

MEASURING HIGH SCHOOL STUDENTS' READING LITERACY: A CASE STUDY IN NORTH KALIMANTAN PROVINCE

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ABSTRACT

Reading is a fundamental tool for gleaning information and engaging in many fields of literacy. However, poor reading outcomes among Indonesian students on the PISA test indicate a low literacy level. The reading ability referred to in this study is the ability to understand reading texts on various topics and forms. This study used a sample of 234 students from eight schools in North Kalimantan Province. The data were obtained from reading tests carried out by students via computers. The test consists of 40 multiple-choice questions, short answers, and essays. The data was processed in several stages, including data reduction and item calibration using the Rasch Model. Apart from reading tests, data were also obtained through questionnaires to gather information about literacy activities carried out by students at school and at home. The results showed that nationally the average

reading literacy ability of students in North Kalimantan Province was at a low level, namely at score 349, while the highest reading literacy ability average score in Indonesia was 489. The results also showed that there was a relationship between students' reading literacy skills and their conditions and habits at home. As a recommendation, students need to be more accustomed to reading multimodal texts through multimedia devices. It is important to make them capable of understanding texts containing not only words, but also pictures, numbers, graphs, and tables as demands for modern literacy. Moreover, parents also need to be to encourage to help improve the students' literacy capacity.

Keywords: High school students; Literacy; Measurement; Reading skill.

Introduction

Literacy skills are urgently needed for living a life in this increasingly modern era. Individuals who are literate will be able to survive and adapt amidst the progress of the times. At a larger level, a country whose citizens possess qualified literacy skills will be able to compete in the global competition arena. Literacy is a gateway to unlimited information,

opportunities, and enjoyment. Deprived of literacy, one is quite simply unable to fully partake of contemporary society (Spence & Mitra, 2023). Conversely, a country whose people have low literacy skills will be put aside from the global community and be drowned in the shadows of other nations.

In traditional sense, literacy refers to the ability to read and write. This definition, however, has developed over time. Multivariate statistics had been invented a half century earlier to learn and process problems especially with the emergence of computer and the availability of multivariate statistics programs (Alves et al., 2020). Langer in (Tarigan et al., 2021) stated that reading and writing are “tools that enable, but do not insure, literate thinking”. It is against the tendency to equate literate thinking with the ability to analyze or synthesize texts. Moreover, modern literacy requires a person not only to be able to read and write, but also to speak, count, and access and use information (Kementerian Pendidikan dan Kebudayaan, 2017). Literacy is currently divided into six types, namely literacy, numeracy literacy, scientific literacy, financial literacy, digital literacy, and cultural and citizenship literacy (Kementerian Pendidikan dan Kebudayaan, 2017). The six types of literacy play important roles in the development of the nation's civilization. However, of all types of literacy, reading-writing skill may indeed be the most central ability. Through reading and writing, one can enter the other five types of literacy since language is a bridge to knowledge.

Reading is a complex activity. Reading is not just an activity of decoding characters that are intertwined and form words to become sentences and paragraphs (Harsiati & Priyatni, 2017). More than that, reading is a complicated activity and involves many aspects such as visual and cognitive ones (Tahmidaten & Krismanto, 2020). It is also considered as a literacy skill for learners (Mubarok & Sofiana, 2017) as reading, can carry out a person to have a cognitive process that includes word recognition, literal understanding, interpretation, critical reading, and creative understanding” (Rahim, 2008). Thanks to the increasingly modern age which is marked by the development of information technology, reading as a basic skill is defined more broadly and complicated especially for nowadays educational contexts (Pečjak, Podlesek, & Pirc, 2011 in Mubarok & Sofiana, 2017)). Reading ability or literacy is now not only about the ability to spell letters, but more than that, includes the ability to master or understand technology, think critically, be sensitive to the surroundings, and be able to turn information into action (Harsiati & Priyatni, 2017). In a nutshell, a person is said to be literate if he really understands and applies what he reads.

