# Developing and Validating of Differentiated Instruction based Multiple Intelligence

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**Abstract.** Differentiated Instruction (DI) is a way to think. DI it's a simple form, differentiated instruction means that you are consistently and proactively creating a different pathway to help all your student to be succesful" The first purpose of this research was to create a development of differentiated instruction for student's multiple intelligence science learning fourth grade at Sampang, Kebumen district, and the effectivity of implementation differentiated instruction development for student's multiple intelligence of fourth grade science learning. Implementation in the classroom for differentiated instruction is to make a group which have the same multiple intelligence. All the students can learn in the same class with a different group and different intelligence. This research used was R&D with ADDIE method which has five steps. Development of Differentiated Instruction for Multiple Intelligence of Fourth Grade Science Learning affects multiple intelligence.

**Keyword:** Differentiated Instruction, Multiple Intelligence, Science Learning

## 1 Introduction

Learners are unique individuals and different from one student to another. The difference is called the characteristics of learners [1]. Learners have various characteristics, such as different social backgrounds, different intelligences, different learning styles, different talents and interests. All learners have their intelligence. The intelligence possessed by the learner is not only one intelligence, but the learner has multiple intelligence. Intelligence, according to the paradigm of multiple intelligences, can be defined as capabilities that have three main components, namely: 1. the ability to solve problems that occur in real-life every day; 2. the ability to generate new problems that are faced with being solved; 3. the ability to create something or offer services that will give rise to appreciation in one's culture. Those intelligence can be well realized and understood by the teacher so that the teacher can maximize the more dominant intelligence possessed by the learners [2].

Learning in SD Negeri 2 Sampang is teacher still dominant in comprehensive or non-specific learning in developing differences individual characteristics, especially in multiple intelligence possessed by students. Even though the teacher certainly knows that every student has a different intelligence. Teacher as a facilitator should can facilitate students in learning according to the intelligence of each student. The learning carried out in the classroom each lesson content is still general, still using one size fit all, not paying attention to the multiple intelligence possessed by students, especially in science learning. Science

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learning plays a role in the educational process as well as the development of technology. This when teaching science in the classroom, there are several things are considered so that what the teacher conveys to the students can be received well and maximally. In the application of science, learning is attempted to be able to maximize activities in students further. Creating an atmosphere for learning, especially science centered on learners, can be done by reducing the role of teachers in lectures and improving students and students, especially in scientific activities [3].

Science learning is learning that focuses on the process [5-6]. In line with the nature of science as a process, as the main element that can drive the science activities as a whole, mentioned that science learning in elementary school should be carried out in a scientific inquiry to foster the ability to think, work and be scientific and communicate it as an essential aspect of life skills. The knowledge that the proficiency possessed by the learner is in the multiple intelligence possessed by the learner so that if it is not honed and maximized in the learning process that pays attention to the multiple intelligence of learners, especially in science learning, it will be less optimal in its education.

Therefore, science learning in elementary school emphasizes providing learning experience directly through the use and development of scientific process skills and attitudes. The 2013 curriculum in its application is the mastery of science process skills explained in the basic skills of natural sciences from the 4th core competency, namely skill competencies. Skills in science learning in elementary schools need to be developed and maximized by still seeing the multiple intelligence possessed by students of course, by the way teachers think or instructions from different teachers. Differences in learner's intelligence make the way teachers feel in implementing learning is also different from students.

## 2 Literature Review

*Differentiated Instruction*

*Differentiated Instruction* used by teachers in differentiating their teaching can be adapted to the needs of learners using of content presentation (content dimension differentiation), the way content is studied (process dimension), and the way learners respond to a content (product dimension) [4]. This can be used in school to maximize students' learning time while in school. DI learning combined with multiple intelligence will help teachers facilitate every difference in the needs of learners/students. Problems such as the understanding of incomplete learners, less optimal student learning outcomes will continue if the teacher does not facilitate the learners according to the student's characteristic needs.

