

The feasibility of the media is seen from the assessments given by experts and students, while the effectiveness of the media is seen from the results of student learning at all stages and the teacher's assessment on summative evaluations. The results of the media feasibility assessment can be seen in the Table 3.

<table>
<thead>
<tr>
<th></th>
<th>Learning Media Expert</th>
<th>Learning Design Expert</th>
<th>Material Expert</th>
<th>One to One Evaluation</th>
<th>Small Group Evaluation</th>
<th>Field Test</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Score</strong></td>
<td>94%</td>
<td>91%</td>
<td>90%</td>
<td>96%</td>
<td>86%</td>
<td>82%</td>
</tr>
<tr>
<td><strong>Category</strong></td>
<td>Very feasible</td>
<td>Very feasible</td>
<td>Very feasible</td>
<td>Very feasible</td>
<td>Feasible</td>
<td>Feasible</td>
</tr>
</tbody>
</table>

The application of mechanical wave AR learning media as a whole is declared feasible by five learning media experts. Assessment includes two aspects, namely software engineering and visual communication. The software engineering aspect got 92% with a very good category. The software engineering aspect consists of 10 assessment indicators, including effective and efficient, reliable, maintainable, usability, accuracy in choosing the type of application, compatibility, package programming, documentation, and reusable. AR media minimizes the cost of education because at one time the cost of making AR media can be spread and used by many Android-based smartphone users. This has become one of the advantages of AR media in saving costs and time compared to props. AR can be developed to replace practicum tools. Users do not need to carry out complex maintenance on the media and easy operation to attract students to use it.

Aspects of visual communication get a percentage of 96% with a very good category. Aspects of visual communication consist of 7 indicators, including communicative, creative in the following ideas pouring ideas, simple and attractive, audio, visual, mobile media, and interactive layouts. Good visual communication is needed to attract the user's attention so that the purpose of making media is conveyed. Good visual communication is needed to attract the user's attention so that the purpose of making media is conveyed. The availability of narrative explanations that are appropriate to the material and the quality of sounds that can be heard clearly supports the student's process of learning the material. Besides 3D objects can be seen clearly, can be enlarged, and rotated so that it can be seen from various points of view.

The application of mechanical wave AR learning media as a whole was declared feasible by five learning design experts in the aspects of learning design with a total score of 91% with a very good category. The learning design aspect consists of 16 indicators, namely clarity of learning objectives; relevance of learning objectives with curriculum; scope and depth of learning objectives; the accuracy of the use of learning strategies; interactivity; providing learning motivation; contextually and actuality; completeness and quality of learning assistance materials; the suitability of the material with the learning objectives; material depth; easy to understand; systematic, trace, clear logic flow; clarity of description, discussion, examples, simulations, exercises; consistency of evaluation with learning objectives; the
accuracy and permanence of the evaluation tools; and providing feedback on the evaluation results. Presentation of appropriate learning materials in accordance with the curriculum helps in achieving learning objectives.

The assessment of AR media by five experts of learning material as a whole was declared feasible with a score of 90% which was included in the excellent category. Learning material experts conduct assessments on 6 aspects, namely the scope and depth of the material; accuracy of presentation (systematic) on the material; the suitability of the material in 3D images and animation with existing theories; the suitability of narrative explanations on 3D images and animation with existing theories; clarity of sample training questions on each wave material; and the accuracy of the answers to the sample practice questions on each material of mechanical waves.

AR media is considered very feasible by students in one-on-one evaluations with a value of 96% (very feasible). The feasibility aspects assessed by students at this stage include material aspects, learning design, implementation, and technical quality with the acquisition of the respective percentages of 100%, 97%, 96%, and 93%, all in the very good category. According to students, mechanical wave material is difficult to understand, but after using AR the mechanical wave students feel more understanding because the material is delivered clearly, interestingly, and with interactive technology. Text material presented on AR media can be enlarged according to user needs, this has become one of the advantages of developing mechanical wave AR media. Students argue that the use of AR media can be used anywhere and anytime making it easier for them to access information. AR media is easy to use, this is shown with high enthusiasm to students who are able to operate AR independently even though students have not been taught its use.

The feasibility of the media is considered feasible students at the evaluation stage of small groups with a value of 86% (feasible). The feasibility aspects assessed by students are efficiency, material, learning design, and implementation. Meanwhile, the eligibility of AR media by students in the field test earned a score of 82% (feasible). The feasibility aspects assessed by students included implement ability, sustainability, appropriateness, as well as acceptance and attractiveness aspects. The advantages possessed by the AR media make it useful to use both now and in the future as a learning aid tool.