In 2000 Organisation for Economic Co-operation and Development (OECD) conducted a survey to measure students' literacy skills in 72 countries including Indonesia through PISA (Program for International Student Assessment) (OECD, 2018). The survey aimed to engage students in a problem solving process and assess students' abilities throughout the process (Sabatini et al., 2014). More specifically, its aim was to establish common criteria for evaluating the performance of 15-year-olds in three areas: science math, and reading from various texts—to monitor students' reading of different kinds of materials or for different purposes (Santi & Reed, 2015).

The results of the PISA test on Indonesian students in 2015 showed that the reading ability of Indonesian students was at an average score of 386. Furthermore the high score category (levels 5 and 6) of 0.8 and the low score category (levels 1 and 2) of 42.3 (PISA Result in Focus Badan Pengembangan dan Pembinaan Bahasa, 2018). These results indicate that the ability of the majority of Indonesian students who took part in the PISA survey is still at a low literacy level. It clearly indicates that Indonesian students need to continue to grow in their ability to comprehend correctly more texts. It associates with the ability to make sense of text by processing the language, understand its meaning, and integrate it with prior knowledge (Fogarty et al., 2021).

There are factors and reasons for low achieving in the literacy test, that is from the text characteristics or from the students. For example, book or text with more complex content and vocabulary seems to drop off student comprehension, despite decoding many individual words with relative ease (Burkins & Yates, 2021). Then, many factors that influence students' from 'being disengaged' to being 'engaged' with the texts, such as youth culture, home literacy, or wider social factors (Scherer, 2016). Meanwhile, (Fadhilah, 2020) in (Hasanah, 2019) proposes two reasons for Indonesian students having the low literacy level on the PISA test. Firstly, the students are not familiar with multi-text reading and computer-based tests. Secondly, students are not familiar with texts from more complex genres. In fact, the questions on the PISA reading literacy test are actually dominated by higher order thinking skills (Harsiati, 2018).

Although the results of the PISA test are quite comprehensive and to be used as a reference for literacy policy recommendations, the survey does not reach all schools and students in Indonesia. For this reason, in order to see a real condition of the Indonesian students literacy skills, a slightly different study about the students' reading literacy skills is also needed to be carried out, especially for those who did not participate in the PISA survey.

The empirical study on SBA is mostly generated by investigating the validation of scenario-based reading comprehension tests. Like (Zhang, 2022) he set out a study to examine the validity of three prototype forms of Scenario-Based Reading-to-Write assessment. Guided by the argument-based framework, it focused on the accuracy and appropriateness of the key inferences, including scoring, generalization, extrapolation, and theory-based interpretations. The finding of the positive correlation between reading and writing, that the reading part was incorporated into the assessment to support students' writing.

Studies related to students' reading literacy skills in Indonesia have been carried out by several researchers, such as Emilia, Palupi, & Kusumawardani (2019), Parwati, Nitayadnya, & Sudiana (2019), Hasanah & Warjana (2019), and Harsiati & Priyatni (2017). Emilia, Palupi, & Kusumawardani (2019) examined the ability of high school students to understand multimodal texts through a reading test. The results of their research indicate that only a few students from their research participants are able to answer questions from multimodal texts. Therefore, they recommend that students and teachers need to be exposed to teaching materials from multimodal texts. However, the research does not link reading skills with backgrounds and habits related to literacy carried out by students.

Parwati, Nitayadnya, & Sudiana (2019) specifically conducted research related to the reading ability of SMA/SMK students in Bali Province, particularly in Klungkung Regency. The results of their research show that the literacy skills of SMA/SMK students in Klungkung Regency are in a good category. Nevertheless, there is one school whose literacy score is still below the average. In addition, in their research, they also examined the relationship between literacy skills and the availability of school literacy support facilities and school literacy programs. Departing from this aspect, they found that there is a positive relationship between the availability of literacy support facilities and programs and students' literacy skills.

Meanwhile, Hasanah & Warjana (2019) did research on reading literacy learning methods to improve students' reading power. Through the pre-test and post-test using PISA test questions, they found that the design of developing reading literacy learning methods by teaching speed reading and critical reading techniques is able to increase students' test scores.

