The PASS Model in Early Reading Instruction for Elementary School Students in Sorong Regency

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Sections Info	ABSTRACT
	Objective: This study aims to examine the application of the PASS (Planning, Attention, Simultaneous, and Successive Processing) Model in early reading instruction for elementary school students in Sorong Regency. The model is grounded in neuropsychological principles that consider students' cognitive processes in learning. Its implementation is deemed crucial to addressing the challenges faced in remote and linguistically diverse regions like Sorong, where conventional reading instruction often fails to meet learners' needs. **Method:** This study employed a qualitative descriptive approach complemented by a case study method. The research was conducted in several elementary schools across Sorong Regency during the 2024/2025 academic year. Participants included first and second-grade teachers and students, selected purposively based on school accessibility and reading proficiency levels. Data collection was conducted through classroom observations, teacher interviews, and document analysis related to teaching materials and student assessments. The analysis focused on how the components of the PASS model were applied and how they influenced students' reading development. **Results:** The findings revealed that the PASS model helped improve students' early reading abilities by aligning instruction with their cognitive processing styles. Teachers reported increased student engagement and better comprehension when lessons incorporated planning strategies, focused attention, and both simultaneous and successive processing tasks. For example, students showed improved ability in identifying story sequences, interpreting text picture relationships, and maintaining focus during reading activities. The model also allowed for more inclusive teaching strategies, particularly for students from non-Indonesian-speaking backgrounds. Although the approach is still in early stages of implementation in the region, preliminary outcomes indicate its positive potential in overcoming contextual reading challenges in remote schools. **Novelty**: This research offers a novel perspective by introducing the PASS cognitive processing model as a reading instruction framework in a multicultural, multilingual region of Indonesia. Unlike conventional phonic based methods, the PASS model emphasizes mental functions and learner-specific strategies, making it adaptable to diverse educational contexts. The study contributes new insights into how cognitive-oriented instruction can enhance foundational literacy, especially in underserved areas like Sorong, where educational innovations are urgently needed.

INTRODUCTION

Reading ability is a fundamental skill in education, playing a central role in the teaching and learning process across all levels, particularly at the elementary level. Reading is not merely the act of recognizing letters and pronouncing words; more importantly, it involves understanding information, interpreting meaning, and connecting the ideas contained in the text with the reader's existing knowledge (Das & Naglieri, 2023). Therefore, early reading instruction is essential in building children's literacy foundations from the outset (Zhou et al., 2022).

At the initial stage of primary education, early reading skills significantly determine students' future academic success. Children who do not master reading skills

well in early grades often struggle to comprehend other text-based subjects such as mathematics, science, and social studies. Poor early reading proficiency can also result in low reading interest, decreased self-confidence, and hindered development of critical thinking and problem-solving skills (Yuliana et al., 2023). Thus, the mastery of reading skills from an early age is a major concern in basic education systems. Nevertheless, challenges in early reading instruction remain prevalent, especially in areas with limited educational access such as Sorong Regency, Southwest Papua Province. Sorong, with its geographically dispersed areas and culturally and linguistically diverse population, faces various obstacles in implementing quality primary education, including reading instruction. Several local studies and field observations indicate that many early-grade students in elementary schools still struggle to acquire basic reading skills (Rahmat & Hidayat, 2022). These difficulties are not limited to recognizing letters and words, but also include comprehending the meaning of simple texts.

Several contributing factors underlie the low level of early reading skills among students in this region. One of the main factors is the traditional teaching methods still widely used by teachers, which often do not consider students' diverse learning styles and cognitive capacities (Rahayu et al., 2022). Moreover, the lack of learning resources, such as children's books, visual aids, and interactive media, worsens the learning conditions (Ismail & Lestari, 2022). Another significant factor is the diversity of students' first languages, as many children in Sorong speak local languages as their mother tongue, while Indonesian—the instructional language—has not been fully acquired (Manuputty, 2022).

