

How Teachers Facilitate First Graders' Reading Development after Diagnostic Mapping?: Literature Review on Case Studies of Students' Reading Ability

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Abstract

Students' reading abilities are very diverse because they are influenced by social, economic, and cultural factors. Diagnostic assessments are used to map students' reading abilities and provide learning support that is appropriate to their level. This study aims to map students' reading ability based on the results of literature analysis related to diagnostic assessment and explore how teachers facilitate students' reading development based on the results of diagnostic assessment. This research is a type of literature study research. Data was collected through literature studies with the criteria of articles from Sinta indexed journals. The number of articles reviewed in this study is 5 articles with characteristics 1). Articles in the last 10 years, 2). The article reviewed is related to the focus of this research. Then the procedure for searching for articles needed in this study is based on the Google engine based on the analysis of learning strategies applied in each group of students. The results of this literature review show that from the results of the diagnostic assessment, students' reading ability is divided into five levels, namely: (1) beginner level, (2) letter level, (3) word level, (4) paragraph level, and (5) story level. Then, from these five levels, the teacher facilitates the development of students' reading by grouping students into three levels of learning, namely: (a) group 1 learning for beginner level and letters focusing on letter and sound recognition, (b) group 2 learning for word and paragraph levels practicing reading words and paragraphs intensively, and (c) group 3 learning for story level centered on understanding story texts. Therefore, based on the existing study, it can be concluded that the diagnostic assessment ensures that teachers apply appropriate learning, including letter and sound-based learning for beginner and letter-based groups, guided reading for word and paragraph groups, and discussion strategies to improve students' understanding of stories for story groups.

Keywords: *Diagnostic Assessment, Reading, Differentiated Learning, Students.*

Introduction

Reading ability is a very important basic skill in elementary school, especially for grade I elementary school students who are in the early stages of literacy. In Indonesia, grade I elementary school students have been required to read 4-5 words. This means that this basic reading skill must be possessed by students before entering school. Students must be proficient in reading in grades I and II (Mustadi et al., 2022). Otherwise, it can be ascertained, the student will not be able to follow the learning process properly. As a result, students cannot master various subject contents at the beginning of school. In fact, this reading ability is the main skill that must be mastered in order to succeed in other academic fields (Toprak-Yildiz, 2021).

In this context, the basic reading ability intended is initial reading. Early reading is the initial stage of learning to read in the lower grades. In initial reading, students learn to recognize letters or a series of letters into language sounds by using certain techniques by focusing on the aspects of accuracy in voicing writing, reasonable pronunciation and intonation, fluency and clarity of the voice so that students are more prepared and more courageous to enter the stage of advanced reading or reading comprehension in high class.

Nationally, the ability of 15-year-old students in reading literacy shows that students' ability is relatively low. In fact, when compared to the same age group in neighboring countries, Indonesian students are in the 10th to last position in reading (Sultan et al., 2020). The latest data from the Programme for International Student Assessment (PISA) 2022 published in December 2023 shows that

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Indonesia is ranked low with a score of 359 for reading, 366 for mathematics, and 383 for science, compared to the Organisation for Economic Cooperation and Development's average score of 476 for reading and science, and 472 for mathematics. This score represents a decrease from 2018, which marks the lowest score recorded since Indonesia began participating in the PISA assessment. From 2018 to 2022, the gap between the top 10% of students and the bottom 10% of students widened in math, while remaining relatively unchanged in reading and science. In addition, very few Indonesian students achieved level 5 or higher in reading skills, compared to the Organisation for Economic Cooperation and Development's average of 7%. These results highlight significant challenges in Indonesia's education system, which requires more intensive education (Ika Sari et al., 2024).