Different from Emilia et al. (2019), Parwati et al. (2019), and Hasanah & Warjana (2019) who measured students' reading literacy skills, Harsiati & Priyatni (2017) in their research examined the characteristics of PISA reading test items from 2000 to 2009. The results of their research reveal that PISA test items generally test students' abilities in interpreting, reflecting, and evaluating. The questions are characterized by long texts and complex question sentences.

This present research takes a different position and point of view from the previous studies. Other than differences in focus and locus, this research specifically examines the relationship between students' literacy abilities and their conditions, habits, and backgrounds. Furthermore, the reason for selecting North Kalimantan Province as the research location was based on the province's status as the youngest province in Indonesia (inaugurated in 2013) and its direct border with Malaysia, which has long been riddled with issues related to fundamental border conflicts such as cross-border mobility that does not go through official channels, shifting boundary markers between countries and so on. Moreover, in the future this region is projected as one of the buffer belts of the IKN Nusantara (National Capital) to replace DKI Jakarta, so it requires attention in accelerating the improvement of the quality of its human resources, especially in the aspect of education, especially literacy skills.

The conditions and situations that put North Kalimantan Province and the doctrine of the national defence system that adheres to the *Hankamrata* system (Universal People's Security Defence) require the readiness of various existing resources, especially human resources throughout the territory of the Republic of Indonesia, especially those directly bordering other countries. Therefore, this research is needed to provide results that can be used as one of the recommendations for stakeholders in the field of education, especially in North Kalimantan and generally in Indonesia.

Methods

This study used survey method. This method are responding to the challenges of society and technology changes (Engel et al., 2015). In this study the survey was conducted through tests and questionnaires which were conducted in 2018 on 234 class X students in eight non-PISA high schools (SMA) in North Kalimantan Province, namely SMAN 1 Lumbis, SMAN 1 Sebatik Tengah, SMAN 4 Malinau, SMAN 3 North Malinau, SMAN 1 Sebatik, SMAN 8 Malinau, SMAK Tunas Kasih, and SMAN 1 Tarakan. The selection of students as participants was done through random sampling.

The tests and questionnaires were delivered in the form of an application developed by the Center for Educational Assessment, the Research and Development Agency (Balitbang), Ministry of Education and Culture (MoEC) in 2018. The assessment's results can be used to inform teachers and school administrators about students' academic needs and support to improve the quality of teaching and learning in Indonesian schools and also to track student progress over time. The test comprised 40 questions consisting of seven texts from various topics such as literature, science, and socio-culture. The test questions were prepared by the MoEC's Centre for Education Assessment and Center for Language and Literature Cultivation.

In addition, several questions were also taken from the PISA test. Test questions consisted of three types of question, those were multiple choice, short answer, and description. Meanwhile, student questionnaires were used to gather information related to students' social background, such as parents' last education and reading habits or reading duration at home. The test comprised 40 questions consisting of seven texts from various topics such as literature, science, and socio-culture. The test questions were prepared by the MoEC's Centre for Education Assessment and

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The data was processed in several stages, including data reduction, item calibration using the Rasch Model. Rasch model is a command-based software with particular equation (Lamprianou, 2020). It was used to determine the level of difficulty of the questions, grouping data based on variables and their indicators such as scores of students' reading abilities, ranges of scores of students' reading abilities, and correlations between students' reading scores and their affecting variables. The level of student literacy ability were categorized into five levels according to PISA 2000, namely level 1 (score 335-407), level 2 (score 408-480), level 3 (score 481-552), level 4 (score 553-652), and level 5 (score >652).

