

Needs Analysis of Literacy Teaching Material at Elementary Schools

Ifah Hanifah¹, Muchlas Suseno², Miftahulkhairah Anwar³

Language Education Departement, Universitas Negeri Jakarta, Indonesia

{IfahHanifah_7317167638@mhs.unj.ac.id¹, muchlas-suseno@unj.ac.id², miftahulkhairah@unj.ac.id³}

Abstract: The purpose of this study is to describe the needs of literacy teaching materials in elementary schools. The schools in question is the elementary school in Kuningan District. The research method used is descriptive qualitative using data collection techniques such as interviews. Interview given to teachers and students are drawn from 30 elementary schools in the district of Kuningan. From the interviews, it was concluded that for the literacy program in elementary schools in Kuningan District needed teaching materials which; 1) in accordance with classroom learning material; 2) according to the level of student understanding; 3) contains the character values / habituation of behavior; 4) contains knowledge or insight; 5) contains self-development; 6) in the form of stories or fiction; 7) contains instructions so students easily understand and know what they have to do; 8) stimulates critical thinking; 9) contains elements of Sundanese / Kuningan culture and language; and 10) interesting. Therefore, the recommendation of the author is that experts or researchers in the field of literacy or related parties can develop teaching materials that are appropriate to this need.

Keywords: needs analysis; teaching materials; literacy; elementary school

1 Introduction

Historically in English, the word literacy ' is synonymous with " *literature* " which means " literature " Then, more generally, this word means ' better educated or literate '. Only since the end of the 19th century has this word referred to the meaning of "the ability to read and write " but still retained its original meaning of being "knowledgeable or educated in a particular field" . (The EFA Global Monitoring Report Team, 2005) .

Then, in 1966, UNESCO created a functional definition of this literacy, which is "A person is functionally said to be literate or literate if they are involved in all activities where literacy is needed to function effectively in a group and community and also to enable him to continue to use the ability to read, write , and calculate for himself and community development (Keefe and Copeland, 2011) . The notion of literacy continues to develop, but in general this literacy is interpreted as one's ability to read and write.

Literacy continues to grow. Literacy carried in the 21st century is not limited to literacy in terms of reading and writing. Literature in the 21st century is more directed at how a person accesses and understands information that now seems to have no limits.

Therefore, Indonesia is currently promoting a literacy program that is well known as the National Literacy Program. And at the school level there is the School Literacy Program. However, there are several problems encountered in the literacy program in schools,

especially elementary schools. Some of the problems faced are as follows. The first problem is the low literacy ability of elementary students, especially language literacy. Second, the difficulties faced by elementary school students in improving their language literacy skills are the incomplete literacy practices undertaken by teachers, the lack of available literacy environments, and different levels of parent literacy that have an impact on the lack of information literacy obtained by students from home (Kharizmi, 2015) .

Related to the lack of available literacy environment, what will be the focus of attention in this research is the lack of literacy teaching materials available in elementary schools, especially in Kuningan District. Therefore, the authors conducted preliminary interviews with teachers at several elementary schools in Kuningan District, namely: SDN 1 Bungurberes, SDN 1 Jalatrang, SDS Ksaaturi, SDN Babakan Jati, and SDN Cikaso. The interview was conducted on 2-10 February 2018. The results of the interview are as follows. 1) Students' literacy ability is still low. 2) Obstacles to literacy are due to the lack of appropriate teaching materials and there are still teachers who do not understand literacy. 3) The teaching materials available are only in the form of reading books which sometimes the context is not appropriate for students and learning. 4) There are still many students who use Sundanese as their mother tongue, which hinders the process of learning to read, including reading comprehension.

The teaching material itself is everything that is conveyed to students in learning. As stated by Richard that teaching materials can be presented in various forms, which clearly must be able to help students in the learning process.

In language teaching, anything which can be used by teachers or learners to facilitate the learning of a language. Material may be linguistic, visual, auditory or kinesthetic and they may be presented in print, audio, or video form, on CD-Roms, on the internet or through live performance or display (J. C. and R. S. Richard, 2010)

In the beginning, literacy was only meant as a person's ability in terms of reading and writing and counting. The term "literacy" is defined as "the ability to read and write" or the ability to read and write. This word then develops according to the development of knowledge (Boeriswati, 2017). Furthermore, Unesco explained that literacy in learning is a set of unity of the ability to use the skills to read, write, and count in accordance with the contexts obtained and developed through the learning process and application in schools, in families, communities, and other relevant situations (Faizah, 2017).