Teacher modify the content, processes, and products in Differentiated Instruction based on three things, namely:

1. Readiness is the entry point of learners to certain understandings or skills that will be learned.
2. Interest refers to the curiosity or desire of learners for a particular topic or skill.
3. The learning profile relates to the way learners learn. It is shaped by a culture of gender preference, intelligence, or learning style.

Application of Differentiated Instruction by teachers with differentiating instructions based on 3 aspects, there are content, processes, and products. Content in basic terms for example includes using spelling lists or vocabulary, presenting ideas through hearing and visual means. Examples of function about to the basic level are using tiered activities, providing an interest center that encourages learners to explore, offering support to students in need. Products with regard to the basic level include using rubrics that match and expand

student’s skills that vary, allowing learners to work individually or in small groups on the student's products, encouraging learners to create their product tasks.

**Differentiated Instruction Implementation Strategy**

Differentiated Instruction (DI) is a way of thinking of teachers used in adjusting learning according to the needs of students. 17 basic strategies that can be applied to successfully meet the challenges of designing Differentiated Instruction for learners include [7]:

1. Have a solid reason to apply Differentiated Instruction based on readiness, interests, and learning profile. Teacher share their thoughts more often with students and parents. This is so that students and parents are not confused with the application of Differentiated Instruction in the classroom, and they can adapt.
2. Start the implementation of Differentiated Instruction with convenient time adjustment. Some teachers have made frequent adjustments to the curriculum. Some people have their way of implementing learning both fast and slow, which is most importantly adjust to the comfort of teachers who will undergo the application of Differentiated Instruction learning
3. Differentiated Instruction is designed for activities that can support the success of learners. The design of activities can be carried out following student’s need. When creating tasks for learners, keep in mind two things that the time allocated to the study should be slightly shorter than the attention span of the learners who do the task, and advanced learners often have extended attention. When designing assignments for students with vital interests and abilities in a particular field, allow longer time during class than the amount of assignment time that learners are interested in and low.
4. Use anchor activities to free teachers who are too focused on learners. The use of particular activities that can be automatically carried out when the student has finished carrying out a task.
5. Make and convey instructions carefully. Giving lots of direction and command can be confusing and requires a lot of attention. Applying Differentiated Instruction can be alternately given a task card or task sheet to an individual or group. Another alternative is to discuss the task with some of the students in charge today, and then the next day, students can share it with their group.
6. Assign students in groups or seating areas.
7. Has a base for learners by arranging student seating charts.
8. Ensure the student has a plan to get help when the Teacher is unable to help or is in another group. It can be using the "expert desk of the day" as a learning consultant that day.
9. Minimize noise with each student to discuss calmly, whisper or speak softly.
10. Make a plan for the learner to give up his/her work. Can use an "expert today" strategy that can help correct tasks when the teacher is busy.
11. Teach students to rearrange the furniture in learning by drawing three or four-floor plans with table arranged differently.
12. Minimizes "stray" movement.
13. Promote behavior while working on tasks.
14. Has plans for "quick completion".
15. Plan to "stop".
16. Give appreciation to students.
17. Engage students in class talks and group processes.

**Multiple Intelligence**

Multiple intelligence is a theory first developed by Howard Gardner. According to Gardner, multiple intelligence is that not only does all humans have one intelligence but has a complete set of skills, most of which focus on a combination of verbal-language and mathematical logic skills. Multiple Intelligence is divided into two words, intelligence which means intelligence, and multiple meaning a lot. Multiple intelligence is intelligence that is not only one but a set of interconnected and cooperating intelligence that exists in an individual [8].

