



An Authentic Literacy Education Model with PISA-Oriented Social Constructivist Approach

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Abstract. This study examines the effectiveness of the Authentic Literacy Education Model with a PISA-Oriented Social Constructivist Approach in improving students' reading literacy skills. Conducted with 142 Grade 8 students from three junior high schools in Bandung City, Indonesia, the research employs a quantitative experimental design using a pre-test and post-test design. Results indicate significant improvements in students' reading literacy, with the lowest score increasing by 68% and the highest score improving by 12%. The average score increased by 24%, and the standard deviation decreased, reflecting more homogeneous learning outcomes. Post-intervention analysis shows a dramatic increase in students achieving "very good" literacy scores, from 14% in the pre-test to 59% in the post-test. Statistical significance was confirmed through the Wilcoxon Test (Asymp. Sig. = 0.000), demonstrating that the model effectively enhances reading skills. Additionally, both students and teachers expressed strong support for the model, highlighting its ability to foster motivation and engagement through authentic, real-world texts. The findings suggest that the PISA-oriented, constructivist approach can significantly enhance literacy development by promoting critical reading skills applicable in real-life contexts.

Keywords: Authentic Learning Experiences, Authentic Literacy, Social Constructivism.

1 Introduction

In today's complex society, literacy education is essential to meet the increasing demands for critical thinking and effective information management. With technology and information access expanding, individuals must respond skillfully to vast information flows to improve their quality of life (Damaianti, 2022; Dawes, 1994; Dhillon & Moores, 2001; Tammisalo & Rotkirch, 2022). Reading literacy equips individuals with the skills needed to navigate information age challenges, informed by past experiences to address current and future issues (Devers, 2007). Spooner and Jones (2016) emphasize that 21st-century literacy focuses on practical application rather than theoretical analysis, preparing students to critically engage with diverse texts and real-world issues beyond the classroom. Reading literacy is central in this context, allowing students to apply knowledge practically. Studies show that students involved in literacy activities with real-world relevance are more motivated and better prepared to apply

their skills in various contexts (Guthrie et al., 2012). However, reading literacy in Indonesia faces challenges, especially in students' abilities to interpret and critically use text (Arlinwibowo et al., 2020; Nugrahanto & Zuchdi, 2019).

The Programme for International Student Assessment (PISA), which evaluates students' reading, math, and science skills in real-world contexts, highlights Indonesia's literacy levels. The 2022 PISA results showed slight improvements in Indonesia's ranking, with an increase of 5-6 positions compared to 2018. Despite this, the average reading literacy score decreased by 12 points, although the drop was less severe than the global decline of 18 points, indicating resilience amid the pandemic (Kemendikbud, 2023). However, Indonesia's score remains below the OECD average, underscoring the need for reforms to strengthen students' critical reading skills (OECD, 2023). Authentic literacy activities have proven effective in addressing these gaps. Authentic literacy fosters engagement with real-world texts, contrasting with superficial "fake reading" where learners passively go through text without comprehension (Tovani, 2013). Herrington and Oliver (2000) found that when students see the relevance of reading material, they engage more deeply, leading to lasting and meaningful literacy gains. PISA emphasizes reading as a life skill, measuring students' abilities to interpret and evaluate information they will need in adulthood. High-PISA-scoring countries often emphasize practices that focus on understanding and critical analysis rather than rote memorization (Kirsch et al., 2002). Aligning Indonesian educational practices with PISA standards could significantly enhance students' literacy development, as suggested by educational reform research (Emilia et al., 2022; Ismawati et al., 2023).

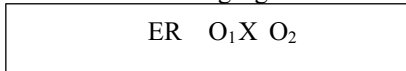
Authentic learning, as Lombardi and Oblinger (2007) describe, involves tasks and projects with contextual relevance, requiring interaction and collaboration. This approach aligns closely with PISA's literacy vision by enabling students to use reading skills in practical scenarios. Integrating authentic literacy practices helps bridge the gap between academic learning and real-world application, preparing students for global assessments like PISA (Guthrie et al., 2012). Authentic learning experiences are further enhanced by collaborative activities, where students collectively build knowledge, viewing literacy through a social constructivist lens (Wood et al., 1976; Maksić & Jošić, 2021). This collaborative environment enriches understanding, providing social support that leads to more meaningful interpretations of a text.