Furthermore, the opinion on literacy was put forward by The National Literacy Act which defines literacy as "an individual's ability to read, write, and speak in English, and compute and solve problems at levels of proficiency necessary to function on the job and in society to achieve one's goals, and develop one's knowledge and potential. " This means that literacy is closely related to one's ability to read, write, speak, and process the information obtained to solve problems encountered in daily life. There is also PIRLS (Progress in International Reading Literacy Study) which defines literacy as the ability to understand and use written language that is needed by the community or that is of value to individuals (Kharizmi, 2015)

Next is the understanding of Literacy expressed by PISA (Program for International Student Assessment) on Reading Literacy, that reading literacy is the ability to understand, use, reflect, and engage with written texts, to achieve one's goals, to develop one's knowledge and potential, and to participate in society (Thomson, Hillman, & De Bortoli, 2013)

The explanation of each item is as follows. Understanding refers to the ability to get meaning from what is read. This can include the meaning of words or it can be more complicated in identifying the basic theme of a narrative. Using, relating to the understanding of applications and functions. For example, applying what has been read to a task or direct

goal, or using what is read to strengthen or change beliefs. Reflecting, in terms of emphasizing the idea that reading is interactive, where readers make connections with their own thoughts and experiences when engaging with texts. Involved, involving the motivation of the reader to read and consists of construction including interest in and pleasure to read, sense control over what someone reads, and reading practice. Written text, including text from various media - handwritten, printed and digital. They can include visual displays such as diagrams and pictures. Written texts can be in various formats, including continuous and non-continuous, and in various types of texts, such as narration and exposure.

Based on this understanding, in the beginning this literacy was interpreted as literacy, meaning someone's ability in literacy or literacy discourse. This ability will not be separated from the ability to read and write, both reading and writing the beginning or reading and writing comprehension. Because that is what will be the basis for the next ability related to the ability to absorb and interpret information. The ability to absorb and interpret this information will not be exceeded if the ability to read technical and understanding is not exceeded. In other words, when we discuss literacy it will not be separated from matters relating to the ability of literacy, or the ability to read the symbol of letters into the sound of words and other language sounds.

However, of course this literacy is not only limited to this. Nowadays the understanding of literacy has developed. As stated by PIRLS above, the literacy ability can then be used for the benefit of society and or something useful for life. That is, with the ability of literacy that humans can do something that is needed in their lives in society. He can also use it to do something useful for the personal life and surrounding society.

Therefore, a study of the development of teaching materials needs to be done. However, the study of teaching material needs to be done first. That is so teaching materials that will be developed according to the needs in the field. Therefore, this research focuses on the need for literacy teaching materials in elementary schools in Kuningan Regency.

Needs analysis is an effort made by researchers to find out the needs or something desired by students, teachers, and related parties related to literacy teaching materials. Meanwhile, Kemp said that needs analysis involves examining gaps and identifying potential causes of gaps (also called causes of analysis) the cause of the gap is used to determine the right intervention (Morrison, 2007)

Analysis of needs in the development of this teaching material certainly has its uses. The main use is that it can be used as a benchmark for researchers in finding the ideal form of teaching materials in accordance with the needs of students and teachers as well as related parties who use teaching materials. This is in line with what was mentioned by Richard that the use of needs analysis is as follows; Provide a basis for evaluating a program or component of a program, provides a basis for planning the goals and objects of a program, help develop tests and other assessment procedures, help determine the appropriate teaching methods , provide a basis for developing syllabi and teaching materials for a language program , and providing information that can be used as a program report to an external agency or organization (JC Richard, 2002)

The needs analysis itself is divided into two categories, namely target needs and learning needs. (Hutchinson and Water, 1987). Target needs pertain to what students need to do in certain situations or targets. These target needs include *necessities* , *lacks* , and *wants* . Necessities are types of needs that are determined by the target situation; what students must know and how to function effectively in the target situation. Meanwhile, deficiencies are mismatches between targeted abilities and abilities that are already possessed by students. This shortcoming will be known when we know the needs

of students as well. The desire is the perception or awareness of students of their needs in learning something (Nation & Macalister, 2010) .