**Type of Intelligence**

Commonly known types of intelligence are musical intelligence, kinesthetic-motion intelligence, mathematical logic intelligence, linguistics, spatial, interpersonal, intrapersonal, naturalist and existentialist. The theory is based on the idea that intellectual ability is not only measured by mathematical and language skills but must be seen from some other intelligence. Here is an explanation of the eight plural bits of intelligence [8]:

**2.1 Musical Intelligence**

Musical intelligence is intelligence related to sensitivity in listening to the sound of music and other sounds. Students who have this intelligence can be seen from the ability to produce and appreciate rhythm and music that can be realized in the ability to appreciate, easy to remember and recognize the tones, and can transform words into a song. Characteristics of individuals who have musical intelligence capabilities are [9]:

**2.2 Kinesthetic Intelligence**

Students who have this intelligence are very happy to learn in the outside environment in order to always be able to move their bodies. [9] Kinesthetic intelligence is the ability to use the body's overall potential to express ideas and feelings. The ability to use hands in producing or transforming objects. [10] Characteristics of individuals who have kinesthetic intelligence include [9]:

a. Good at dancing and acting, active in certain sports, and easy to express by using the body
b. Can play mimicry and more likely to use body language
c. Effective and feel happy thinking while walking, running or with sports.

**2.3 Mathematical Logic Intelligence**

Mathematical logical intelligence is a person's ability to operate mathematics and logical thinking. Mathematical logic intelligence includes number recognition, geometry recognition, grouping objects, and logical thinking [11]. Individuals who have a tendency to mathematical logical intelligence have the following characteristics [9]:

a. Happy to experiment, compose or string together puzzles and ask
b. Good at counting and playing
c. Happy to figures in arranging scenarios and organizing something
d. Good at logical thinking, be it inductive or deductive
e. Happy in abstract and symbolic thinking

**2.4 Linguistic Intelligence**

Linguistic intelligence is the ability to express a complex thing using words and language. Students who have this intelligence should give teachers the opportunity to show or further hone their intelligence by telling stories in front of the class or reading stories and singing children's songs. Characteristics possessed by students with linguistic intelligence as follows [9]:

a. Happy to read especially reading books or anything that can be read, storytelling or storytelling
b. Happy if doing communication, speaking, dialogue, discussing and foreign material
c. Good at stringing words and sentences both verbally and in writing.

### 2.5 Spatial Intelligence

This intelligence is related to sensitivity in combining visual perception activities (eyes) and thoughts as well as the ability to transform visual-spatial perception such as activities carried out in painting, designing patterns, and designing buildings. Spatial intelligence is one who can think three-dimensionally [12]. This intelligence involves sensitivity to the colors, lines, shapes, sizes, areas, and relationships that exist with these elements. This intelligence allows learners to explore the imagination they imagine and modify the shadows that are on their minds.

### 2.6 Interpersonal Intelligence

Interpersonal intelligence is the ability to understand and socialize with others. A person who has interpersonal intelligence will be easier to interact with others and easier in responding to the moods of others as well as the desires of others. Characteristics of individuals with interpersonal intelligence are [9]:

a. Able to organize and become a leader in an organization
b. Can easily socialize and become a moderator at an event
c. Prefer games in the form of groups of people in the form of individuals
d. Able to work together in groups
e. Can be a place to complain to others and easily know others
f. Happy in communicating, both verbal and nonverbal
g. Have a high sensitivity to his friend and like to give feedback

### 2.7 Intrapersonal Intelligence

This intelligence relates to the ability to conduct self-introspection and compare it to the weaknesses and strengths of others. This intelligence includes having an accurate picture of oneself (personal strengths and weaknesses), awareness of feelings within, intentions, motivations, temperament, desires, and the ability to self-discipline, self-understanding, and confidence [9]. Characteristics of individuals who show intrapersonal intelligence is [9]:

a. Able in self-introspection
b. Able to concentrate
c. Able in self-balance
d. Able to reflect and work independently
e. Easy to manage and control his feelings.