The effectiveness of the media can be seen from the completeness of student learning outcomes, students are said to be complete when getting a value more than or equal to a minimum completeness criterion of 75. Completeness of student learning outcomes after using AR wave learning media can be seen in the Table 4.

<table>
<thead>
<tr>
<th>Table 4. Completeness of Student Learning Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mastery of students in Pretest</td>
</tr>
<tr>
<td>--------------------------------</td>
</tr>
<tr>
<td>Mastery of students in Posttest</td>
</tr>
</tbody>
</table>

Students who are involved in one-to-one evaluation and small group evaluation are students who have studied mechanical waves with their teacher without using AR wave media
mechanics. While students who are involved in the field test and summative evaluation are students who have never studied mechanical waves before.

Based on the data obtained, students who have or who have never studied mechanical waves have experienced an increase in mastery learning outcomes after learning this material using AR mechanical wave media, this shows that the AR mechanical wave media is effective for increasing mastery learning outcomes of students. Physics teachers in summative evaluation give an assessment through a questionnaire of 94% (very effective). Assessments conducted by physics teachers consist of indicators of achievement of learning objectives and ease in explaining teaching material.

4. Conclusion

The development of AR wave learning media mechanics has fulfilled the feasibility and effectiveness aspects to be used as an alternative media in learning. The conclusions of this development research are as follows:

The AR wave media developed was considered suitable for use in learning. Learning media experts gave a feasibility value of 94% (very feasible), five learning design experts gave a worthiness of 91% (very feasible), and five material experts gave a worthiness of 90% (very feasible). The feasibility assessment by students in the one-on-one evaluation was 96% (very feasible), in the small group evaluation stage was 86% (feasible), and in the field test it was 82% (feasible).

The AR wave media developed was declared effective based on student learning outcomes and teacher questionnaire responses. The one-on-one evaluation stage gained 67% completeness (effective). The small group evaluation stage gets 80% completeness (effective). The field test phase gained 60% completeness (quite effective). The summative evaluation stage gained 73% completeness (effective). The assessment of effectiveness by 4 physics teachers was 94% (very effective).

REFERENCES


Student Academic Achievment : The Role of Emotional and Spiritual Intelligence

Addiniya Nurfarojandari1, Maftuhah Maftuhah2
{addiniya93@gmail.com1, maftuhah@uinjkt.ac.id2}

1Postgraduate Program Attahiriyah Islamic University, Indonesia
2Faculty of Islamic Education State Islamic University (UIN) Syarif Hidayatullah Jakarta, Indonesia

Abstract. In the education field student academic achievement is a reflection of the Academic proceeds. At the state of Academic proceeds student not only Academic about concept, they also learn how to control their emotion, helping people, social awareness, etc. The purpose of this research is to know : The Role of Emotional Intelligence and Spiritual Intelligence together to Student Academic Achievement Madrasah Aliyah Swasta (MAS) all around South Jakarta. A 100 student being sample from 10% Population of Islamic Private High School Students all around South Jakarta, the method of sampling using simple random sampling. Emotional Intelligence is measured by Bar-On EQ125, Spiritual Intelligence is measured by SISRI-24, Student Academic Achievement is measured by Student Report Card. Researchers develop these three scales. Results show that there are. only 2.4% role of Emotional Intelligence and Spiritual Intelligence Student Academic Achievement while the rest by other variable.

Keywords: Emotional Intelligence, Spiritual Intelligence, Student Academic Achievement, Influence of Emotional Intelligence, Influence of Spiritual Intelligence.

1 Introduction

In the education field, the study is a positive transposition process which at the final stage will comes with several good results such as skills, and new knowledge. The study achievement is a reflection of the Academic proceeds. At the state of Academic proceeds student not only Academic about concept, they also learn how to control their emotion, helping people, social awareness, motivation, etc.

The presence of the phenomenon of a shift in attitudes and behaviors that are less appreciated values of humanity in society, then at this point required the attention of various parties. especially in education. Therefore emotional intelligence is very necessary to be developed in Academic

1.1 Research Background

As a researcher also educator some issue about academic achievement need to be solved. Traditionally, educators test for cognitive achievement using subjective measures such as grade point averages or objective scores from tests for verbal or mathematical domains. In the
past few years, some educators have challenged this cognitive restriction. Research indicates that to develop the whole child, educators must nurture more than just cognitive intelligence. In fact, some findings suggest that a student must be encouraged to develop in multiple constructs to include “social, physical, intellectual, career, psychological, cultural, and spiritual development”.