The above data is also strengthened by the findings (Malik, M. S., & Maemunah, 2021) which states that the reading and writing literacy of the Indonesian people is relatively low in the eyes of the international world. In various districts in Indonesia, most students do not pass this basic literacy test, especially students who are in grade I of elementary school. By gender, male students' abilities are consistently lower than female students' (Sultan et al., 2020). The findings are detailed based on the level of provincial areas, namely: (1) East Nusa Tenggara as much as 81%; (2) West Nusa Tenggara as much as 39%; (3) North Kalimantan as much as 48%; and (4) East Java by 20%. The failure of students to pass basic literacy is caused by the low three aspects, namely letter recognition, syllable recognition, and word recognition. From the data findings, East Nusa Tenggara Province found that 58% of students did not know letters, 70% did not know syllables, and 78% of students did not know words. In West Nusa Tenggara Province, it was found that 22% of students did not know letters, 30% did not know syllables, and 35% of students did not know words. In North Kalimantan Province, it was found that 24% of students did not know letters, 37% did not know syllables, and 46% of students did not know words. In East Java Province, it was found that 10% of students did not know letters, 12% did not know syllables, and 18% of students did not know words.

The inability of students to master basic literacy skills at the beginning of entering school is caused by various factors, such as social, economic, and cultural backgrounds. Social factors are related to how often students are invited to read books by their parents. Parents who believe that reading as a source of entertainment has a positive effect on their children's reading (Baker et al., 1997). The economic factor is seen from the tendency of students to have more access to books at home. Students from low-income families have literacy skills on average five years behind high-income students (Reardon et al., 2012). Cultural factors are related to parents' habits of telling stories or storytelling at home so that these activities can help students in developing listening skills, understanding stories, and finally reading. Cultural context plays an important role in shaping the effectiveness of certain aspects of the home literacy environment in improving children's reading skills (Xiao et al., 2024). Many studies have also shown that the socioeconomic status of the family affects the development of students' reading abilities (J. Li et al., 2023). Therefore, to understand the differences between some of the factors above, diagnostic assessments are often used as a tool to map students' early reading abilities.

These diagnostic assessments are also used to provide detailed feedback on the student's skills and provide insight into his or her corrective instructions (Y. Li et al., 2021). In this study, the diagnostic assessment provides an overview of the difficulty and strength of each student in reading. However, the diagnostic assessment here is used to map students' reading abilities which is continued to improve students' reading skills. This kind of diagnostic information can help teachers and practitioners to prepare teaching materials that target specific weaknesses and inform about more problematic areas that need to be emphasized in the classroom to plan better reading instruction (Ranjbaran & Alavi, 2017). The next step is for teachers to respond to the results of the diagnostic assessment with appropriate learning strategies. Teachers play an important role in adapting learning strategies and creating a learning environment that supports students' reading development, especially for students from diverse backgrounds.

Several studies related to diagnostic assessment have been conducted by researchers such as (George & Robitzsch, 2021; Javi dan mehr & Anani Sarab, 2019; Y. Li et al., 2021; Liu & Bian, 2021; Toprak & Cakir, 2020). Although it has been researched by these researchers, studies specifically exploring how teachers facilitate students' reading development after diagnostic mapping are limited. This study seeks to fill this gap by understanding the role of teachers in following up on the results of diagnostic assessments and how the strategies used can help grade I students improve their reading skills.

METHOD

This research is a literature review research. The scientific articles used in this study come from national journals with the criteria of a journal that is reviewed about diagnostic assessments in students' reading ability. The initial step of the research was carried out by searching for journal articles using the keyword diagnostic assessment through google scholar. After that, the articles found are validated and reviewed by reading the entire content to ensure its relevance to the research topic. The appropriate journals are then summarized based on the name of the researcher, the title of the research, the research method, and the results or findings obtained. From this process, the researcher managed to identify five scientific articles that are relevant to the research topic.

This research contributes to the field of basic literacy by providing insights into how teachers translate diagnostic assessment data into meaningful instructional actions. This study highlights the role of teachers in addressing the reading gap among first-graders and offers practical implications for basic literacy education policies in primary schools.