### 2.8 Naturalist Intelligence

Naturalist Intelligence is an intelligence related to nature. Naturalist intelligence related to nature or the surrounding environment, a strong interest in plants or animals around their environment. This intelligence is certainly related to the love of natural objects, animals and plants [16]. Characteristics of individuals who show Naturalist Intelligence is [9]:

a. Able to recognize flora and fauna
b. Able to classify and identify plants and animals
c. Love nature and live outdoors

### 2.9 Existential Intelligence

Existential intelligence is intelligence related to the ability to answer the problem of human existence. Existential intelligence is intelligence in the form of the ability to answer questions of human existence or manners, both to others, and good at keeping secrets [17]. Characteristics of individuals who show existential intelligence is [9]:

a. Sensitive in answering personal / human existence
d. Able to do self-reflection
e. Able to do musings with unanimity or full thoughts about himself

## 3 METHOD

The research method used is the research and development (*RnD*) with Analyze, Design, Development, Implementation, and Evaluation (ADDIE) model. The purpose of using this research method is to produce a particular product (Lesson Plan, Worksheet, and Evaluation Instrument) and test its effectiveness. The method in this study is first to analyze the use of DI in the classroom, then design learning using DI at the predetermined multiple intelligences, Development learning design using DI with the help of validators, implement DI learning development, and evaluate the implementation of DI development. This study used an experimental class and a control class. The experimental class was applied to the product that had been developed while the control class was applied to conventional learning. application in the experimental class by taking into account the 3 multiple intelligences which are the focus of this research.

***Analysis***

This is the first stage in which the researcher analyzes the needs of the learning process and gathers various information about the product to be developed. This analysis was carried out to identify the fundamental issues in the development of DI in multiple intelligences. Students' characteristics must also be observed in order to conduct an analysis of them.

Researchers conducted an analysis of the learning carried out by teachers in elementary schools, which is still using one size fits all learning, which means one size or one benchmark for all, despite the fact that students have different characteristics, such as intelligence, that require a different treatment. distinct as well.

***Design***

The concept of DI development based on multiple intelligences in classroom learning designed as the basis for the product development that will be carried out. The design for this product development includes the following steps: (1) analyzing the multiple intelligence abilities possessed by students through questionnaires filled out by students; (2) planning lessons; (3) preparing teaching materials; (4) organizing worksheets; and (5) developing evaluation instruments.

***Develop***

Begin to realize the design concept that was prepared in the previous stage of development at this stage of development. At this stage of development, the researcher turns the designed concepts into a product that can be used or implemented in learning. Differentiated Instruction will be implemented in future classrooms, but it must first be validated by students in order to receive feedback and guidance during the development

process. Criticism and advice from colleagues can serve as a wake-up call to carry out improvements in Differentiated Instruction development.

***Implementation***

The product that has been developed is beginning to be used and evaluated in terms of its suitability and feasibility. The instructor analyzes the students' knowledge at the start of the process. Following that, the teacher can continue to improve student learning in the classroom by implementing Differentiated Instruction. After that, the teacher formed a group of students to work on improving the worksheet, which can help students improve their interpersonal, linguistic, and logical-mathematical skills.

***Evaluate***

This stage involves evaluating the products that have been used in classroom learning; issues such as compatibility, ease of use, and feasibility are recorded and used to improve the next product. The evaluation in the development of DI on multiple intelligences is carried out by checking and evaluating with model teachers the implementation of DI development, achievement, and effectiveness in developing multiple intelligences possessed by students.

## 4 RESULT AND DISCUSSION

ADDIE research method used consists of five stages, namely Analysis, design, development, implementation, and evaluation [15]. The description of the steps for developing differentiated instruction is as follows:

### 4.1 Analysis

This stage is the initial stage where researchers analyze the needs in the learning process and gather various information related to the product to be developed. This analysis was conducted to determine the basic problems in the development of DI in multiple intelligence. Analysis of learners also needs to be done by observing the characteristics of learners. The analysis carried out in this study is analyzing the multiple intelligence possessed by learners. Researchers conducted an analysis of the learning carried out by teachers in elementary schools. The implementation of the analysis is by sharing with grade IV teachers related to the multiple intelligence possessed by students in elementary school and learning carried out by teachers who still use general learning or one size fits all that does not focus on each student's intelligence. Lack of learning focus that can facilitate each student's intelligence, an action is needed that can facilitate learning by paying attention to the multiple intelligence of learners. The use of Differentiated Instruction is one of the actions that can be applied to overcome the condition. Differentiated Instruction is a way of thinking teachers who see that learners have different characteristics and intelligence then it takes the provision of different instructions.