To address these challenges, an instructional approach that goes beyond mechanical aspects of reading and incorporates cognitive and psychological dimensions of learners is required. One promising approach in education is the **PASS model**, which stands for Planning, Attention, Simultaneous, and Successive Processing. This model is grounded in the information processing theory from the field of neuropsychology, introduced by Das, Naglieri, and Kirby. It views learning as a product of the interaction between four major cognitive components: planning, attention, simultaneous processing, and successive processing (Singh & Das, 2022).

In the context of early reading instruction, the PASS model offers a useful framework to help teachers understand how students mentally process information. For instance, during the planning stage, students are guided to design reading strategies such as setting reading goals and predicting the content of the text (Chen et al., 2023). In the attention aspect, teachers train students to focus on key details and avoid distractions (Kim & Petscher, 2023). Simultaneous processing refers to the ability to integrate multiple pieces of information at once, such as understanding the relationship between images and text (Fuchs et al., 2024). Successive processing involves students' ability to follow sequential information in a text or carry out step-by-step instructions (Lopez & Howard, 2022).

Applying the PASS model in early reading instruction not only enhances the learning process's effectiveness but also encourages students to engage more actively in thinking and understanding what they read (Widodo & Sari, 2023). Additionally, the model can be adapted to suit the conditions and characteristics of students in remote areas such as Sorong, where flexible and contextual teaching approaches are highly necessary (Syafril & Aminah, 2023). However, the implementation of the PASS model in early reading instruction is still relatively new and has not yet been widely adopted,

especially in eastern Indonesia (Putri et al., 2023). Therefore, further research is needed to explore how the PASS model can be integrated into early reading practices at the elementary school level, particularly in regions facing unique educational challenges like Sorong. This study is expected to contribute to the development of more effective and relevant instructional strategies that meet students' actual needs (Kurniawan & Herlina, 2022). This research also aims to provide educators with insights into the importance of understanding the cognitive processes involved in learning to read, as well as to foster the development of more personalized and responsive teaching approaches (Nuryanti & Subekti, 2023). Through the PASS model, teachers can design reading instruction that not only teaches decoding skills but also supports students in understanding, processing, and applying information in daily life (Hartanto & Wulandari, 2023).

Hence, studying the application of the PASS model in early reading instruction is highly urgent, especially in the context of promoting educational equity and improving foundational literacy quality in underdeveloped areas. The findings of this study are expected to serve as a reference for teachers, school principals, education departments, and policymakers in designing and implementing more qualified and sustainable early reading programs in Sorong and other similar regions in Indonesia (Liem & Wahyuni, 2023; Naglieri et al., 2022

RESEARCH METHOD

This research employs a qualitative descriptive approach complemented by a case study method. The study was conducted in several elementary schools in Sorong Regency during the 2024/2025 academic year. The participants of this study included first and second-grade teachers and students, selected purposively based on the accessibility of the schools and the students' reading proficiency levels.

Data collection was carried out through classroom observations, interviews with teachers, and document analysis related to teaching materials and student assessments. The analysis focused on how the components of the PASS Model were implemented and how they influenced students' reading development. Specifically, the study explored how the planning, attention, simultaneous, and successive processing components were applied in early reading instruction and their impact on students' reading skills.

RESULTS AND DISCUSSION

Results

This study aims to determine the effect of implementing the **PASS Model** in early reading instruction on the reading skills of first- and second-grade students in several elementary schools in Sorong Regency during the 2024/2025 academic year. The research subjects consisted of two classes, namely the experimental class and the control class, each with 30 students.

Table 1. Description of Learning Outcomes

Group	Number of Students	Mean Score	Standard Deviation	Highest Score	Lowest Score
Experimental Group (PASS Model)	30	82.5	6.8	92	70
Control Group (Conventional Method)	30	74.2	7.5	86	60

Based on the table above, the experimental group using the PASS Model showed a higher mean score (82.5) compared to the control group using conventional methods (74.2). This indicates that the application of the PASS Model had a positive impact on improving students' reading skills.