RESULT AND DISCUSSION

Result

Analysis of 5 articles that have been collected by researchers about diagnostic assessment in students' reading ability, the analysis is presented in the following table:

Table 1. Results of Riviw Literature Analysis

o	Author's Name	Journal Name	Research Title	Research Methods	Research Results
	Suhartono, J. Parmin, and Yermia Nugroho Agung Wibowo	Lingua Journal Volume 12 Number 1 of 2015 Page 23-28	Developm ent of Reading and Writing Modules Based on Diagnostic Tests to Improve Junior High School Students' Understanding of Indonesian Subject Matter	Research and Development	From the study, the development that has been carried out by the researcher before using the module, students' understanding of reading is only 51.69% after using the module increased to 74.72%.
	Balqis Rohadatul 'Aisy, Majidatun Ahmala	Al-Thifl Journal Volume 4 Number 2 of 2024	Diagnostic Assessment Analysis with a Personal Approach in Improving Elementary School Students' Understanding	The research uses a qualitative descriptive method that describes the role of diagnostic analysis with a personal approach.	The results of the diagnostic assessment are very helpful for teachers in identifying students' abilities so that diagnostic assessments can help teachers in planning lessons, especially in improving students' reading comprehension.
	Aliefia Arina Rahmawati, Fenny Roshayanti,	Proceed ings of the National Seminar on	Applicatio n of Differentiated Learning to	Classroom Action Research	The results of the study showed that at the beginning of the pre-cycle student

Luthfaida Mayasari	Postgraduate Teacher Professional Education at PGRI University Semarang	Improve Indonesian Learning Outcomes in Grade V Elementary School		learning completeness was only 31%, Cycle I 81% and Cycle II 100%. The results of the study show that the application of differentiated learning in Bhasa Indonesia subjects has experienced a significant increase in reading materials.
Ragil Aria Irawan, Dhiniaty Gularso	Journal of Taman Cendekia Journal of Elementary Education	Analysis of the Application of Diagnostic Assessment and Deepening of Teacher Understanding in Indonesian Differentiated Learning	The research method uses Qualitative with a case study approach	The results of the study show that with the implementation of the diagnostic session, teachers can find out the abilities of students, interests and diverse learning styles
Farah Ridhiyalira, Rustam, Hadiyanto	Journal of Didaktika: Journal of Education	Analysis of Diagnostic Assessment on Indonesian Language Learning with Project Based Learning Model	This research method uses qualitative through a descriptive study approach	Diagnostic assessments are very effective in identifying students about their understanding of Indonesian language learning. By using the right approach according to the student's ability so that students' understanding in learning can be improved.

Based on the results of the table above, it can be concluded that how teachers can facilitate the reading development of first-grade students after diagnostic mapping is carried out. Based on the results of the research that has been reviewed, it was found that the use of specially developed reading modules has a positive impact on students' reading comprehension. Before the implementation of the module, students' comprehension only reached 51.69%, but after the use of the module, the comprehension rate increased to 74.72%. This shows that learning strategies based on module development can significantly improve students' reading ability.

In addition, diagnostic assessments have proven to be a very useful tool for teachers in identifying students' abilities. With this mapping, teachers can more easily develop a lesson plan that suits the needs of each student. One study showed that before the intervention, the completeness of student learning only reached 31%, but after the implementation of differentiated learning based on the results of the diagnostic assessment, there was a significant increase to reach 81% in the first cycle and 100% in the second cycle. This confirms that learning designed based on the results of the assessment can have a positive impact on students' reading comprehension.

Discussion

Reading learning in first-grade students is a fundamental aspect that requires the right approach so that their literacy skills can develop optimally. One strategy that has proven effective is the use of diagnostic assessments to map students' initial abilities before designing appropriate learning strategies. The results of the reviewed study show that diagnostic assessment provides significant benefits in identifying students' reading abilities as well as their interests and learning styles. With accurate mapping, teachers can determine the right intervention, both through the development of learning modules and the application of differentiation methods.

Diagnostic assessments not only serve to identify students' difficulties, but also assist teachers in adjusting learning approaches. By understanding each student's learning style and level of understanding, teachers can design more effective and engaging strategies, so that students are more motivated in the learning process. The results of the study confirm that diagnostic assessment should be an integral part of reading learning in the first grade. By implementing these assessments on an ongoing basis, teachers can ensure that each student receives appropriate support, so that their reading progress can improve optimally and sustainably. Diagnostic assessments differ from formative and summative assessments in that they focus not only on evaluating learning outcomes, but also on mapping individual needs to support a more effective learning process (Heritage, 2007). According to (Hudson et al., 2005; Kuhn et al., 2010), Diagnostic assessments are essential in elementary education because they allow teachers to tailor teaching strategies to the specific needs of students, especially for those who have difficulty reading.