Result

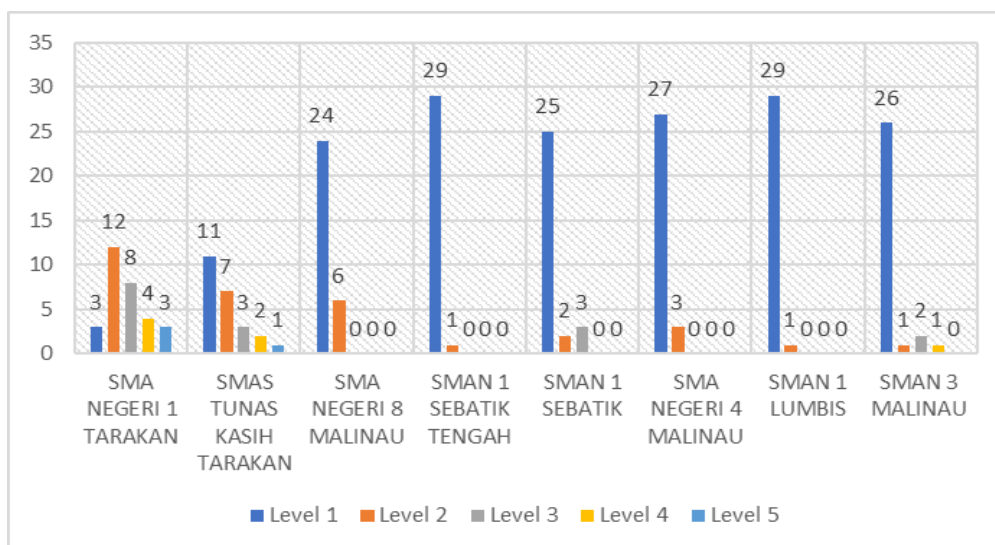
Reading Test

The test aims to explore the reading literacy of high school students from a total of 234 respondents in North Kalimantan Province. This study finds that the result of literacy level is predominantly at level 1 with an average score of 349 (see Table 1). This means that students at this literacy level are only able to complete simple-reading assignments, where students can only find one piece of information from a text, identify the main theme of a text, and relate it simply to familiar knowledge or information. Schools at the level 1 are predominantly located far from the provincial government center such as Malinau, Sebatik, Sebatik Tengah, and Lumbis, which can only be accessed via river routes and pilot flights. The result of the students' reading test in this study are reflected in the literacy scores as the researchers directly covert the students' reading test results to the students' literacy scores or levels.

Table 1. Average scores and literacy levels of high school students in North Kalimantan Province (Source: Primary Data)

School Name	Level	Average Literacy Score	Number of Respondents
SMAN 1 Tarakan	Level 3	496	30
SMA Tunas Kasih Tarakan	Level 2	425	24
SMAN 8 Malinau	Level 1	353	30
SMAN 1 Sebatik Tengah	Level 1	285	30
SMAN 1 Sebatik	Level 1	332	30
SMAN 4 Malinau	Level 1	309	30
SMAN 1 Lumbis	Level 1	269	30
SMAN 3 Malinau	Level 1	320	30

Meanwhile, the students' literacy levels and the detail number of respondents from each high school can be seen in Figure 1 below.

Chart 1. Students' Reading Literacy Level for Each High School in North Kalimantan Province

In this current information technology era, the mastery of reading skills is such pivotal that schools, teachers and curriculum designers must take into account nationwide. Reading skill is considered as the ability to know and master the knowledge for themselves. In addition, education on the border is the mainstay of Indonesia's non-physical defense, because foreign determination in Indonesia's border areas is very vulnerable to all forms of non-military threats (non-traditional security threats) (Adeed, 2019), so that defense through strengthening Education at the border needs to be realized for students at the border in forming strong characters, one of which is through reading literacy. The literacy is defined as someone's ability to read and write. It is beneficial for him/her to enrich life.

Furthermore, student literacy skills through learning are not only oriented towards mastery of knowledge, but learning activities should be based on the learning process and the application of knowledge (Asyhari, 2015). Literacy activities designed in school can be done before the lessons, during lessons, and after the learning process by creating a literate learning environment such as mini library, holding periodic literacy festivals, and growing and boosting students' interest in reading (Andini et al., 2021). Reading test results are a way to measure student literacy in science. Based on the national literacy study reported by Badan Pengembangan dan Pembinaan Bahasa (2018), the literacy achievement of high school students in North Kalimantan Province is in the lowest three provinces based on the national literacy average. The test results show that the average reading literacy ability of high school students in North Kalimantan Province is at a low level, namely 349. Meanwhile, the highest reading literacy ability average score in Indonesia is 489.