In summary, while Indonesia has made efforts to improve reading literacy (Nugrahanto & Zuchdi, 2019; Arlinwibowo et al., 2020), there is a pressing need for educational models that integrate authentic literacy practices aligned with PISA's goals. These models would cultivate practical reading skills applicable in real-life contexts, helping students meet both national and international literacy standards.

2 Method

This study aims to prove the effectiveness of the Authentic Literacy Education Model with a PISA-Oriented Constructivist Approach. For the purpose of this research, the type of research chosen is quantitative research with an experimental research method

of one group pre-test - post-test design. The experimental research design chosen can be seen in the following figure.



Description

X : Trial of Authentic Literacy Education Model with PISA-Oriented Social Constructivism Approach

ER : Experimental group with random sampling data

O₁ : Pre-test for experimental group

O₂ : Post-test for the experimental group

The research participants were 142 junior high school Grade 8 students in Bandung City coming from three schools. The distribution of the number of subjects from three schools is presented in Table 1.

The determination of the school was basically done randomly as long as it met the inclusion criteria. The schools used as research locations are LPU Junior High School in Bandung City for the northern part of Bandung City, State Junior High School VV in Bandung City for the central part of Bandung City, and TU Junior High School in Bandung City for the eastern part of Bandung City. The main reason for the selection of these research locations is based on the representation of school locations in Bandung City with the division of regional parts. The analysis of pre-test and post-test data revealed significant improvements in student performance after implementing the Authentic Literacy Education Model with the PISA-Oriented Constructivist Approach. The study maintained consistency with 142 participants throughout both assessments

Table 1. Number of research subjects

School Origin	Number of Subject
SMP LPU Bandung	41
SMP VV Bandung	55
SMP TU Bandung	46

3 Findings and Discussion

Based on the results of quantitative analysis of pre-test and post-test data from the research subjects, namely 142 Class VIII junior high school students from three schools in Bandung City, namely SMP LPU Bandung for the northern part of Bandung City, SMP VV Bandung for the central part of Bandung City, and SMP TU Bandung for the eastern part of Bandung City, the following data description is obtained.

Based on Table 2, it can be seen that the lowest score on the pre-test was 40, while the lowest score on the post-test was 67. This means that learners experienced an increase in reading literacy of around 68% using the Authentic Literacy Education Model

with a PISA-oriented Social Constructivism Approach. This authentic literacy education model increased the highest score achieved by learners by 12% from the highest score of 85 in the pre-test to 97 in the highest score of the post-test results. In addition, the average value of students’ reading literacy increased by 24% from the average pre-test result, which was 68.18 to 84.45 post-test average value. The pre-test standard deviation was 10.05 and 6.20 for the post-test standard deviation.

Table 2. Description of students’ pre-test - post-test scores

	Pre-test	Post-test
Number of Subjects (N)	142	142
Lowest Score	40	67
Highest Score	85	97
Average (Mean)	68.18	84.45
Median	67	86
Standard Deviation	10.05	6.20
Range	45	30

Table 3. Details of average score, highest score, and lowest score

Subject Origin	Average		Highest Score		Lowest Score	
	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
SMP LPU Bandung	60.73	83.07	80	97	40	68
SMP VV Bandung	68.10	81.95	80	94	58	67
SMP TU Bandung	74.54	88.63	85	95	60	84

Table 3 is a detailed breakdown of the mean scores, highest scores, and lowest scores in the three research schools. Table 3 shows that the mean score of the reading literacy pre-test was 60.73 for the research subjects from LPU Junior High School, while the highest mean score of reading literacy was 74.54 for the research subjects from TU Bandung Junior High School. However, the highest post-test score was for the research subject from SMP LPU Junior High School, which was 97.

