TEACHING MATERIALS FOR BAHASA INDONESIA READING SKILLS
BASED ON LOCAL WISDOM WITH A QUANTUM APPROACH
(Research & Development on Teaching Materials for Grade IV Elementary Schools)

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ABSTRAK
This study aimed at developing teaching materials for Bahasa Indonesia reading skills for Grade IV Elementary School students based on local wisdom using a Quantum approach in South Nias District. By applying Borg and Gall's R&D design, this study involved 92 random samples of students. Data was collected through questionnaires and tests. The results of the study using the t-test obtained tcount of 23.40 higher than ttable of 2.63. In other words, there was a significant difference after using the developed teaching material product. It can be concluded that the developed teaching materials for Bahasa Indonesia reading skills based on local wisdom with a Quantum approach was very effective for teaching reading in grade IV, Public Elementary School, South Nias District. The implications of this study regarding reading achievement, local wisdom, and teacher’s strategies are also discussed.

INTRODUCTION
The reading culture in Indonesia is still relatively low due to interest in reading and the availability of reading materials that are still minimal or do not meet the needs of readers. The level of interest in reading is closely related to reading abilities and skills and can bring up the reader’s positive self-concept (Zur et al., 2022; Georgiou et al., 2021; Springer et al., 2017; O’Flynn, 2016; Walgermo, 2018). Interest in reading can only arise from reading that is considered interesting, meanwhile, the availability of interesting reading materials is still lacking in Indonesia. This is also inseparable from the lack of book production in Indonesia. The Data and Information Center of the National Library of Indonesia noted that "in 32 years, Indonesia has only published 2 million books with ISBNs, excluding bound books" (Perpusnas, 2018) of Indonesia’s population of around
267.1 million in 2018. Therefore, National Library (2022) warns about the emergency condition of books in Indonesia that "1 book is awaited by 90 people" (Perpusnas, 2022) in other words, "Indonesia has not been able to produce 1 book for one person per year while in America it can produce 20-30 books for 1 person per year" (Hidayat, 2021). In addition, the quality of the books produced does not meet or answer the needs of readers in general and students in particular.

Several international surveys on Indonesian children’s interest and reading skills also show concern. The results of a survey conducted by the Program for International Student Assessment (PISA) which is held every three years show that "the average reading ability of Indonesian children has decreased and reached the lowest score in PISA 2018, namely 371 points" (Schleicher, 2018, ed). In addition, UNESCO (quoted by AntaraNews, 2020) notes that "the illiteracy of the Indonesian people has decreased until 2019, at 1.78% to be precise" but "the reading interest of the Indonesian people is at 0.001%, which means that out of 1000 people only there is 1 person who likes to read" (UNESCO, quoted by the Ministry of Information, 2017). From these data, it can be seen that the eradication of illiteracy in Indonesian society can be said to be successful but the interest and ability to read in society in general and Indonesian children, in particular, is still very low. Schleicher (2018, ed.) then pointed out that "approximately 27% of Indonesian students have competency level 1b, which is a reading skill level where students can only solve the easiest text comprehension questions".

Another cause of the low reading skills of Indonesian students is that reading activities in class are not carried out properly because of the lack of reading teaching materials. When learning to read is taught, students are directed to write. That is, reading activities in class are changed to writing activities. Therefore, reading teaching materials are needed that are designed according to the learning needs of students and the natural environment, and culture in which students grow and develop. This is following what was said by Jolly and Balitho (2011) that "identifying the needs of teachers and students is the main basis for making teaching materials that are expected to solve these problems."

In fact, in Sweden, Hallin et al. (2022) reported that children's early reading skills during the COVID-19 pandemic did not experience a setback or loss because the Swedish government decided to "keep schools opened for the needs of their students learning in reading skills". One of the learning needs to improve students' reading skills is more proportional teaching materials, namely "teaching materials that are adapted adequately for the target learners" (Chen & Meurers, 2019). Teachers must be able to choose and use
appropriate learning materials to increase students' interest in reading skills (Muhyidin, 2016). However, in reality, students' reading skills are still relatively low because the teaching materials used by teachers in the learning process are not following the characteristics and needs of students.