From the results of observations researched by (Suhartono Suhartono et al., 2015) It seems that the teacher introduces the students to the smallest parts of basic reading skills in the form of sounds and letters. The learning activities carried out are also centered on how the students are able to recognize the letters as the smallest unit and distinguish various variations of phonological sounds from the letters of the alphabet. This learning activity for beginners and letters discusses the material, including: (1) getting to know vowels; (2) recognize the consonants b, d, g, and p; (3) consonants h, j, and k; (4) consonants L, M, N, R, S, T, and W; (5) elconin; (6) vocal and consonant; (7) rhythmic words; (8) syllabic applause; (9) forming words; (10) reading ny and ng; (11) reading familiar words 1; and (12) reading familiar words.

To make it clearer, an example of learning at the beginner level and letters is taken with the learning material "Knowing vowels." Here, the learning steps are divided into 10 activity steps, namely: (a) students and teachers sing alphabet songs together; (b) students are asked to name the vowels of the alphabet they have just sung (a, i, u, e, o); (c) students are asked to take turns forward to write vowels – capital and lowercase (1 student 1 letter); (d) the teacher asks; any object whose initial sound corresponds to the vowels (e.g., a for apple, child, chicken, b for bando, ball, etc.); (e) Students are divided into small groups to discuss as many words as they know starting with a vowel; (f) Individually, students work on worksheets where they match pictures with the corresponding vowels and draw objects that begin with the vowel letters; (g) the teacher gives an example of how to work on the LKS first; (h) students work in pairs to check each other's work and comment on each other; (i) classically, students are guided to discuss activities they have just done; and (j) students circle emoticons that match their feelings after engaging in the learning activity, putting the worksheets into the portfolio folder and preparing to return to their respective classes.

Furthermore, based on the results of observations researched by (Rohadatul 'aisy & Ahmala, 2024) found that teachers also continue to develop students' confidence so that they enjoy reading activities. Teachers also provide continuous motivation to read new texts that are more challenging and try to interpret longer texts. This learning activity for groups of words and paragraphs discusses the material, including: (1) completing rumpang sentences; (2) make sentences with the help of cards; (3) chain messages; (4) I can make sentences; (5) making sentences based on pictures; (6) creating simple paragraphs; (7) Arrange sentences into paragraphs, let's go!; (8) I can read expressively; (9) reading together and practicing mind mapping; (10) let's make a story; and (11) reading pictures.

To make it clearer, an example of learning at the word and paragraph level is taken with the learning material "Making sentences based on pictures." Here, the learning steps are divided into seven activity steps, namely: (a) students sit on their respective benches; (b) The teacher shows a picture and asks, "What do you think happens in this picture? Who is the name of the child in our picture? What did he do?"; (c) The teacher gave an example of how to make a sentence based on the pictures and questions; (d) students are given some pictures; (e) In small groups, students try to make sentences based on the pictures given. Each student tries to make their own sentences. They can ask for help or

ask other students in the group if they encounter difficulties; (f) students write sentences that have been made in their respective notebooks; and (g) students read sentences made in front of their peers.

In the results of the research researched by (Arina Rahmawati et al., 2023) In the study, teachers were seen helping their students one by one. Teachers also reward students who succeed in making their stories. Then, the teacher also asked the students to correct the story in terms of grammar. Teachers also continuously motivate and build the confidence of their students to improve the quality of their writing. The learning activities for this story group discussed the material, including: (1) reading aloud; (2) find important information in the announcement; (3) rewrite the stories read; (4) finding the main story in the comic; (5) describe the characters they like; (6) predicting events in the story; (7) making different endings; (8) self-reflection based on a reading; (9) write down vacation experiences; and (10) imagining and drawing the other side of the story in the comics.