Some of the research conducted on needs analysis that is used as a reference is as follows. First, research with the title "Need Analysis on English Teaching Materials for Science Students" (Diana & Mansyur, 2018). In this study, the theory of needs analysis used is based on the needs of the target, namely needs, desires, and deficiencies. The target is students.

Second, research with the title "A Needs Analysis Study for Preparatory Class Elt Students" (Ulum 2015). In this study the pattern analysis of the needs of the target situation is used based on the needs of students. Third, the research entitled "Needs Analysis For Identifying ESP Material for Medical Record Students in APIKES Citra Medika Surakarta." (Setiawati, 2006). This research identifies the need for English teaching materials for special purposes, namely teaching English to medical students. Needs analysis is also based on target needs which include needs, shortcomings, and desires.

From the three studies it can be concluded that the needs analysis is done by looking at the target needs which include deficiencies, needs, and desires. From there it can also be seen that the analysis of teaching material needs is more for English material, both reading and writing, which for Indonesian students is a foreign language. Maybe because English is considered more difficult. Analysis of needs about Indonesian language teaching materials, especially literacy is still lacking. Therefore, herein lies the novelty of this research, which is analyzing the needs of Indonesian literacy teaching materials. Of course this study needs to be done considering teaching material is important in the process of acquiring a skill, including literacy. And of course we have agreed that literacy skills, especially at the elementary level must be considered.

2 Methods

This research used descriptive qualitative method. The data collection technique used is interview. Interviews were given to teachers and students in 30 elementary schools in Kuningan District. Ten elementary schools in Kuningan edge, ten elementary schools in Kuningan Madya District, and ten elementary schools in Kuningan City district .

Before conducting research, researchers met with the headmaster to ask permission to conduct interviews with the teacher who was the coordinator of the literacy program at his school. After obtaining permission, the researchers conducted interviews regarding the needs, lack, and want of literacy teaching materials. Then, researchers processed using qualitative data processing procedures. The procedure is, data collection, data reduction, data tabulation, data analysis, and data presentation (Creswell, 2012)

3 Results and Discussions

Needs analysis is done by conducting interviews with teachers and students at 30 elementary schools in Kuningan District. Samples were taken from several elementary schools that are spread out of Kuningan, Middle Kuningan, and Central Kuningan.

3.1. Results and Discussion of the Interview with the Teacher, Teacher Interview Results are related to Needs

The second question related to the needs are: According to Mr / Ms, what kind of teaching materials are needed for the implementation of the literacy program? For this question, the answers of 30 respondents varied greatly, and each respondent answered more than one answer. However, the authors conclude there are seven answers in common, namely; 1) need literacy teaching materials that are suitable for classroom learning; 2) need literacy teaching materials that are appropriate to the level of understanding of students; 3) need teaching material that contains the values of character / habituation of behavior; 4) need teaching material that contains knowledge / insight; 5) need teaching materials that contain self-development; 5) need teaching material in the form of stories / fiction; 6) teaching materials that contain instructions are easy for students to understand so students know what they need to do; and 7) need teaching materials that contain elements of Sundanese/Kuningan culture and language.

For item needs, the results of the interview can be concluded as follows, that the teacher needs teaching material that: in accordance with classroom learning; according to the level of understanding of students; contains the character values / habituation of behavior; includes knowledge / insight; contains self-development; in the form of stories / fiction; contains instructions so that students can easily understand; contains elements of Sundanese culture and language / Kuningan local wisdom; and stimulates students' critical thinking.

3.2. Teacher Interview Results are related to Lack

The first question relates to the lack is "According to Mr / Ms, how the conditions of teaching materials for literacy programs that exist today ?. For this question, the answers of each teacher vary, and many of them answer more than one. However, the authors conclude their mean answers are as follows; 1) teaching materials are still improperly relying on books in the library; 2) literacy is still using textbooks; 3) there are many literacy books that are not suitable with the development and needs of elementary school children.

The second question related to the lack is: According to Mr / Ms, whether teaching materials for literacy programs that exist today have shortcomings? If yes, can you / explain the shortcomings ? For this question, all respondents (100%) answered yes. The explanations vary and each teacher answered more than one deficiency. There are also teachers who provide explanations that do not fit the direction of the question. After the authors conclude the answers about the lack of literacy teaching materials are as follows; 1) not suitable with the development / understanding of the child; 2) lack of interest in reading students; 3) lack of character load; 4) lacks even does not contain clear instructions so students do not know what to do; 5) literacy teaching materials are still in the form of textbooks.