### 4.2 Design

The design of the product development that will be carried out is starting from designing the concept of DI development on multiple intelligence in learning in the classroom. The materials to be used, the evaluation questions to be used, the different instructions according to the intelligence of each student. Design on the development of this product, among others:

1) Analyzing the ability of multiple intelligence owned by learners through questionnaires filled by learners
2) Preparing Lesson Plan adapted to differentiated instruction on multiple intelligence owned by learners

3) Preparing worksheet that can be used to support learning and intelligence owned by participants
4) Making evaluations as exercises and as proofs in the absorption of learning materials by learners

**4.3 Development**

At this stage of development, began to realize the design concept that has been prepared at the previous stage. This stage of development conducted by researchers is to create concepts that have been designed into a product that is ready to be used or implemented in learning. The development is carried out in the form of the development of Differentiated Instruction in learning. The development of DI in learning that will be applied first is done expert validation to get criticism and suggestions in the development process. Criticism and advice given by experts can be a record to be able to make improvements in the development of it. Validation results provided by teachers related to Lesson Plan development products that at the time of learning it would be nice to use props not only in the form of power points only. The use of props is considered more effective in the application of DI on the multiple intelligence of 4$^{th}$ grade students. Validation of learning tools is carried out by teachers as practitioners and lecturers as experts. The validity result can be seen on Appendix 1-3.

Validator 1 is a lecturer who gives the results of validation against Lesson Plan that has been compiled. The validation results show at number 76 with fairly valid criteria and can be used with few revisions. Note or revision of validator 1 that the learning media does not exist yet, the timing of each activity has not been detailed, the activity using multiple intelligence is also unclear. As for the results of validator 2 or teacher as a practitioner that is getting 82.6 with criteria quite valid and can be used with a little revision. Revision or improvement of the teacher is the addition of learning media or props to make the learning more effective and fun.

Validator 3 is another teacher who gives validation results showing the number 80 with criteria quite valid but with few revisions. Note from validator 3 that the learning media has not been seen using anything, activities on multiple intelligence have not appeared. Based on the validation results, revisions or improvements are held, among others, the addition of learning media in the form of PowerPoint slides and energy change boards, allocation of learning time detailed each activity, stages of activities in learning has triggered activities that use multiple intelligence. In addition to Lesson Plan, another validation is on the question. The problem is also validated by lecturers and teachers.

The validation result of validator 1 shows the number 80 with criteria quite valid and can be used with few revisions. Revision or improvement of validator 1 is for the procurement of grids on questions, answer keys, as well as the form of rubric scores or analysis of question calculations. While the result of validator 2 is obtaining 86 with criteria quite valid and can be used but with few revisions. The result of validator 2 says the question is good but to be better by adding a grid of questions first. Validator 3 gives a value of 82 on the question instrument with criteria valid enough but with a slight revision that is on the question grid does not yet exist, the answer key and rubric score have not been shown. Based on the suggestions and comments of the validator, revisions are made by adding a grid of questions, answer keys and rubric score.

Validator 1 provides validation related to Worksheet with the criteria is less valid and still requires many revisions. Some things improvement or note from validator 1 such as learning objectives do not exist yet, tools and experimental materials have not been listed in Worksheet, the way of work/procedure of the experiment does not exist, and the assessment rubric is also not available. This kind presented is still lacking so it requires more revision.