However, the presence of the phenomenon of a shift in attitudes and behaviors that are less appreciated values of humanity in society, then at this point required the attention of various parties, especially in education. Therefore emotional intelligence is very necessary to be developed in Academic.

The results of research by psychologists in the USA (United States of America concluded that the success person in living a life is strongly supported by emotional intelligence (EQ) around 80%, while the role of intellectual intelligence (IQ) is only 20%. The center of IQ and EQ is spiritual intelligence (SQ).

Recent studies that advocate the importance of emotional intelligence on achievement [4] have also led some educators to explore the relationship between emotional intelligence and academic achievement. A relatively new concept called spiritual intelligence (SI) that encourages problem solving and critical existential thinking has recently come under serious consideration. Recent studies that involve SI have occurred in other countries. [1] And there are none research address emotional and spiritual intelligence as a one variable, also there are none researcher comes from Indonesia which is having a strongly spiritual culture. This research examined the role of Emotional and Spiritual Intelligence to academic achievement of high school students to analyze if there could be a possible relationship with achievement.

1.2 Literature Review

The indicator of the study process according to the provisions of the Education and Culture Republic Indonesia point. 104, 2014 "Assessment of study results by the educator is a process of collecting information/evidence of study accomplishment of the student's competency in spiritual attitude, social attitude, knowledge competency, and skill competency that planned and systematic, during and after the studying process."[2]. Assessment aspects comprise:

- Self-assessment
- Assignment assessment
- Project assessment
- Assessment by observation
- Daily examination marks
- End of term examination marks
- Academic achievement in attitude marks
- Academic achievement in knowledge marks
- Academic achievement in skill marks

The study process in school is thorough and complex. Many people have an opinion for reaching a great achievement in the study, somebody should have a high intelligence quotient(IQ), because intelligence is a potential weapon which will lead the study to become easier and in the meant time, it will resulting in an optimal study achievement. Meanwhile, as for the fact, not just a few people with IQ above the average is having a low achievement, and many people with average IQ is surpassed the study achievement with the people with IQ above the average. It's indicated IQ does not the only thing that affecting an individual's study process. Besides IQ, in terms of intelligence, another intelligence is also known, such as emotional intelligence, and spiritual intelligence.
Emotional intelligence was first discovered in 1990 by psychologists Peter Salovey and John Mayer in Goleman [3] which defines emotional intelligence or EI is often referred to as "The set of parts of social intelligence that involves the ability to monitor social feelings that involve the ability of others, sort out everything and use this information to guide thoughts and actions".

According to Daniel Goleman emotions refer to a specific feeling and thought, a biological and psychological state and a set of tendencies to act. Emotion is the urge to act. Usually, emotions are reactions to stimuli from outside and inside the individual. For example emotion excited drive change a person's mood, so that physiologically seen laughing, sad emotions encourage someone to behave in tears.

According to Cooper and Sawaf [4], emotional intelligence is the ability to feel, understand and selectively apply emotional power and sensitivity as a source of energy and human influence. Emotional intelligence requires surveillance feelings, learn to recognize, appreciate the feelings in themselves and others and respond appropriately, effectively implement the emotional energy in everyday life.

According to Ary Ginanjar [5] Spiritual Intelligence commonly abbreviated as SQ is the foundation needed to function Intelligence Quotient (IQ) and Emotional Quotient (EQ) effectively. Even SQ is the highest intelligence because SQ is the foundation and source of other intelligence. The emergence of the term spiritual intelligence in education, for some people, might be considered as an answer to the situation.

Zohar and Marshal [6] said that spiritual intelligence is interpreted as intelligence that relies on the inner self that is associated with wisdom outside the ego or soul of consciousness. As an intelligence that is always used not only to determine the values that exist but also to creatively discover new values in life. If the spiritual quotient (SQ) has developed well, then it is a characteristic of people who have high spiritual intelligence (SQ).