Regarding the needs of students' teaching materials, we made observations and obtained information that teachers in almost all elementary schools in South Nias District used teaching materials provided by the school. This book is the only learning resource used by teachers in reading learning activities. Books are given by schools to subject teachers whose source of funds comes from the School Operational Assistance fund. Even then, the number is only one (1) copy and is not to be shared with other students. As a result, the teacher is the only source of information for students. In addition, teachers' creativity in developing teaching materials based on local wisdom is still very low, so they still depend on textbooks published outside of local wisdom. In terms of feasibility, textbooks published outside of local wisdom can be said to be very ineffective in teaching, their readability level is not optimal and does not suit the needs and characteristics of students in Nias. For example, these books use long sentences that cause students difficulties in understanding the contents of the text they read, use words from other regional languages so that students do not understand and understand the meaning of these words, and use stories about culture. others that are not familiar to students so students have difficulty understanding the meaning of the text because they have not encountered it in their daily lives. In fact, as a natural process, providing reading materials and activities that students are already familiar with is very important, because children have to deal with concepts and structures that they have little understanding of.

In addition, books published outside of local wisdom do not use graphic illustrations that can help students understand the text. These books are used in reading activities in class IV at SDN in South Nias District. In terms of colour, format, illustration, and type of print, it is less attractive and does not suit the needs and characteristics of elementary school students in South Nias. In terms of colour, pictures and illustrations use unattractive colours or some are even colourless. Even though books that are printed in colours and use lots of illustrations are very liked by children they affect improving students' reading skills (Veszeli & Shepherd, 2019) because books that have good visualization can increase on-task attention to stimulate information from reading (Lauricella et al., 2022). This affects the affective aspects of students concerning interest in reading and influences reading activities. Based on these conditions, developing teaching
materials for reading Indonesian based on local wisdom with a Quantum approach for Grade IV students of public elementary schools in South Nias District.

**LITERATURE REVIEW**

**Children's Reading Skills and Quantum Learning Theory**

Reading is a process that combines information from text with the knowledge possessed by readers to attract and build meaning and interpret information appropriately (Nunan, 2003; Grabe & Stoller, 2014). Information obtained from reading activities is used to acquire knowledge and technology so reading activities are also closely related to literacy. Therefore, for this literacy activity to be achieved properly, teaching materials are needed that contain material that is familiar to students' lives. The material in question includes natural, social, and local cultural conditions. Material that fits the student's character will increase students' interest and motivation in reading to acquire the knowledge and skills needed. School institutions must always consider this because "school success in the future is very dependent on students' ability to read" (Osman et al., 2016). With high interest and motivation in reading, it will affect the improvement of student's abilities and learning outcomes in all fields of knowledge.

It should be understood that "everyone can do something but not everyone is skilled at doing it" (Murtadho & Arung, 2021). A skill demands consistent practice based on one's potential. In terms of reading, all students certainly have the basic ability or potential to be able to read but not all are skilled in reading so reading practice should become a habit to achieve reading skills. One of the language skills that must be mastered by students is a reading skill which can "become a gateway for children to learn science" (Gumono, 2013). Reading skill is a basic ability that must be mastered by students to be able to acquire knowledge, including reading skills in Indonesian. Students who have speed reading skills do not experience difficulties in participating in learning to read. Conversely, students with less reading skills will certainly have difficulty following the next learning topic. Students who have good reading skills will affect other language skills. A person can produce good writing if he reads a lot of books and understands the meaning or meaning contained in the text and is used as a reference in his writing. Conversely, a person becomes a good speaker if he gets a lot of information and vocabulary obtained through reading. This is following what was said by Mulyati (2015) that "a person is said to be skilled at reading if the person concerned can interpret the meaning of written
language forms, such as words, sentences, paragraphs, and written organization, which he reads”.

However, the abilities and skills of each student in mastering reading are certainly not the same because each student has advantages and disadvantages in mastering aspects of language skills, the level of development of students, and the complexity of the target language. For young readers, a very prominent characteristic of them is that they tend to be interested in visualization, whether in the form of writing, pictures, size or texture of the reading book. Therefore, learning reading skills in elementary schools must receive more attention or be instilled in children as early as possible, considering that reading skills are the key to developing knowledge. Therefore, various approaches, methods and learning strategies are needed to mediate a skill, especially reading skills for children readers.

One of the concepts to approach children's reading skills is Quantum Learning initiated by DePorter and Hernacki (1992). Quantum learning is an approach, method, strategy or learning philosophy that has been proven effective in schools for all types of people, children and adults, which is used to create an effective learning environment, implement curriculum, convey content, and facilitate the learning process. They show that Quantum Learning has several objectives in learning, namely, 1) helping students to jump-start their potential, 2) helping to improve reading comprehension, 3) overcoming obstacles in reading, and 4) creating conditions for a conducive learning environment in reading activities. With Quantum Learning, Tobitani (2006) developed Quantum Speed Reading to improve memory skills, develop intuition, improve speed reading skills, find feelings and stability, increase imagination, increase concentration, and make effective use of children's learning time. This concept can mediate the ability to read and understand the contents of the text through the process of turning pages using Extra Sensory Perception (ESP). These two concepts are based on the Quantum theory of atoms by Planck (1922) and Bohr (1963) which was later developed into quantum machine learning or quantum computing (Martin-Guerrero & Lamata, 2021; Schuld & Petruccione, 2021; Singh, 2021) with involve the possibility of acceleration or improvement in other respects.