Validator 2 also provides validation with fairly valid criteria and can be used with few revisions. Suggestions and comments from validator are the addition of objectives to Worksheet. Then, validator 3 gave criteria quite valid but with few revisions. The revision proposed by Validator 3 is the title of Worksheet, then there is no learning identity such as themes, sub-themes, and learning. Another note of validator 3 is the addition of work steps in the experiments conducted on it.

Based on the validation results of the validator, there needs to be a lot of improvement. The form of improvement is the addition of lead title, the addition of identity to Worksheet, the addition of learning objectives, the provision of tools and materials as well as the workings/procedures of experiments, and the assessment rubric.

### 4.4 Implementation

The implementation stage is the implementation stage or trial of products that have been developed at the previous stage. At the implementation stage, this product that has been developed began to be applied and seen related to the suitability and feasibility of the product that has been developed. Product implementation can be done in classroom learning. Implementation is implemented by applying DI in learning on multiple intelligence that is expected to develop multiple intelligence owned by learners. The implementation process is that the teacher first analyzes the intelligence possessed by the students. After that, teachers can start designing learning by applying Differentiated Instruction to the multiple intelligence of learners. The teacher then formed a group of students to work on WORKSHEET that can help develop the multiple intelligence of learners, namely interpersonal intelligence, linguistic intelligence, and kinesthetic intelligence. Implementations on each multiple intelligence are as follows:

**Interpersonal Intelligence**

**Linguistic Intelligence**

**Kinesthetic Intelligence**

### 4.5 Evaluation

Evaluation is the final stage of product development using the ADDIE model. This stage is done by evaluating the products that have been applied to classroom learning, matters regarding the level of fit, ease, and feasibility are recorded and become improvements for the next product. The implementation of evaluation in the development of DI in multiple intelligence is by checking and discharging with model teachers related to the implementation of DI development, achievement, and effectiveness in developing multiple intelligence owned by learners. Evaluation is also carried out to measure the initial understanding of learners and final understanding after the implementation of learning using DI. Results of the evaluation of the experimental class and the control class.

**Table 1. Descriptive Analysis of Samples**

| | Class | N | Mean Rank | Sum of Ranks |
|---|---|---|---|---|
| Direct Instruction | Experiment | 20 | 30.28 | 605.50 |
| | Control | 20 | 10.73 | 214.50 |
| | Total | 40 | | |

**Test Statistics for Equality of Means**

| | | Direct Instruction |
|---|---|---|
| Most Extreme Differences | Absolute | .900 |
| | Positive | .000 |
| | Negative | -.900 |
| Kolmogorov-Smirnov Z | | 2.846 |
| Asymp. Sig. (2-tailed) | | .000 |

a. Grouping Variable: Class

The results of statistical tests of differences in student scores before and after DI-based learning are shown in Tables 1 and 2. According to the tables, using this learning strategy has an effect on formative test scores.

Teacher should have realized and understood the multiple intelligence. So, the teacher can maximize the more dominant intelligence possessed by the learners [2][17-18]. The knowledge that the proficiency possessed by the learner is in the multiple intelligence possessed by the learner so that if it is not honed and maximized in the learning process that pays attention to the multiple intelligence of learners, especially in science learning, it will be less optimal in its education [5-6].

## 5 CONCLUSION

The results of differentiated instruction design development research showed that based on the validation results from lecturers and teachers showed that the learning tools with Differentiated Instruction on multiple intelligence are valid enough to be used but there are some revisions. Revisions include clarity of learning media, clarity of the stages of multiple

intelligence activities, improvement of WORKSHEET equipped with learning objectives, the provision of question grids, and the provision of scoring rubrics. The evaluation results showed that there was a difference between pretest and posttest. Pretest was conducted before the use of Differentiated Instruction and *Posttest* was implemented after the implementation of Differentiated Instruction showed significant results. The average value obtained by the experimental class is 91,6 while the average value obtained by the control class is 76,2. Based on pretest and posttest results also showed that the experimental class was higher than the control class.