Based on Table 4, an in-depth analysis of students’ literacy skills before and after the intervention was conducted, categorizing students according to ability levels from “Very Low” to “Very Good.” As seen in Table 4, the percentage of students in the “Very Good” category rose from 14% in the pre-test to 59% in the post-test, while the “Medium” category dropped from 47% to 3%. Notably, post-intervention results showed no students in the “Very Low” and “Low” categories, underscoring the effectiveness of the model in elevating literacy levels. This model has increased 52% of

learners' reading literacy skills to good and very good criteria as can be seen from Fig. 1.

Table 4. Details of average score, highest score, and lowest score

Subject Origin	The Ability Criteria	Pre-test		Post-test	
		N	%	N	%
0—44	Very low	4	3	0	0
45—54	Low	7	5	0	0
55—69	Medium	67	47	4	3
70—84	Good	44	31	54	38
85—100	Very Good	20	14	84	59
Total		142	100	142	100
Average Score		68.18		84.45	

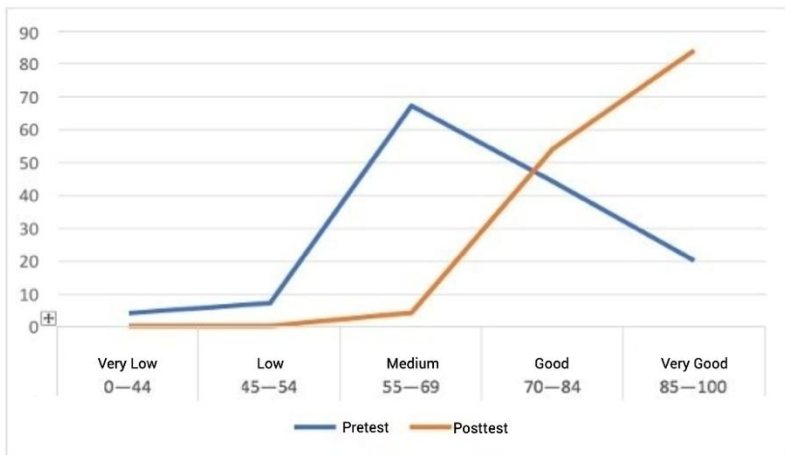


Fig. 1. Graph of increasing student ability criteria

After the prerequisite test of data analysis, it was found that the pre-test and post-test data were not normally distributed. Therefore, hypothesis testing was carried out with a nonparametric statistical test using the Wilcoxon Test to analyze the effectiveness of the Authentic Literacy Education Model with a PISA-oriented Social Constructivism Approach on students' reading literacy skills. The technique of processing data from pre-test and post-test results is divided into two stages of analysis, namely normality test and hypothesis testing with Wilcoxon Test using SPSS PASW software version 26. Statistical Product and Service Solutions (SPSS). The input data analyzed were the pre-test results of reading literacy skills before using an authentic literacy education model with a PISA-oriented social constructivism approach and post-test reading literacy skills after using an authentic literacy education model with a PISA-oriented social

constructivism approach. Furthermore, the analyzed data are described in the output of the analysis results of the SPSS 26 method.

Table 5. Ranks test results

Ranks		N	Mean Rank	Sum of Ranks
Post-test - Pre-test	Negative Ranks	0a	.00	.00
45—54	Positive Ranks	142b	71.50	10153.00
55—69	Ties	0c		
70—84	Total	142		

a. Post-test < Pre-test
b. Post-test > Pre-test
c. Post-test = Pre-test

Table 5 is the result of testing with the Wilcoxon Test using the SPSS application. Based on Table 5, it is found that the negative difference in reading literacy test results for pre-test and post-test results is 0 in the N value, Mean Rank, and Sum Rank. That is, there is no reduction in pre-test scores to post-test scores. For the positive difference in reading literacy test results, it was found that there was a significant increase in all students after the implementation of the Authentic Literacy Education Model with a PISA-oriented Social Constructivism Approach with an average improvement value of 71.5 with a Ties value of 0, which means that there is no similarity in the value of the pre-test results with the post-test values.