It shows that Indonesia's literacy skills, especially in border areas such as North Kalimantan, are a soft potential for the fragility of border education as Juditha (2013) stated that the border area has various problems due to limited access to information and supporting infrastructure for education, causing the people to know their neighbors better than their own country.

As previously stated, based on PISA 2000 there are student literacy score levels which are divided into 5 levels, namely Level 1 (scores <335 and 335-407), Level 2 (scores 408-481), Level 3 (scores 481-553), Level 4 (score >553-625), and Level 5 (score >625). Each level represents the level of students' reading ability. At Level 1, students are only able to complete, answer questions and simple reading assignments by finding one piece of information, identifying the main theme of a text, simple syntax with context and types of text that are familiar or related to everyday knowledge, and are able to find one part of explicit information. At Level 2, students are able to answer simple questions from discourse with moderate complexity, such as seeking direct information, making low-level inferences from various genres of discourse, knowing the definition of certain parts of the text, and using some related general knowledge to understand discourse. At Level 3, students are able to complete reading tasks of moderate complexity, such as finding various pieces of information, making links between different parts of the text, and relating them to familiar, everyday knowledge. At Level 4, students are able to complete tasks of complex discourse, such as finding

implicit information, interpreting the meaning of figurative language and evaluating texts critically. Meanwhile at Level 5, students are able to complete complex reading tasks, such as managing information that is difficult to find in unfamiliar texts, demonstrating a detailed understanding of these texts and concluding information in texts relevant to questions, being able to evaluate critically and build hypotheses, make use of specialized knowledge, and accommodate concepts that may conflict with expectations.

The type of text tested in the reading literacy test given is dominated by multimodal texts, namely texts that do not only consist of verbal language, but also visuals such as pictures, tables and graphs. In relation to the ranking or levelling of literacy skills that have been described above, multimodal texts are found in questions that measure abilities from Level 2 to Level 5. That is, the higher the level of students' literacy skills, the more multimodal texts they are able to answer. Conversely, the lower the level of students' literacy skills, the fewer multimodal texts they are able to answer. From the data on students' reading tests in North Kalimantan Province, it can be concluded that only a few respondents were able to answer questions from complex multimodal texts. This finding is in line with Emilia et al. (2019) who states that most of our students are still not able to understand multimodal texts properly. The low ability of students in answering the questions tested in the test also supports the opinion Ibrahim (2017) which states that our students are not familiar with multi-text readings mediated by computers or multimedia devices.

Inequality in the development of modern technological knowledge is the main obstacle for students in border areas to be able to increase their literacy level so that from direct observation it is also found that students experience technological stuttering in reading texts through computer screens. At least, these findings are also supported by Toharudin et.al., (2011) who argues that reading literacy skills, especially in sciences, are crucial for students in relation to how students can understand the environment, health, economy, and issues of modern society related to technological advances and scientific developments.

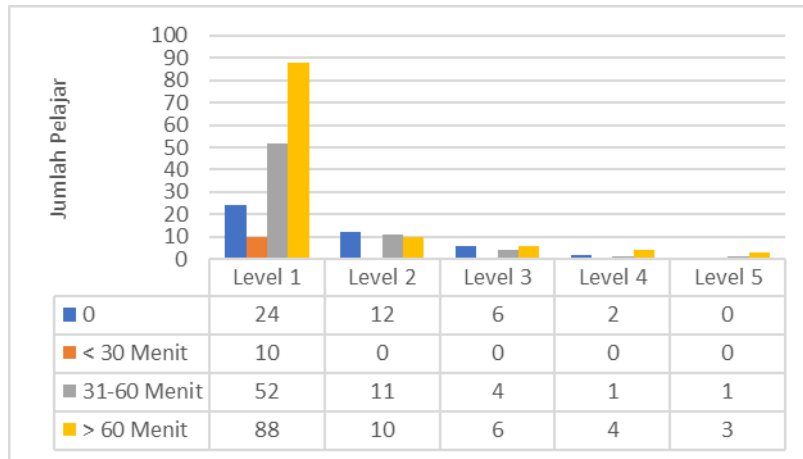
In addition, only high school students located in Tarakan (the largest city in North Kalimantan Province) can advance one level to level 2 and level 3 (see Table 1). These two schools, namely SMA Negeri 1 Tarakan and SMA Tunas Kasih Tarakan are the schools that can achieve literacy scores of 496 and 425. SMA Negeri 1 Tarakan as one of the reference schools in Tarakan achieves the highest literacy score of the other high schools in North Kalimantan Province. Furthermore, the student literacy level obtained from this score shows that in general SMA Negeri 1 Tarakan students have been able to complete reading tasks of moderate complexity, such as finding various information, making links between various parts of the text, and connecting them with everyday knowledge or familiar things. Meanwhile, the students of SMA Tunas Kasih Tarakan are able to answer simple questions from medium-complexity texts, such as seeking direct information, making simple conclusions, knowing certain definitions, and relating them to some general knowledge to understand the text. This fact reflect that the information technology accessibility and the infrastructure availability potentially affect students' literacy abilities.