Some scientific evidence about spiritual intelligence is presented by Zohar and Marshall in SQ, Spiritual Quotient, The Ultimate Intelligence. Two of them are: First, psychology/neurologist research, Michael Persinger in the early 1990s, and more recently in 1997 by neurologist VS Ramachandran and his team from California University, who discovered the existence of God Spot in the human brain has been built in as a spiritual center located in the front part of the brain. While the second proof is Austrian neurologist research, Wolf Singer in the 1990s on his paper: The Binding Problem, which shows there are neural processes in the human brain that are concentrated on efforts to unite and give meaning to our life experiences. A neural network that literally "binds" our experiences together to "live more meaningfully". The next fact, Lan Mitroff and Elizabeth Denton wrote in their work entitled "a Spiritual Audit of corporate America: A Hard look at Spirituality, Religion and Values in the Workplace" that: "Most of the executive defined spirituality in much the same way - not as religion, but as "the basic desire to find purposes and meaning in one's life".

In the thesis compiled by King [7], there are four components of spiritual intelligence, each of which represents indicators as a measure of overall spiritual intelligence, namely Critical Existential Thinking (CET), Personal Meaning Production (PMP), Transcendental Awareness (TA), and Conscious State Expansion (CSE).

A. CET

The first component of spiritual intelligence involves the ability to critically ponder the meaning, purpose, and other existential or metaphysical issues (for example, reality, nature, universe, space, time and death). In his instrument, King formulated this component on the element of existence, the meaning of events life after death, human relations and the universe,
and concerning God or higher powers. However, research conducted by King does not refer to any particular religion or non-religion.

B. PMP

The second core component is defined as the ability to build personal meaning and purpose in all physical and mental experiences, including the ability to making and mastering life goals. Nasel in King agrees that spiritual intelligence involves the contemplation of the symbolic meaning of reality and personal experience to find the purpose and meaning in all life experiences. In his instrument, King formulates the components of the elements of the ability to adapt from the meaning and purpose of life and the reason for life, the meaning of failure, making decisions by the purpose of life, as well as the meaning and purpose of daily events.

C. Transcendental awareness

The third component involves the ability to see the transcendent dimensions of self, others, and the physical world (eg nonmaterial and connectedness) in the normal state as well as in the state of building the area of consciousness. Wolman in King describes transcendental awareness as the ability to feel the spiritual dimension of life, reflecting what was previously described as feeling a more real, more diffused and general presence from our special senses. In his instrument, King formulated this component to non-physical and non-material aspects, to be able to feel non-physical and non-material, understand the relationships between humans, define non-physical (spirit), quality of personality/emotions, and be able to focus yourself.

D. CSE

The final component of this model is the ability to entering the areas of spiritual awareness (for example, pure awareness, and unity) at its discretion. From a psychological perspective, the difference between transcendental awareness and the development of this awareness area is supported by Tart in King that transcendental awareness must occur during the normal conscious state, whereas the development of the awareness area includes the ability to overcome the conscious state and the higher area or spiritual.

Self-awareness (self-consciousness which is also often called self-awareness) is the main differentiator between people who have high spiritualism with those who do not. People who have a high awareness will always think several times in response to each situation, take a moment to understand what is hidden or real before showing the initial response. He always acted with calculation, consideration, and caution. In his instrument, King formulated this component into the elements of entering the area of consciousness, controlling the area of consciousness, moving within the area of consciousness, seeing problems in the area of consciousness, and developing techniques for the area of consciousness.

2. METHODS

The method used in this research is quantitative research, which is a process of finding the knowledge that uses data in the form of numbers as a tool for finding information about what you want to know. In general, quantitative research can be carried out as well as descriptive
Quantitative research also can be in the form of relationship research or correlation research, quasi-experimental research and experimental research. Before the researcher tests the hypothesis with the research instrument, the researcher examines the Research Instrument using the validity and reliability test using the SPSS 23 program.

Validity test in general is to find out whether the questionnaire used is really valid to measure the variables research. In general, there are two formulas or methods of validity testing, namely the Bevariate Pearson Correlation and the Correlated Item-Total Correlation, the Bevariate Pearson Correlation is one formula that can be used to test data validity with the SPSS program.

The reliability test is used to determine the consistency of the measuring instrument, whether the measuring device used is reliable and remains consistent if the measurement is repeated. In the SPSS program the method that is often used is to use the Cronbach’s Alpha method.