For lacking items, the interview results can be concluded that the existing literacy teaching materials have the following shortcomings: still minimalist ; not suitable with the development / understanding of the child; lack of interest in reading students; lack of character load; lacks even does not contain clear instructions so students do not know what to do; and literacy teaching materials are still in the form of textbooks

3.3. Teacher Interview Results are related to Want

The first question related to the want is "If you will develop a teaching material for the literacy program, what kind of teaching material do you want? ". For this question, the answers of the teachers varied and each of the many teachers answered more than one wish. After the writer concludes, the answers about the desire of literacy teaching materials are

as follows: 1) want interesting and current literacy teaching materials so that students want to read; 2) want teaching materials that support the learning process in the classroom; 3) want teaching materials that fit the level of student understanding; 5) want teaching materials that contain character values; 6) want teaching materials that contain science and skills; 7) want teaching materials that contain local wisdom, and 8) want teaching materials that have passed expert testing.

The second question related to the want is : "Do you want teaching material that contains instructions that direct students to read technical well?". For this question all respondents (30 people / 100%) answered no.

The third question related to the want is Do you want teaching material that contains instructions that direct students to be able to understand discourse? For this question all respondents (30 people / 100%) answered yes.

The fourth question related to the desire want is "Do you want teaching material that contains instructions that direct students to think critically? For this question all respondents (30 people / 100%) answered yes.

The second question related to the desire want is: Do you want literacy teaching materials that contain elements of local wisdom Kuningan ? For this question all respondents (30 people / 100%) answered yes.

For want items, the results of the interview are that the teacher wants teaching material that: interesting and up-to-date so students want to read; support the learning process in the classroom; according to the level of understanding of students; load character values; includes science and skills; loading local wisdom, includes instructions on understanding discourse; and stimulates students' critical thinking

3.4. Results and Discussion of Interviews with Students

For students also asked questions relating to needs, shortcomings, and desires. Based on the results of interviews with students obtained the following results.

3.5. Students Interview Results are related to Needs

The first question relates to the need is "Do you know about literacy in your school? ". For this question, all students answer yes. That means that in elementary schools in Kuningan district have implemented the school literacy program.

The second question related to needs are: For literacy activities, what kind of reading books do you need? Of the 30 students interviewed their answers varied and each student answered more than one answer. And on average they answered that they needed teaching materials in the form of: 1) story books; 2) knowledge books; 3) history books; and 4) books that contain morals.

The third question related to needs are: Do you think, the reading book you should be able to understand? What is the reason ? Of the 30 students, all answered yes. The reason is that the intended teaching materials can be understood by them.

The fourth question related to needs are: Do you think the literacy reading should be interesting? (For example, the color is interesting, the picture is good, the writing is funny , etc.)? What is the reason ? For this question, out of 30 students 19 people answered yes, with the reason that they were interested in reading it and 11 people answered no. Their reason is because the contents are important. there are students who don't give reasons.

The fifth question related to the needs are: Do you think, the reading book should contain text about Kuningan District? Why ? Out of 30 students, 21 students said yes. the

average reason is because let me know the history of Kuningan. while 9 people answered no by not giving reasons or answering not knowing.

Questions sixth relates to the need is: Do you think, reading books that you read on the literacy program should make you think critically (want to ask, wanting to know more, and would like to comment on? Why?. Of the 30 students all answered yes. However, when asked the reason for average silence.

For item needs, the results of interviews with students can be concluded that for the literacy program they want: story book; knowledge books; history books; books that are easy to understand; a book that contains about Kuningan district; interesting books; and books that contain moral messages.

3.6. Students Interview Results are related to Lack

The first question is related to the lack: Does your school provide reading books for literacy at school? For this question all students answer yes.

The second question related to lack is: Do you often find difficult words / sentences in the text that you read in the book you read? Out of 30 students, 27 answered yes, and the rest said no / never.

The third question relates to the deficiency is: Are books that you read interesting (color, letters, pictures, etc.)?. For this question, all students answer yes.

The fourth question related to lack is: Does the reading book contain text about Kuningan District? If there is, for example about what? For this question, all students answer no.