Literacy skills are measured from not only how students read a text, but also how they can manage complex information, make sense some general knowledge or information, identify the main themes, and simply organize the context of the texts and find some explicit information. PISA definition of reading literacy is more directed to the knowledge and skills needed to apply reading skills for further learning, and not just technical skills at the level of learning to read. As Emmitt et al. (2014) point out that "reading is getting meaning from print, and to get meaning from print we have to bring meaning of it", the students need to get more exposure to a lot of reading materials, because the more they read, the more knowledge they will get. Furthermore, the reading habits will train the students to easily recognize and manage knowledge useful for criticizing and reflecting on texts with various topics.

Student Questionnaires

In this study, students are given question about their social background information, such as reading habits at home and parents' last education. Regarding the result of the questionnaires, data from 234 respondents show that even though their reading duration is >60 minutes and 31-60 minutes, most of them are still at level 1 literacy scores (see Chart 2). The questionnaire explores the aspects of students' reading duration and parents' education level.

Chart 2. Students' Reading Literacy Level Based on Reading Duration



In terms of the parents' education level, the data reveals that the education backgrounds of the respondents' parents are predominantly elementary, junior high, high school, and not attending any formal school as shown in details in Chart 3 dan Chart 4. While elementary school is the most predominant parents' (both father and mother) education level, senior high school becomes the fathers' second most predominant education level, and junior high school is the second most predominant in mothers' education background.