Hypothesis testing is using multiple linear regression analysis. All data processing will be carried out using SPSS 23 program. The measurement used to measure the degree of linear correlation is called the correlation coefficient denoted by the letter r. The magnitude of the correlation coefficient always lies between -1 and +1 (-1 ≤ r ≤ +1), then:

1. \( r = +1 \), means there is a perfect positive correlation between \( X \) and \( Y \)
2. \( r = -1 \), means there is a perfect negative correlation between \( X \) and \( Y \)
3. \( r = 0 \), means there is no correlation between \( X \) and \( Y \)

The purpose of correlation analysis is to measure the degree of the connection and how close the connection is. The steps used in testing the significance, in this case, use the product-moment correlation, including:

1. Determine the hypothesis, usually, the correlation significance test is carried out with the zero hypotheses (Ho). Ho is common for correlation reads "there is no correlation between variable \( X \) with variable \( Y \)"
2. Choose the level of significance.
3. Comparing \( r \) arithmetic with the \( r \) table.
4. Make a decision: if the price or \( r \) arithmetic ≥ \( r \) table, then Ho is rejected.
5. Conclusion

a. Population and sample

The population in this research are 21 privat high school at South Jakarta. While determining the number of samples taken by the regional sample method (cluster sampling), After knowing the number of samples taken in each region, researcher used the Proposalan Random Sampling method, due to the varied number of students in each school so it was decided that only 10% of the total students would be taken and randomly selected, therefore the number of participant 100 students from 1003 students from 6 school representing sub-district in Jakarta

b. Data collection technique

Then the respondents in this study amounted to 100 private Madrasah Aliyah students in South Jakarta. randomly 10% of 1003 MAS students selected in South Jakarta. With the proportional determination of Respondents in each area in South Jakarta each 10% of the total
madrasa population. Researcher collected data directly from respondents, and all respondents 100% completed the questionnaire.

Data collection techniques in this study were adopted in two ways, as follows:

a) Questionnaire Method

The research data collection method is carried out by making a list of questions which are then submitted to students as respondents to fill in the answers.

b) Documentary method

It is a method of collecting research data with documentation, in other words collecting data from existing documents, so that the researcher can obtain records relating to research. This documentation method is carried out to obtain data that has not been obtained through the Questionary Method.

In preparing the instruments used from the Likert Scale model that is with the option Very True, Not True, sometimes True, True, Very true. Each option is given a weight ranging from 5 for Very True, 4 for Not True, 3 sometimes True, 2 True, until the weight of 1 for the Very True option.

In compiling the Questionnaire, the author uses references from several figures, namely: David King with SISRI 24 for the Spiritual Intelligence questioner and Reuven Bar-On with EQ-i125 for the Emotional Intelligence questioner.

c. Hypothesis

The proposed research hypothesis consists of a major hypothesis and three minor hypotheses. The major hypotheses proposed are as follows: There is a positive relationship between emotional intelligence and spiritual intelligence with student Academic achievement. The higher the emotional intelligence and spiritual intelligence of a person, the higher the Academic Achievement. The lower the emotional intelligence and spiritual intelligence of a person, the lower the Academic achievement will be. The major hypothesis will be accepted if three minor hypotheses submitted by the researcher are accepted. The minor hypotheses proposed by researchers are as follows:

1. Is there any positive influence on Emotional Intelligence on the Academic Achievement of Private Madrasah Aliyah Students in South Jakarta?
2. Is there any positive influence on students' Spiritual Intelligence on Student Achievement in Private Madrasah Aliyah in South Jakarta?
3. Is there any positive influence of students' emotional intelligence and spiritual intelligence together on student achievement in Madrasah Aliyah Private in South Jakarta?

3. DISCUSSION AND RESULTS

The results of the research instrument test using the validity and reliability test for each variable questionnaire, are ;
Validitas Item Test: From the results of calculations using the SPSS 23 program, out of 125 items for the Emotional Intelligence (X1) variable questionnaire, there were only 37 valid questionnaire items.

From the results of calculations using the SPSS 23 Program out of 24 Spiritual Intelligence variable (X2) questionnaire items, all questionnaire items were declared valid.

Reliabilitas Item Test: From the results of calculations using the SPSS 23 program, for the Emotional Intelligence (X1), Alpha values of 0.892, with r tables in the 0.05 significance search with 2-tailed test and the amount of data (n) = 100, then the rtable can be 0.1966. Therefore the value of r count = 0.892 > r table = 0.1966, it can be concluded that the items are reliable.