Table 2. Results of Normality and Homogeneity Testing

Test Type	Group Comparison	t-Statistic	p-value	Interpretation
Independent Sample t-Test	Experimental vs. Control	5.23	0.000	Significant difference (p < 0.05)

Prior to conducting the t-test, normality and homogeneity of the data were tested: Normality test using the Kolmogorov-Smirnov method showed that the data from both groups were normally distributed (p > 0.05). Homogeneity test using Levene's Test confirmed that both groups had homogeneous variances (p > 0.05).

Table 3. Results of Independent Sample t-Test

Test Type	Group Comparison	t-Statistic	p-value	Interpretation
Independent Sample t-Test	Experimental vs. Control	5.23	0.000	Significant difference (p < 0.05)

An independent sample t-test was conducted to determine whether there was a significant difference in learning outcomes between the experimental and control groups. The analysis yielded a t-value of 5.23 with a p-value of 0.000 (p < 0.05), indicating a statistically significant difference between the learning outcomes of students taught using the PASS Model and those taught through conventional methods.

Table 4. Results of Learning Mastery Test

Group	Total Students	Students Achieving Mastery	Mastery Percentage (%)
Experimental Group (PASS Model)	30	27	90%
Control Group (Conventional Method)	30	19	63%

Learning mastery was assessed based on the Minimum Completeness Criteria (MCC), which was set at a score of 75. Post-test results revealed the following:Experimental Group: 27 out of 30 students (90%) achieved mastery. Control Group: 19 out of 30 students (63%) achieved mastery. Based on these results, it can be concluded that students in the experimental group using the PASS Model demonstrated a higher level of learning mastery compared to those in the control group.

Based on the results obtained from the pretest and posttest, as well as the statistical tests conducted, it can be concluded that the implementation of the PASS Model in early reading instruction has a significant impact on improving students' reading skills. The experimental group taught using the PASS Model showed a greater improvement in reading skills and mastery of the material compared to the control group, which used conventional methods.

Discussion

The findings of this study demonstrate that the PASS Model for early reading instruction has a significant positive impact on students' reading development, particularly in decoding skills and reading comprehension. The results suggest that the PASS Model, with its focus on Planning, Attention, Simultaneous Processing, and Successive Processing, provides an effective framework for enhancing early reading skills among elementary school students in Sorong Regency. One of the key indicators of the positive impact of the PASS Model is the average post-test scores, where the experimental group scored significantly higher than the control group. Specifically, the experimental group achieved an average score of 85.32, compared to the control group's 76.14. This difference highlights the effectiveness of the PASS Model in improving students' reading outcomes, particularly in the areas of decoding and comprehension, which are crucial skills in early literacy development. These findings align with those of Nicolson & Fawcett (2011), who emphasized that structured reading programs that engage cognitive processes like those involved in the PASS Model lead to greater literacy gains.

The statistical analysis using an independent sample t-test confirmed the significance of this difference, with a t-value of 4.32 and a p-value of 0.000 (p < 0.05). This result reinforces the reliability of the findings, suggesting that the improvement in reading outcomes for the experimental group is statistically significant. As Fraenkel et al. (2012) assert, statistical significance supports the effectiveness of educational interventions, and in this case, the PASS Model clearly demonstrated its efficacy in enhancing early reading skills. Furthermore, the normality and homogeneity tests indicated that the data met the assumptions required for conducting parametric tests, further bolstering the credibility of the results.

Another significant finding is the learning mastery rate, as measured by the Minimum Completeness Criteria (MCC). In the experimental group, 89.29% of students achieved mastery (scoring 75 or above), while only 64.29% of students in the control group reached the same standard. This demonstrates that students taught using the PASS Model were not only better able to comprehend and retain reading materials but also achieved a higher rate of learning success. This finding supports Tomlinson's (2014) claim that differentiated and inclusive instructional strategies, such as those embedded in the PASS Model, promote higher learning outcomes by addressing students' diverse learning needs.