Chart 3. Students' Reading Literacy Level Based on Father's Education Level

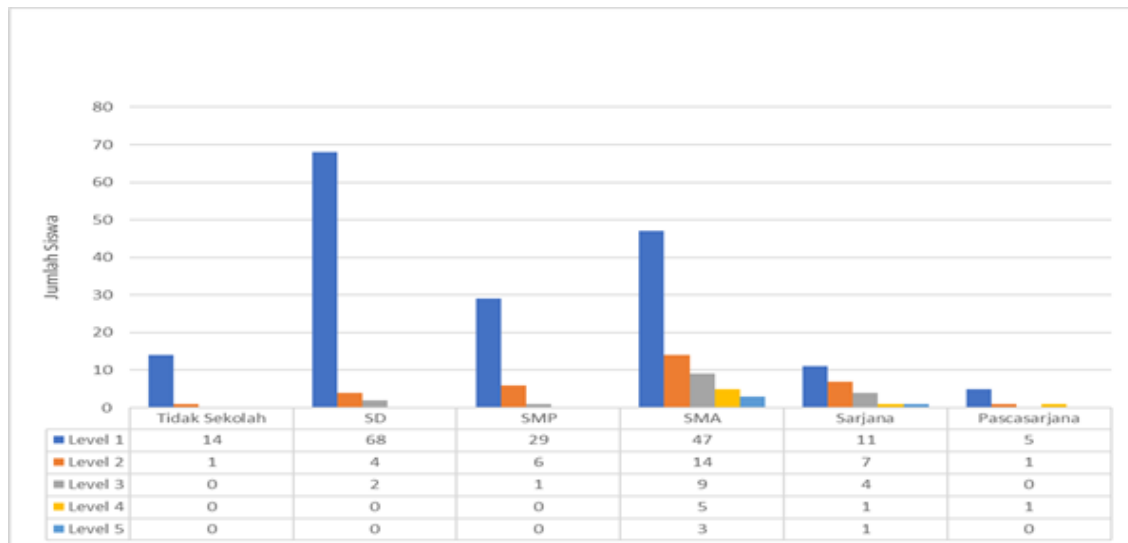
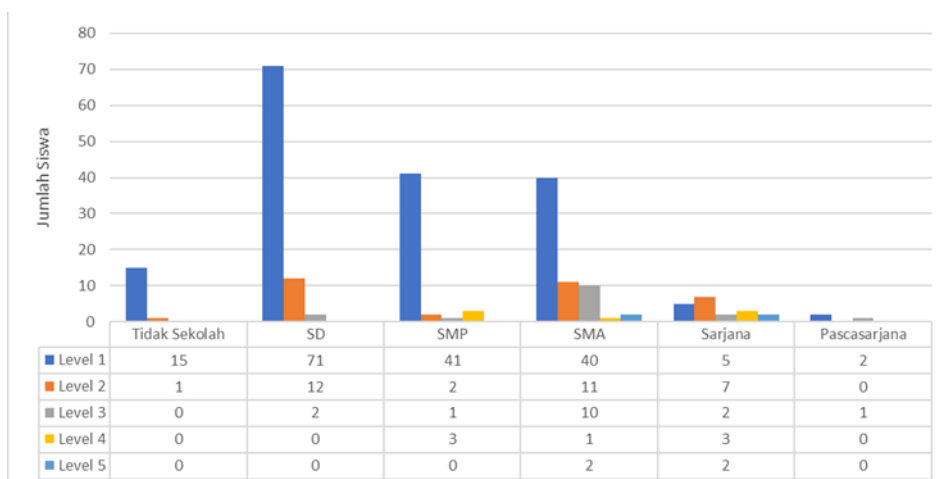


Chart 4. Students' Reading Literacy Level Based on Mother's Education Level

The given reading test results might be affected by the reading materials usually read by the participants, as shown by the data regarding duration and reading materials. The data reveals that students only read without making sense the whole meaning (relating and reflecting on the reading materials). Level 5 literacy scores with >60 minutes and 31-60 minutes reading duration can still be achieved by four students. It confirms that the majority of students who become respondents are still weak in capturing the whole meaning of complex texts. The student questionnaires related to reading duration reveals three factors that make reading duration unsatisfying in elevating the literacy level of high school students in North Kalimantan. Firstly, the reading materials might still be at the level of descriptive text types, instead of the complex ones which stimulate students' critical thinking skills. Secondly, the students can only read the texts without being able to reflect and compare the meaning of a text and use some related general knowledge to understand the whole meaning. Thirdly, the students still cannot unfold implicit information from the texts, critically evaluate the texts, and construct hypotheses with specific knowledge. The capacity to achieve a better level of literacy by taking into account the teaching how to read texts and the complexity of reading material has a direct effect on the students' knowledge.

Unravelling the various literacy problems in North Kalimantan Province needs more efforts from various education stakeholders in the province. Planned and collective-systematic efforts can provide solutions to help the students achieve the ultimate goal of learning, that is to create knowledgeable, capable, creative, and independent individuals. Sani's (2014) conceptual thought on students should be instilled and equipped with lifelong learning abilities, learning from various reference sources, learning to collaborate, learning to adapt and learning quickly to find solutions to problems. In fact, it is the perspective of learning that needs to be deconstructed by placing the learner as the core center of learning (students learn to construct their own frame of mind based on natural phenomena around them). Furthermore, the teachers' role in teaching-learning activity as designers and learning facilitators who motivate students actively seek novelty in knowledge needs to be encouraged.

Meanwhile, data from student questionnaire regarding parents' recent education shows a correlation between parents' education level and students' literacy level. These findings support general opinions stating that family, especially father and mother are the main actors in the formation of the early character of a child. Soerjono (2004) highlights the functions of the family in a sociological perspective which include economic welfare, protection, education, and affection. In education especially literacy, parents are an important subject in shaping the character of their children. As in terms of "looking glass self" by Charles H. Cooley (1964) and Poloma (2010), the self-formation process in children is reflected on their parents. This means that parents are the actors who are primarily responsible for educating children and shaping children's habits. They also have a significant role in determining the future of the children (Umar, 2015).