From the results of calculations using the SPSS 23 Program out of 24 Spiritual Intelligence variable (X2), the Alpha value of 0.862 can be obtained, this value is then compared with the value of rtable, the r table is found at the 0.05 significance by 2-sided test and the amount of data (n) = 100, then the rtable is 0.1966. Because the calculated value = 0.862 > rtable = 0.1966, it can be concluded that the items are reliable.

For the hypothesis testing is using multiple linear regression analysis. From the results of calculations using the SPSS 23 Program the highest score from the questionnaire score of the Emotional Intelligence Variable (X1) is 487 and the lowest score is 310, the middle value is 389, the value that often appears is 405 and the average value is 390.70.

From the results of calculations using the SPSS 23 Program the highest score from the questionnaire score of the Spiritual Intelligence Variable score (X2) is 89 and the lowest score is 43, the middle value is 69, the value that often appears is 62 and the average value is 68.31.

From the results of calculations using the SPSS 23 Program the highest score from the questionnaire score of the the Student Academic Achievement Questionnaire score (Y) is 89 and the lowest score is 62, the middle value is 80, the value that often appears is 80 and the average value is 78.16.

<table>
<thead>
<tr>
<th>Coefficients</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>α</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>91.345</td>
<td>11.782</td>
</tr>
<tr>
<td>Emotional Intelligence</td>
<td>-.017</td>
<td>.031</td>
</tr>
<tr>
<td>Spiritual Intelligence</td>
<td>-.094</td>
<td>.077</td>
</tr>
</tbody>
</table>

a. Dependent Variable: Student Academic Achievement

Based on the table above we can get the regression equation model as follows:

\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 \]
$Y = 91.345 + 0.017X1 + 0.094X2$

The constant ($\alpha$) of 91.345 means that if Emotional Intelligence ($X_1$) and Spiritual Intelligence ($X_2$) are absent or the value is 0, then the Student Achievement level will be 91.345.

The regression coefficient of the students' emotional intelligence variable ($X_1$) was 0.017, meaning that if the students' emotional intelligence ($X_1$) was increased by 1 unit, the students' Academic achievement experienced a relatively small increase of 0.017 units.

The regression coefficient of the variable of students' spiritual intelligence ($X_2$) was 0.094, meaning that if the students' spiritual intelligence ($X_1$) increased by 1 unit, the students' Academic achievement experienced a relatively small increase of 0.094 units.

### Multiple regression analysis table

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.154</td>
<td>0.024</td>
<td>0.004</td>
<td>7.83727</td>
</tr>
</tbody>
</table>

a. Predictors: (Constant), Emotional Intelligence, Spiritual Intelligence  
b. Dependent Variable: Academic Student Achievement

Based on the above output, obtained R value of 0.154. This shows that there is a very low influence between emotional intelligence ($X_1$) and spiritual intelligence ($X_2$) on student achievement.

Researcher also using Partial regression coefficient test (T test), T test is used to determine whether the independent variable partially influences the dependent variable. From the results of calculations using SPSS 23 the output can be as follows:

### T test Coefficients

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>91.345</td>
<td>11.782</td>
<td>7.753</td>
<td>0.00</td>
</tr>
<tr>
<td>Emotional Intelligence</td>
<td>-0.017</td>
<td>0.031</td>
<td>-0.059</td>
<td>0.577</td>
</tr>
</tbody>
</table>
Based on the results of the above output we can know the value of t of each variable.

Effect of Emotional Intelligence (X1) on Student Academic Achievement (Y)

Hypothesis:
Ho: Emotional Intelligence does not have a significant effect on Student Academic Achievement.
Ha: Emotional Intelligence has a significant influence on Student Academic Achievement.

Based on the data above, a tcount of 0.560 can be obtained. This shows that the value of t is smaller than t table 1.664 and sig value is greater than 0.05. Thus Ho is accepted and Ha is rejected. This means that the variable Emotional Intelligence (X1) does not have a significant effect on Student Academic Achievement.

Effect of Spiritual Intelligence (X2) on Student Academic Achievement (Y)

Hypothesis:
Ho: Spiritual Intelligence does not have a significant effect on Student Academic Achievement.
Ha: Spiritual Intelligence has a significant influence on Student Academic Achievement.

Based on the above output, the tcount value of 1.220 is obtained with a sig value of 0.225, which shows that the tcount value is smaller than the table of 1.664. Thus Ho is accepted and Ha is rejected. This means that the variable Spiritual Intelligence (X2) does not have a significant effect on Student Academic Achievement.

Researcher also using Simultaneous regression coefficient test (F test), F test is used to determine whether the independent variables together have a significant effect on the dependent variable.