The concept of Quantum Learning can be a conceptual and practical alternative for improving children's reading learning skills because this learning model can familiarize reading behaviour with self-potential, increase understanding of reading, overcome obstacles in reading, and at the same time create conditions conducive to a learning environment in learning activities. read. To jump-start children's potential in reading,
teachers need to raise their interest in reading by presenting teaching materials that make children interested. The thing that makes children interested in reading is their thoughts about the familiarity of an object to read. To overcome obstacles in children's reading and improve their understanding of reading, teachers need to provide assignments that are appropriate to the level of difficulty for their age. Merisuo-Storm and Soininen (2014) show that "interesting reading material can develop students' reading skills and positive attitudes much more effectively than tasks they find uninteresting".

Reading Teaching Materials, Local Wisdom, and Interest in Reading

Familiarity with reading objects can provide great stimuli for children to bring up their interest in reading. Familiarity with reading objects is stimulated more by objects around the reader's environment. This is certainly related to the principle of local wisdom "which suggests cultural identity in the area as well as knowledge of local constructive ideas to involve people in maintaining their lives in society" (Pornpimon et al., 2014). The principle of local wisdom in the learning process greatly supports modern science but does not ignore conservative attitudes towards local cultural values. The early age generation needs "wisdom that transcends cultural boundaries, namely wisdom that is not only beneficial to members of their own culture but also to other cultures" (Yang et al., 2022). Local wisdom, according to Ahamed (2017), "is likened to dewdrops in the garden of Eden where subtle thoughts, art, and generosity develop together". Therefore, Yang et al. (2022) suggest "the importance of documenting and studying real-life displays of wisdom".

Young children are very sceptical about things outside of what they are passionate about. They just tend to do what they feel like. Children are always associated with behaviour (Boseovski, 2021) that is based on childhood awareness (Nave et al., 2017). Related to reading interest, children can show reading behaviour when they are brought into a situation of childhood consciousness in which they only do something that is fun and familiar to them. This is where the importance of local wisdom presented in various reading texts is for children to be more enthusiastic about knowing themselves and their cultural wisdom through reading texts. Children can have a more prosocial attitude by imparting local wisdom values. The prosocial attitude of children needs to be guaranteed through a learning process that provides teaching materials based on local wisdom with the aim "to increase students' interest in reading and their reading growth" (Ha & Roehrig, 2022). Teaching materials that present local wisdom can lead children to active
prosocial attitudes and behaviour because the values of local wisdom are considered as their identity. Black and Barnes (2015) suggest "using mother tongues in children's reading materials" which is also a form of local wisdom. Therefore, teaching materials need to be designed with local wisdom content; content that shows children everything related to their daily lives.

Neurologically, familiar texts or reading materials in students' daily lives can evoke visual information and nonvisual information. Visual information is information that comes from printed pages. Related to visual stimuli, Chyl et al. (2023) demonstrated that "among several categories of visual stimuli only printed reading material can activate a wide network of language-related areas beyond the bilateral visual cortex, and the degree of reading skill is related to the strength of this activation, indicating the development of reading circuits". Non-visual information comes from the reader's brain. This non-visual information is information that is already known by students, both in language, social, and environment. Visual and non-visual information presented in reading teaching materials based on local wisdom can be processed and stored in children's memory, especially long-term memory, to then be conceptualized in the form of attitudes and persuaded in the form of everyday behaviour. It is hoped that this information can be stored in memory for a long time through consistency in the attitudes and behaviour of everyday children. Regarding memory, particularly working memory, Morris and Lonigan (2022) point out that "working memory is not specifically associated with reading comprehension because most of the effects of working memory processing are indirect through effects on basic reading-related skills". Even so, long-term memory, assisted by the function of the ventral occipitotemporal cortex (VOTC) to categorize visual information (Chyl et al., 2023) from printed teaching materials, can retrieve certain information from short-term memory storage to be stored in the unlimited period. This condition is very dependent on the consistency of attitudes and behaviour through children's reading activities.