The fifth question related to lack is: Does the textbook convey character values to you? For example what? For this question, all students answer yes. They answered the example of the characters that they got were nationalism, respecting parents, please help, save, be diligent, and not give up.

Questions sixth associated with lack is: Does the textbook makes you want to ask, wanting to know more, and would like to comment on? For example how? For this question, all students answer yes. But most of them can not explain further.

The seventh question relates to lack is: Is reading books that you read commands / assign something to you? For example, asking to make poetry and so on. For this question all students answer no (one of them answers: maybe ever).

For lacking items, it can be concluded that according to students the existing literacy teaching materials have the following deficiencies: In the books they read they still often find difficult words; In the book they read it does not contain content of local wisdom; The book they read does not contain follow-up instructions on what they read.

3.7. Students Interview Results are related to Want

The first question related to want is: Next, if you want to make reading books for literacy, what kind of reading book do you want? For this question, students' answers vary, and they have more than one answer. After being concluded, they want books that are: 1) story books, 2) books that have moral messages, 3) interesting books, and 4) books that contain knowledge.

The second question related to want is: What kind of themes do you find interesting? For this question, students' answers vary, and they have more than one answer. Once concluded they want a theme about school stories, stories that have moral messages, stories about animals, adventure stories.

The third question related to the want is: Do you want a reading book in which there are stories about legends or folklore originating from Kuningan District? Why? For this

question, all students answer yes. The reasons are: 1) to know the history of Kuningan, 2) so that Kuningan can become famous.

The fourth question related to want is: Do you want books to read that make you think critically? (For example, want to ask more questions, want to comment, want to do something). For this question, most students (22 people) answered yes, although when asked the reason why they did not answer. Meanwhile, the rest did not answer, and they together did not give a reason.

The fifth question related to want is: Do you want a literacy reading book that assigns you with certain skills, such as making poetry, retelling stories, and so on ? For this question, all students answer yes, even though they are reluctant to give reasons for their answers.

For want items , it can be concluded that students want teaching material as follows: story book, books that have moral messages, interesting books, knowledge book; books that contain elements of local wisdom; and books that make them think critically

4 Conclusions

Based on the results of research and discussions that have been carried out, it can be concluded that the needs of literacy teaching materials in elementary schools in Kuningan District are:

1) in accordance with classroom learning material; 2) according to the level of student understanding; 3) contains the character values / habituation of behavior; 4) contains knowledge or insight; 5) contains self-development; 5) in the form of stories or fiction; 6) contains instructions so students easily understand and know what they have to do; 7) stimulates critical thinking; 8) it contains elements of Sundanese / Kuningan culture and language; and 10) interesting.

Based on these conclusions, the researcher recommends to related parties and or to further researchers to compile teaching materials that suit these needs. Thus, it is hoped that the School Literacy Program in elementary schools in Kuningan District will produce students' literacy abilities that are in line with expectations. In addition, with teaching materials that fit the needs it is expected that the culture of student literacy will increase..

5 Acknowledgements

In this study, researchers thanked the following parties.

First, LPDP Indonesia has provided full financial support in conducting this research. Second, to the promoters and co-promoters who have provided research guidance with sincerity With this help, thankfulness the researchers gave, so that researchers can carry out this research smoothly.