Hypothesis:
Ho: Emotional Intelligence (X1) and Spiritual Intelligence (X2) together do not have a significant effect on Student Learning Outcomes (Y).
Ha: Emotional Intelligence (X1) and Spiritual Intelligence (X2) together have a significant influence on Student Learning Outcomes (Y).

The results of the independent variable influence of Emotional Intelligence (X1) and Spiritual Intelligence on Student Learning Achievement (Y) using SPSS 23 can be output as follows:

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>145.437</td>
<td>2</td>
<td>72.718</td>
<td>1.184</td>
<td>.310</td>
</tr>
<tr>
<td>Residual</td>
<td>5958.008</td>
<td>97</td>
<td>61.423</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>6103.445</td>
<td>99</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Predictors: (Constant), Spiritual Intelligence, Emotional Intelligence

Dependent Variable: Student's Academic achievement
Based on the above output, the F count value of 1.184 is obtained with a sig value of 0.310. It shows that the F count value is smaller than the F table value 3.09. Thus Ho is accepted and Ha is rejected. This means that Emotional Intelligence (X1) and Spiritual Intelligence (X2) together do not have a significant effect on Student Academic Achievement (Y).

Based on statistic test: There is an insignificant effect on Emotional Intelligence (X1) and Spiritual Intelligence (X2) together on Student Academic Achievement (Y). With a value of R Square = 0.024 which implies that the influence of independent variables (Emotional Intelligence (X1) and Spiritual Intelligence (X2) together on the dependent variable (Student Achievement (Y)) is 2.4%, while the rest influenced by other variables.

Quoted from the results of a similar doctoral study conducted by Merial J. Smartt from Liberty University - Lynchburg, USA, in 2014 entitled, ”The Relationship of Spiritual Intelligence to Achievement of Secondary Students” from the results of the study found the results were found to be very small, and also the result of dissertation research from Barbara A Fatum of The University of San Francisco, in 2008 entitled “The Relationship Between Emotional Intelligence and Academic Achievement in Elementary School Children.”[8] The results showed the two correlations were weak but there was a significant correlation between the two health barometers and values in English Language Arts. Therefore this research confirm the previous research that there was insignificant / very small/ weak relationship between spiritual intelligence and student Academic achievement.

From the results of this analysis there will arise several possibilities, Current student Academic achievement is not significantly influenced by other types of intelligences, but emotional and spiritual intelligence because: (I) there are an indications that the report cards received by students so far considered as benchmarks of student achievement are still unable to accommodate Emotional and Spiritual Intelligence, ( II) The benchmarks used by researchers are still unable to measure students' emotional and spiritual intelligence , (III) The lack of sample used by the author so that it affects the values of the variable itself.

4. CONCLUSION

There is an insignificant effect on Emotional Intelligence (X1) on Student Academic Achievement (Y). The magnitude of the effect of Emotional Intelligence (X1) on Student Academic Achievement (Y) can be seen from the value of r, from the results of the analysis using SPSS 23.0 in the value of r = 0.017.

There is an insignificant effect of Spiritual Intelligence (X2) on Student Academic Achievement (Y). The magnitude of the influence of Spiritual Intelligence (X2) on Student Academic Achievement (Y) can be seen from the value of r, from the results of the analysis using SPSS 23.0 in the value of r = 0.094.

There is an insignificant effect on Emotional Intelligence (X1) and Spiritual Intelligence (X2) together on Student Academic Achievement (Y).

With a value of R Square = 0.024 which implies that the influence of independent variables (Emotional Intelligence (X1)) and Spiritual Intelligence (X2) together on the dependent variable (Student Achievement (Y)) is 2.4%, while the rest influenced by other variables.
Phenomena have been found in research. Based on conclusion some recommendation that can be revealed are as follows:

For students, teachers and parents need to continue to improve Emotional Intelligence and Spiritual Intelligence of Students, So the Student can be more ready to achieve their life goals, not only on their study but also for their social life or other.

For Principals and Education Offices and Indonesian culture, it is necessary to re-formulate student report cards that can accommodate other types of intelligence, not only Intelligence Quotient but also Emotional Quotient and Spiritual Quotient.

For academics and the community, further research is needed to test the theories of emotional intelligence, spiritual intelligence and Academic achievements or other variables that can develop theories that can later be used as a foundation of science and community development to develop civil society.

REFERENCES


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