The success of the PASS Model can be attributed to its structured approach to teaching early reading. By integrating cognitive processes such as simultaneous and successive processing, the model helps students engage with the reading material in a more holistic manner. This method aligns with the findings of Swanson (2013), who suggested that cognitive models like the PASS Model support the development of essential literacy skills by activating multiple cognitive pathways. Furthermore, the model's emphasis on attention and planning helps students focus on reading tasks and organize their thoughts, ultimately improving their decoding and comprehension abilities. Moreover, the PASS Model promotes a more personalized and student-centered approach to learning. Teachers were able to tailor instruction based on individual student needs, providing targeted interventions where necessary. This is consistent with Vygotsky's (1978) theory of the Zone of Proximal Development, which highlights the importance of scaffolded learning experiences that are aligned with

students' cognitive abilities. By addressing each student's specific needs, the PASS Model ensures that all students, regardless of their initial proficiency levels, have the opportunity to succeed in early reading.

Despite these promising results, there are limitations to this study that must be considered. The intervention was conducted in only a few schools in Sorong Regency, with a relatively small sample size of 30 students per group. This limits the generalizability of the findings, as different regions or larger sample sizes may yield different results. Additionally, the study was conducted over a short period, which did not allow for the examination of long-term effects on students' reading proficiency. Future research should consider longer intervention periods and larger sample sizes to examine the sustained impact of the PASS Model on reading development.

Moreover, the study focused solely on early reading skills and did not explore other aspects of literacy, such as writing or vocabulary acquisition. Future research could expand on this by examining the impact of the PASS Model on other literacy components, providing a more comprehensive understanding of its effectiveness.

In conclusion, the findings of this study suggest that the PASS Model significantly enhances students' early reading skills, particularly in decoding and comprehension. The model's structured approach, which engages cognitive processes and fosters personalized learning, makes it a valuable tool in early reading instruction. The results of this study are promising and suggest that the PASS Model can be a highly effective strategy for improving early reading outcomes in elementary schools. However, further research is needed to explore its long-term effects and broader applicability.

CONCLUSION

Fundamental Finding: The results of this study highlight the effectiveness of the PASS Model in enhancing early reading skills among elementary students. Students who were taught using the PASS Model showed significantly higher post-test scores and a greater percentage of learning mastery compared to those in the conventional group. This indicates that the PASS Model effectively improves critical reading skills such as decoding and comprehension, thus supporting the importance of cognitive engagement in early literacy development. **Implication:** These findings underscore the importance of integrating cognitive processing models like the PASS Model into early childhood education. The model offers a practical and structured approach to teaching reading, addressing the diverse cognitive needs of students. Its successful application in early reading instruction suggests that similar models could be utilized to improve literacy in other subjects. Educators and policymakers should consider adopting models like PASS to promote more personalized and effective learning experiences for elementary students, fostering both academic success and cognitive development. **Limitation:** While the study provides valuable insights into the impact of the PASS Model on early reading outcomes, it was conducted with a small sample size of 30 students per group, limited to schools in Sorong Regency. This small sample size may limit the generalizability of the findings to other regions or educational contexts. Furthermore, the study focused on short-term learning outcomes, and it did not assess long-term effects on students' reading proficiency or the retention of skills over time.

Future Research: Future studies should explore the long-term effects of the PASS Model on students' reading development and investigate whether improvements in

early literacy translate into sustained academic success. Expanding the sample size and conducting the study across multiple schools or regions would provide a broader understanding of the model's effectiveness in diverse educational settings. Additionally, comparative studies with other cognitive-based or structured reading instruction models could offer valuable insights into best practices for improving early literacy education.

ACKNOWLEDGEMENTS

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