As a clearer illustration, an example of learning at this story level is taken with the learning material "Rewriting the story read." Here, the learning steps are divided into six activity steps, namely: (a) prepare a picture story. Then, distribute it to each student; (b) students and teachers read stories together in turn (one student reads one or two sentences, depending on the number of students); (c) The teacher explains and gives examples of how to order each event in the story and how students can rewrite the story that has been read in sequence, namely: paying attention to the parts from the beginning to the end of the story, remembering the order of the story and its characters, imagining each scene in the story as if involved in it or seeing it directly, and starting to rewrite the story using their own sentences and using good Indonesian and true; (d) for students into groups of 3-4 people; (e) in groups, students try to sequence events and rewrite the content of the story using their own sentences according to what the teacher has exemplified; and (f) some students read their writing.

Grouping students' reading abilities based on these levels ensures that teachers provide more effective interventions that are tailored to students' needs. The strategies applied in each group showed positive results. Students in the beginner and letter groups experienced improvements in recognizing letters and phonemes, students in the word and paragraph groups became more fluent in reading words and paragraphs, and students in the story group were able to understand and analyze the story text better. These findings support the importance of differential-based learning in early reading learning in elementary school. As expressed by (Tomlinson, 2005), which emphasizes that instruction tailored to the student's developmental level can significantly improve learning outcomes. There are three groups of early reading learning conducted by teachers based on the results of diagnostic assessments. The three learning groups are: (1) group 1 learning for beginner and letter levels, (2) group 2 learning for word and paragraph levels, and (3) group 3 learning for story level.

1) Group 1 Learning for Beginner and Letter Levels

This group consists of students who are still in the early stages of reading. This group of students had difficulty recognizing letters and understanding the relationship between letters and sounds (phonemic awareness). If associated with the theory of reading development by (Ehri, 2005), Students in the pre-alphabetic and partial alphabetic phases tend to rely on visual recognition rather than effective phonemic decoding.

By knowing this level of students, teachers begin to build students' confidence. Teachers also focus on learning on students so that they feel comfortable, confident, and their curiosity is high. From the results of the research, teachers use various strategies ranging from intensive phonemic practice through alphabet songs. With songs and letter card games, students' reading skills can be improved in their awareness of the sounds (Goswami et al., 2021). Teachers also direct students to form letters with their fingers and use textured aids to establish visual and kinesthetic associations with letter shapes (Gharaibeh & Dukmak, 2022). Teachers also apply a letter pronunciation model and combine them into simple syllables (Castles et al., 2018).

The observation results showed that students in this group experienced an improvement in recognizing letters and sounds after being given a phonic-based intervention. This is in line with research findings that show that explicit phonics instruction is very effective in helping children who have early reading difficulties (Castles et al., 2018).

2) Group 2 Learning for Word and Paragraph Levels

The second group consisted of students who were familiar with letters and phonemes but still had difficulty reading words automatically and understanding short paragraphs. If referring to the theory of early stage reading, students at this level are at the decoding stage. This means that at this level, students begin to recognize spelling patterns and understand word structures (Schaars et al., 2019). By understanding this level, teachers reinforce students' understanding of grammar and punctuation. Teachers encourage students to read books every day and understand reading with the help of people around them. Therefore, at this level, teachers emphasize more challenging learning and use longer texts.

Teachers present learning using a guided reading approach. In this learning, the teacher intensively accompanies students in reading short paragraphs to provide corrections and feedback directly (Nicholas et al., 2021). Teachers also use repeated reading exercises. This exercise is intended to improve automation in reading simple words and paragraphs (Gorsuch & Taguchi, 2008). Teachers also do word pattern-based decoding exercises. For example, words with consonant-vowel-consonant patterns, such as: the words "mama", "papa", "book", and so on. With this exercise, students will have speed in reading words (Hudson et al., 2005; Rayner et al., 2016).