**REFERENCE**


[1] Septianti, N., & Afiani, R. Pentingnya Memahami Karakteristik Peserta didik Sekolah Dasar di SDN Cikokol 2. *Jurnal Pendidikan Islam Anak Usia Dini.* 2020; 2(1): p.7-17

[2] Gardner, Howard. *Frame of Mind: The Theory of Multiple Intelligences*. New York: Basics Book; 1983.

[3] Savitri, E.N., & Retnaningsih. Peningkatan aktivitas belajar IPA melalui *real science mask* menggunakan *roleplaying model. Jurnal Pendidikan IPA Veteran.* 2019; 3(2): p.149-164

[4] Dixon, F.A., Yssel, N., McConnell, J.M., & Hardin, T. Differentiated instruction, professional development, and teacher efficacy. *Journal for the Education of the Gifted.* 2014; *37*(2): p.111-127.

[5] Anggoro S, Sopandi W, Sholehuddin M. Influence of joyful learning on elementary school students' attitudes toward science. InJournal of Physics: Conference Series 2017 Feb 1 (Vol. 812, No. 1, p. 012001). IOP Publishing.

[6] Anggoro S, Arshad NI, Fitriati CA. The Representation of Elementary Student at Cross-Age About Physics Phenomenon. Solid State Technology. 2020 Jan 31;63(1s):755-66.

[7] Tomlinson, C. A. *How to differentiate instruction in mixed-ability classrooms*. ASCD; 2001.

[8] Uswatun, H. Pengembangan Kecerdasan Jamak Pada Anak Usia Dini. T*hufula*. 2016; 4(1).

[9] Sahnan, A. Multiple Intelligence dalam Pembelajaran PAI (Al-Quran Hadits SD/MI). *Jurnal Auladuna.* 2019; 1(2): p.44-66

[10] Widhianawati, N. Pengaruh Pembelajarak Gerak dan Lagu Dalam Meningkatkan Kecerdasan Musikal dan Kecerdasan Kinestetik Anak Usia Dini. *Jurnal Edisi Khusus.* 2011; 2(1): p.220-228

[11] Suripatty, P.J.P., Nadiroh., Nurani Y. Peningkatan Kecerdasan Logik Matematika melalui Permainan Bingo. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini.* 2020); 4(1). p.100-109

[12] Abidin, Z. Pengembangan Kecerdasan Majemuk (Multiple Intelligences) di Madrasah. *Elementary: Jurnal Ilmiah Pendidikan Dasar*. 2017; *3*(2): p.120-131.

[13] Sukmanasa, E., & Latifah, S. Hubungan Persepsi tentang Kecerdasan Interpersonal dengan Afektif Siswa Pada Mata Pelajaran Ilmu Pengetahuan Sosial di Sekolah Dasar Negeri Genteng Kota Bogor. *Proceedings-Open Access Journal*. 2018; *1*(01): p.172-176.

[14] Purnama, S. Metode Penelitian Dan Pengembangan (Pengenalan untuk Mengembangkan Produk Pembelajaran Bahasa Arab. *Jurnal LITERASI.* 2013; 4(1): p.19-32

[15] Bakhri, S. Aimasi Interaktif Pembelajaran Huruf dan Angka Menggunakan Model ADDIE. *Intensif.* 2019; 3(2): p.130-144

[16] Rahayunintyas, D. I., & Yuliyani, D. R. Pengembangan Model Multiple Intelligences Based Learning Untuk Penguatan Gerakan Literasi Sekolah Dasar Kelas Tinggi. *Jurnal Cakrawala Pendas*. 2020; *6*(1): p. 63-74.

[17] Abidin, Z. Pengembangan Kecerdasan Majemuk (Multiple Intelligences) di Madrasah. *Elementary: Jurnal Ilmiah Pendidikan Dasar*. 2017; *3*(2): p.120-131.
[18] Rofiah NH. Menerapkan multiple intelligences dalam pembelajaran di sekolah dasar. DINAMIKA Jurnal Ilmiah Pendidikan Dasar. 2016;8(1).