The role of parents in enhancing the students' literacy skills emphasizes the formation of children's knowledge. The children reflect on their parents, thus if a child has seen her parents reading since her early age then she is potentially following the habit. This is emphasized by Umar (2015) who states that parents have an important role in improving children's learning achievement. The education level of parents is also a determining factor in their children's education achievement. Interestingly, this idea is depicted in the data which shows a significant correlation between the North Kalimantan Province students' literacy level and their parents' education level (see Graph 3 and

Graph 4).

The data in Chart 3 dan Chart 4 above show that the parents' education level potentially affects the student's literacy level. It shows that the literacy level 1 is predominantly occupied by the respondents whose parents' education levels are elementary, junior high, high school, and not attending any formal education. In the meantime, the parents' education background of undergraduate or postgraduate can be found at each of the students' literacy level while the level 1 is not too disparate with the literacy level 2, level 3, and level 4. The data underlines a significant role of the parents' education level in improving the students' reading literacy skills due to the parenting style, especially in sparking the children's reading passion. At least, to guide and to ensure the learning process and the learning continuity at home are the parents' main role and responsibility. A child as in the theory of "looking glass self" (Cook & Douglas, 1998; Franks & Gecas, 1992; Ross et al., 2005; Silva & Calheiros, 2022) is a reflection of their parents or family. The parents' education level have indirect impacts on shaping the children's character and behavior. There is a fact that in low-achieving countries, parents' reading competency will also be low, thus they cannot provide effective support (Punter et al., 2016). Conversely, parents with higher educational backgrounds will potentially be eager to facilitate and provide access to learning infrastructure for their children.

Conclusion

This study is aimed at understanding reading texts on various topics and forms of 400 students from eight schools in North Kalimantan Province. The results of the reading literacy test show that the average reading literacy ability of high school students in North Kalimantan Province is at a low level. The low reading literacy skills are most likely influenced by the condition of students who are not used to reading complex multimodal texts, especially those based on multimedia. The student's family background also affects their literacy skills to a greater or lesser extent. As a recommendation to improve their literacy skills, students need to be continuously introduced and exposed to multi-texts that are more varied and complex, instead of just simple single texts. In addition, students also need to be more familiar with multimedia-based reading materials. It is critical since modern literacy requires students to be able to read and understand reading materials which contain not only words but also images (static or dynamic), graphs, and tables, and are required to be able to read through not only static media such as printed books, but also dynamic mediums such as smartphone screens. Finally, awareness and the role of the family especially parents, also need to be continuously strengthened in supporting children's literacy development.

The implications of this research largely emphasise two intertwined things in breaking the gap of students' reading literacy. Firstly, in terms of policy implications, literacy level as measured by the students' reading capacity in North Kalimantan Province is still a critical point that needs to be intervened by policy makers. Collaboration amongst stakeholders such as universities, education offices and the Ministry of Education, Culture, Research and Technology in assisting the development of adaptive curriculum based on local literacy to leverage the literacy skills of students from elementary to senior high school level in the province is essential. Secondly, in regard to scientific development, the results of this study can be used as further research in exploring and exposing high school literacy skills in the interior of North Kalimantan Province, in order to minimize the gap in education connections amongst the districts. Finally, regarding expanding community participation particularly in rural areas, a programme like "Desa Membaca" (Reading Village) could be initiated in every village administrative office. This programme can be an alternative to solve the limited reading facilities in the remote areas of the province.

The results of this study provide several suggestions for strengthening hierarchy-based literacy in the social system of child development. Firstly, the government through its regulations needs to strengthen the learning curriculum system that involves the role of parents in increasing literacy at an early age. Secondly, educational institutions through school libraries need to engage and familiarize the students with multimedia-based reading materials. Lastly, the role of the main family (father and mother) as early as possible should be encouraged to introduce age-appropriate reading books to their children and to facilitate easy-to-access reading rooms for their children.

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