3) Group 3 Learning for Story Levels

In this group, students are able to read words and paragraphs fluently and begin to understand longer story texts. From the perspective of the reading comprehension model, students in this group entered the construction-integration stage. In other words, students can already build the meaning of the text based on their previous knowledge (Salmerón, 2024). Here, teachers strive to improve students' reading comprehension with more complex text presentations. Teachers also motivate students' creativity to plan their writing. Teachers also have a way to encourage students to read and discuss stories. The teacher invites students to ask questions and discuss the content of the story to improve their understanding more deeply (LaRusso et al., 2016). The teacher also invites students to read together and have small group discussions about the themes, characters, characters, plots, and moral messages in the story (Duke & Pearson, 2009). Teachers also encourage students to retell stories in their own language or through games (Rand & Morrow, 2021).

Results of Research conducted by (Aria Irawan & Gularso, 2024) The application of diagnostic assessment in Indonesian differentiated learning is a strategic step in understanding the learning needs of students. This assessment serves to identify students' readiness, interests, and learning profiles before starting the learning process, so that teachers can design appropriate strategies. By understanding the initial conditions of students, teachers are able to structure learning that is more inclusive and effective. Deepening teachers' understanding of the concept of differentiated learning is also an important factor in the successful implementation of this strategy. Teachers need to have in-depth insight into how to tailor learning materials, processes, and products to the individual needs of students. In the context of Indonesian subjects, differentiation can be applied through variations in reading texts, the level of complexity of tasks, and various learning methods. Finally, it falls into the researcher who is researched by (Ridhiyalira et al., 2024) The implementation of diagnostic assessments allows teachers to adjust teaching methods based on students' understanding of specific topics, as well as obtain important data on students' psychological, social-emotional well-being, and learning styles. Flexibility in gradual cognitive evaluation and non-cognitive understanding at the beginning of the semester shows an effort to create more personalized and effective learning for each student. Diagnostic assessments provide important insights into students' academic understanding and non-academic conditions. Cognitive assessments allow teachers to evaluate students' level of comprehension of previous material and identify students who need repetition or additional assistance on certain concepts, thus ensuring students' readiness before learning new material. Meanwhile, non-cognitive assessments provide in-depth information about students' psychological, emotional, and learning styles, which helps teachers adjust their teaching approach and create relationships that support student well-being. This approach allows teachers to create an inclusive, responsive learning environment that supports students' holistic well-being, not only on their academic but also social-emotional aspects.

Diagnostic assessments not only help in identifying students' academic abilities but also in understanding their interests and learning styles. By knowing these factors, teachers can apply an approach that is more in line with the individual needs of students, so that they can receive learning more effectively. From the results of the above research, it also supports that diagnostic assessment is very effective in identifying students' understanding of Indonesian learning. With the right approach, teachers can help students achieve better comprehension and improve their reading skills.

From the overall results of the research that has been reviewed, it can be concluded that diagnostic assessment plays an important role in supporting the reading development of first-grade students. Teachers who use the results of this assessment can design more effective learning, both through specially developed modules and through differentiated learning strategies. The significant improvement in reading comprehension after the application of the assessment-based method shows that this strategy is feasible to continue to be developed in the world of education, especially in learning to read in the early grades. Therefore, diagnostic assessments should be an integral part of the learning process to ensure that each student receives the support that suits their needs.

CONCLUSION

Based on the results of this literature study, it can be concluded that diagnostic assessment plays an important role in mapping reading skills and ensuring teachers to provide learning in accordance with student needs. The results of this study also support a differentiation-based approach in learning to read in the early grade. Strategies that are tailored to students' reading ability levels have been proven to improve phonemic skills, reading fluency, and comprehension of reading texts. In addition, these findings confirm that social, economic, and cultural factors also affect the development of students' reading literacy, so diagnostic assessment is an important first step to ensure that each student receives support that is appropriate to the student's background and needs.

The theoretical implications of this study show that teachers need to be trained in assessment-based learning strategies and there is a need to provide diverse teaching materials to meet the needs of students with different levels of reading ability. Furthermore, this research can be the basis for the development of educational policies that encourage the implementation of diagnostic assessments more systematically in elementary schools as part of efforts to improve students' basic literacy. This research also opens up opportunities for further study, especially in exploring how teacher facilitation strategies can be further optimized through technology or community-based approaches to support the reading development of students from various backgrounds.

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