References

- [1] Aisyah, D. W., & et al. (2017). Development of Literacy-Based Teaching Materials Characterized by Quantum Teaching To Optimize Effective And Productive Learning. *Journal of Education: Theory, Research and Development*, 2 (5), 667–675.
- [2] Boeriswati, E. (2017). 21st Century Literacy Issues. *Proceedings at the International Conference on Language, Literature, and Teaching*, Semarang, October 10, 2017 (p.37-47)
- [3] Cassady, J. C., Smith, L. L., & Thomas, C. L. (2018). Supporting Emergent Literacy for English Language Learners with Computer-Assisted instruction. *Journal of Research in Reading*, 41 (2), 350–369. Retrived from <https://doi.org/10.1111/1467-9817.12110>
- [4] Chima, O. D. (2015). Influence of Computer Literacy on Postgraduates' Use of E-Resources in Nigerian University Libraries. *International Research Journal of Interdisciplinary & Multidisciplinary Studies*, 1 (1), 97-102. Retrived from <https://doi.org/10.1108/1759751X201100016>
- [5] Chow, B. W. Y., Hui, A. N. N., & Chui, B. H. T. (2018). Creative Literacy Activities Promote Positive Attitude Reading in Children Learning English as a Foreign Language. *Journal of Research in Reading*, 41 (2), 278–289. Retrived from <https://doi.org/10.1111/1467-9817.12096>
- [6] Creswell, J. W. *Educational Research*. New York: Pearson: 2012
- [7] Diana, Sri and Mansur Musdalifah (2018) Needs Analysis on English Teaching Materials for ICT Students. *English Teaching, Learning, and Research Journal*, 4 (2), 209-218.
- [8] Faizah, D. U. (2017). Literacy in Learning. *Proceedings at the International Conference on Language, Literature, and Teaching*, Semarang, October 10, 2017, (p.26-36)
- [9] Fitriyanti et al. (2016). Development of Instructional Materials based on Local Wisdom in Social Studies. *Proceedings of the 2nd SULE - IC*, FKIP, Unsri, Palembang October 7th-9th, 2016, 395–408.
- [10] Hutchinson, T. and Water, A. (1987). *English For Specific Purpose*. Cambridge: Cambridge University Press.
- [11] Keefe, Elishabet B., and Copeland, Susan R. (2011). What Is Literacy? The Power of a Definition. *Journal of Research & Practice for Persons with Severe Disabilities*, 36 (3-4), 92–99.
- [12] Kharizmi, M. (2015) Difficulties of Primary School Students in Increasing Literacy Ability. *Journal of Basic Education*, 2 (2), 11–21.
- [13] Miller, J. (2014). Building Academic Literacy and Research Skills by Contributing to Wikipedia: A case study at an Australian university. *Journal of Academic Language & Learning*, 8 (2), 72–86.
- [14] Mohd Yussof, Y. (2013). Students' Reading Comprehension Performance with Emotional Literacy-Based Strategy Intervention. *International Journal of Education and Literacy Studies*, 1 (1), 82-88. Retrived from <https://doi.org/10.7575/aiac.ijels.v.1n.1p.82>
- [15] Moon, B. (2014). The Literacy Skills of Secondary Teaching Undergraduates: Results of Diagnostic Testing and a Discussion of Findings. *Australian Journal of Teacher Education*, 39 (12), 111-130.
- [16] Moore, A. L. (2017). *Reading Comprehension*, 15–35. Retrived from <https://doi.org/10.1007/978-94-007-1174-7>
- [17] Morrison, G. R. *Effective Designing Instruction: 5th Edition*. USA: Jhon Wiley & Son Inc: 2007.
- [18] Nation, S. P., & Macalister, J. (2010). *Language Curriculum Design*. New York: Rotledge.
- [19] Roser, M. (2018). *Literacy*. Retrieved from <https://ourworldindata.org/literacy>
- [20] Richard, J. C. (2002) *Curriculum Development in Language*. United Kingdom: Cambridge University Press.
- [21] Richard, J. C. and R. S. (2010). *Longman Dictionary of Language & Applied Linguistics, 4th Edition*. Malaysia: Pearson Education.
- [22] Syatriana, E., Husain, D., Haryanto, H., & Jabu, B. (2010). A Model of Creating Instructional Materials based on The School Curriculum for Indonesian Secondary School. *Journal of Education and Practice*, 4 (20), 10-18. Retrieved from

- <http://www.iiste.org/Journals/index.php/JEP/article/view/7893>
- [23] Teaching Diverse Learners. (2018). *Elementary Literacy*. Retrieved from <https://www.brown.edu/academics/education-alliance/teaching-diverse-learners/about>
- [24] Teguh, M. (2017). *Primary school literacy program: Proceedings of the National Seminar*, 18–26.
- [25] The EFA Global Monitoring Report Team. (2005) *EFA Global Monitoring Report Chapter 6: Understanding of Literacy*. United Nations Educational Scientific and Cultural Organization.
- [26] Thomson, S., Hillman, K., & De Bortoli, L. (2013). *A Teacher's Guide to PISA Reading Literacy*.
- [27] Ulum, Omer Gokhan. (2015). A Needs Analysis Study for Preparatory Classes for ELT Students. *Eoropean Journal of English Language Teaching*, 1 (1), 14-29. Retrived from <https://files.eric.ed.gov/fulltext/ED572922.pdf>.