RESEARCH METHODOLOGY

This study aims to develop teaching materials that are designed incompletely in limited learning components for limited purposes. The teaching materials designed were teaching materials for Bahasa Indonesia reading skills based on local wisdom with a quantum approach for elementary school students in grade IV. The teaching materials developed were limited to the reading component and are intended for grade IV
elementary school students in South Nias District. This study applied the research and development method by Borg and Gall (1983) which consisted of the product development stage and the testing stage. They explained that educational research and development aims to develop and produce valid research products through processes or steps that are cyclic and iterative such as field testing, and product revisions to finally produce products that are following the goals set.

This research was conducted at elementary schools in South Nias Regency from September 2018 to March 2019. The population in this study were all fourth-grade students of elementary schools in South Nias Regency which were determined randomly until 92 students were selected. Data was collected through questionnaires and tests. The tests here referred to experiments that are intended to test the effectiveness of the teaching materials that had been developed and tests that were intended to test students' reading skills after implementing the use of the developed teaching material products. The effectiveness of teaching materials was tested statistically with a one-group pre-test and post-test design using the t-test. The experimental design in question consisted of the pretest and posttest experimental-control groups which were denoted as follows:

\[
R \quad O_1 \quad X \quad O_2
\]

Questionnaire techniques were used to obtain data related to teachers' perceptions of teaching materials. The questionnaire consisted of an initial perception questionnaire about the teaching materials being used and a questionnaire about the teacher's final perception of the teaching material products being developed. The initial perception questionnaire was intended to obtain data about the needs of teaching materials according to student's needs while the final perception questionnaire was used to obtain data about teacher perceptions of the designed teaching material products. The data were analyzed using a descriptive statistics by focusing on the percentage.

**RESULTS AND DISCUSSION**

Based on the results of the analysis of initial perceptions about the teaching materials for reading Indonesian for fourth-grade elementary school students who are being used, the average data is 10.3 or 41.12%. These results indicate that the teaching materials that are being used in reading activities are not following students' reading needs. On the other hand, the results of distributing the questionnaire also obtained data
on the need for Indonesian reading teaching materials with an average value of 85.9 or 95%. This data shows that the teacher expects Indonesian reading teaching materials to suit the needs and learning characteristics of students. This has become the basis for researchers in developing Indonesian language reading teaching materials based on local wisdom with a Quantum approach.

Regarding the normality and homogeneity of the sample data, it was found that the normality test results showed normal data as shown in Table 1. The normality results showed that the pre-test data was 0.161 while the post-test results were 0.103. The significant value of the pre-test and post-test is greater than 0.05.

<table>
<thead>
<tr>
<th>Table 1. One-Sample Kolmogorov-Smirnov Test</th>
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<tr>
<td>N</td>
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<tr>
<td>Normal Parameters&lt;sup&gt;a,b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Mean</td>
</tr>
<tr>
<td>Std. Deviation</td>
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<tr>
<td>Most Extreme Differences</td>
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<tr>
<td>Absolute</td>
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<tr>
<td>Positive</td>
</tr>
<tr>
<td>Negative</td>
</tr>
<tr>
<td>Test Statistic</td>
</tr>
<tr>
<td>Asymp. Sig. (2-tailed)</td>
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</tbody>
</table>

To test the homogeneity of the pre-test and post-test data, the results of the homogeneity test using the Levene test show homogeneous sample data as shown in Table 2.

<table>
<thead>
<tr>
<th>Table 2. Test of Homogeneity of Variances</th>
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<tbody>
<tr>
<td>Levene Statistic</td>
</tr>
<tr>
<td>.334</td>
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Table 2 shows the significant value of the pre-test and post-test homogeneity of variance of 0.564. The significant value of the two data is greater than 0.05, so it can be concluded that the data have the same or homogeneous variance.

The test results for the two teaching materials show different values (see Table 3). The teaching materials being used show the ineffectiveness of use for the context of Grade IV Elementary School students in Nias the pretest results obtained an average student learning outcome of 55.57 with an SD score of 7.75. This result is below the Minimum Completeness Criteria score of 75. Meanwhile, student learning outcomes in reading learning activities after using teaching material products that have been developed in obtaining an average score of 81.99 with an SD score of 7.26. This value is higher than the value of the Minimum Completeness Criteria. This shows that the teaching material products developed are effectively used in learning to read Indonesian in class.
Table 3. Paired Samples Statistics

<table>
<thead>
<tr>
<th>Mean</th>
<th>N</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pair 1</td>
<td>Posttest</td>
<td>81.99</td>
<td>92</td>
</tr>
<tr>
<td></td>
<td>Pretest</td>
<td>55.57</td>
<td>92</td>
</tr>
</tbody>
</table>

The hypothesis test shows a correlation coefficient value of -0.066 with a sig- or p-value of 0.529 as shown in Table 4. The price for tcount is 23.40 with df=91 and sig. or p-value = 0.000<0.05 or Ho is rejected (see Table 5).

Table 4. Paired Samples Correlations

<table>
<thead>
<tr>
<th>N</th>
<th>Correlation</th>
<th>Sig.</th>
</tr>
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<tbody>
<tr>
<td>Pair 1</td>
<td>posttest &amp; pretest</td>
<td>92</td>
</tr>
</tbody>
</table>

Table 5. Paired Samples Test

<table>
<thead>
<tr>
<th>Paired Differences</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Std. Error Mean</th>
<th>95% Confidence Interval of the Difference</th>
<th>t</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
</tr>
</thead>
</table>

Statistically, the test results on learning outcomes using two different teaching materials did show an increase. However, these results do not involve external factors such as reading attitudes, parental support and literacy skills, issues of externalization and internalization of problems, and others. In terms of reading attitudes, Akhmetova et al. (2022) pointed out “a weak relationship between reading attitudes and students' reading achievement despite positive attitudes towards reading”. That is, in terms of reading attitudes, the increase in reading skill achievement shown by the current research can be said to be purely due to the influence of the use of developed teaching material products that are based on local wisdom and with a Quantum approach. In terms of parental support and literacy skills, Pezoa et al. (2019) found that "children's reading interest predicts parental literacy practices". That is, parental support and literacy skills can become more factual when children's interest in reading is mediated with teaching materials based on local wisdom.

In terms of externalization and internalization of problems, most cases of psychology show a major influence on certain behaviours. However, related to reading skills, Metsäpelto et al. (2017) showed that there was a "negative relationship between the degree of externalization of children's problems and their reading skills". This also
indicates that several cases of psychology-related behaviour do not affect the attainment of reading skills. In other words, high interest in reading becomes an important point in influencing the achievement of reading skills and not psychological factors such as aggressive and opposing behaviour, symptoms of anxiety and depression, inclusive behaviour, and others. Meanwhile, interest can arise when a child's interest in reading objects occurs. One way to give children an interest in reading is by presenting reading materials that are familiar to them; local wisdom content. Books with local wisdom content may "trigger students in reading and writing as effective as possible" (Laila et al., 2021), improve students' literacy skills (Susanti et al., 2022), and can be used to support teaching and learning reading (Fauziah & usdiana, 2018). This improvement in reading skills is not only due to the availability of reading materials that meet the characteristics of children; such as pictures, printed, etc., but because they are encouraged by their knowledge of local wisdom in their area. In line with this, Fletcher and Reese (2005) also showed that "child characteristics; such as interest in books, can affect the frequency and/or quality of reading interactions and children's reading outcomes that are beneficial to their language development".

Collaboration between the design of teaching materials based on local wisdom and the Quantum approach can provide opportunities for students to explore and soar their potential. From the teacher's point of view, this collaboration can give teachers the creativity to design reading teaching materials, in addition to local wisdom content, as well as several strategies in it. For example by designing pictorial teaching materials based on local wisdom in digital form (Bai et al., 2022), using data-based differentiated instruction (DBDI) to overcome heterogeneity related to achievement which empowers teachers to serve differences between students (Karst et al., 2022), using reading-writing learning strategies that involve processes related to printing and construction of meaning that utilize a lot of skills and knowledge (Kim, 2023), providing teaching materials such as extracurricular reading texts and test materials taking into account the complexity of the syntax (Lei, 2023), and can also provide time for children to engage in independent reading activities to offer opportunities for children to learn spelling and the meaning of words that are useful for skills in reading comprehension (Deacon et al., 2019). Last but not least facilitating children's reading learning is the teacher's skills in mediating the teacher-student relationship (Thijssen et al., 2022).
CONCLUSIONS AND SUGGESTIONS

The results of this study indicate that teaching materials for reading Indonesian based on local wisdom with a Quantum approach are effective for improving the reading abilities and skills of fourth-grade elementary school students in South Nias Regency. Another implication shows that the achievement of reading learning outcomes for children who show scores above the Minimum Completeness Criteria in this study cannot be considered as something that applies to other contexts because of two general things. First, Nias' local wisdom is different from other local wisdom. Second, other external factors such as reading attitudes, parental support and literacy skills, as well as issues of externalization and internalization of problems. Therefore, we suggest that teachers be wiser and more creative in designing their teaching materials based on local wisdom where they teach and by providing some important content and strategies in it.

REFERENCES