Table 6. Wilcoxon test results

Test Statistic	
	Post-test - Pre-test
Z	-10.345b
Asymp. Sig. (2-tailed)	.000
a. Wilcoxon Signed Ranks Test	
b. Based on negative ranks	

Table 6 shows the output of the “test statistic” results with the Wilcoxon test, known as Asym.Sig. (2-tailed) is 0.000. This means that the value of Asym.Sig. (2-tailed) 0.000 is smaller than 0.05 or H1 is accepted. Which means, there is a difference between the students’ reading literacy from the pre-test and post-test results, so it can be concluded that the Authentic Literacy Education Model with a PISA-oriented Social Constructivism Approach is effective in improving students’ reading literacy.

Based on the questionnaire results regarding the responses of learners and teachers to the reading learning process of the Authentic Literacy Education Model with a PISA-

oriented Social Constructivism Approach, 93% of learners and teachers in the three research locations stated that this authentic literacy model with a social constructivism approach is very interesting and can help improve students' reading literacy. Learners with the PISA-oriented Authentic Literacy Education Model with Social Constructivism Approach can actively engage, discuss, and exchange their knowledge about their reading. This social constructivism approach emphasizes collaborative learning involving student engagement, discussion, and knowledge exchange (Saleem et al., 2021).

The authentic literacy education model is very important in reading literacy activities. This authentic literacy education model focuses on concepts that are part of life and the real world. Learners are exposed to literacy material texts with materials and life problems rooted in the real world outside the classroom walls. Furthermore, they will discover the purpose of the lesson from within the direct experience. That is the essence of the authentic learning experience. This authentic learning can help learners realize the relevance and meaningfulness of what they learn (Newmann et al., 1995). Learners can also implement the results of their understanding in a genuine and practical way through application in their life activities.

Relevance and real-world learning in the reading literacy learning process are very important for learners. This importance is not only for the engagement process but also for learners who care about the content of the texts they read. Learners can focus on the material they are learning without separating it from their lives outside the learning context. This authentic learning experience process does not simply produce a "because we have to", "because it's theoretical", or even a "because it's interesting" answer to the question "Why are we learning this?". They realize the importance of understanding because it is relevant and connected to their real world and their community. With this authentic experiential learning, learners carry out learning through direct experience.

In addition, 89% of learners and teachers in the three research locations stated that the PISA-oriented Authentic Literacy Education Model with Social Constructivism Approach fosters positive motivation to improve reading literacy. This is because the authentic literacy model presents literacy media with multiple models that are adapted to the context of an authentic learning environment for learners. The main purpose of this authentic literacy education model is for readers to have high reading literacy motivation. Efforts are made, especially for reader learners so that they have the volition to create high reading literacy motivation. Teachers are positioned to understand how children read and how they are literate readers. This research sees the development of reading literacy as a knowledge product that requires strategy and motivation. Therefore, the approach adopted in this study is constructivism.

The implementation of the Authentic Literacy Education Model with a PISA-oriented Social Constructivism Approach demonstrates significant effectiveness in fostering student motivation and literacy achievement. This is evidenced by the substantial improvements in test scores, where the lowest score increased by 68% (from 40 to 67)

and the highest score improved by 12% (from 85 to 97). The social constructivist approach proves particularly effective as it creates an autotelic learning environment where students' motivation emerges naturally through continuous interaction with literacy activities. The data shows that 89% of students and teachers across the three research locations reported positive motivation improvements, supporting the theoretical foundation of social constructivism.

The effectiveness of this approach is further demonstrated by the shift in ability criteria, where the percentage of students achieving "very good" criteria increased dramatically from 14% in the pre-test to 59% in the post-test. This improvement aligns with the social constructivist principle that reading literacy is developed through meaningful interactions within classroom, family, and social environments. The statistical significance of these improvements is confirmed by the Wilcoxon Test results (Asymp. Sig. 2-tailed = 0.000), indicating that the model successfully creates a learning environment where students develop intrinsic motivation through cognitive, affective, and social processes.

The reduction in standard deviation from 10.05 to 6.20 suggests that the social constructivist approach not only improves overall performance but also creates more homogeneous learning outcomes, supporting the theory that literacy development is enhanced through collective meaning-making and social interaction (Damaianti, 2022). This is particularly evident in how students across different schools showed consistent improvement, with even the initially lower-performing schools achieving significant gains, demonstrating the model's effectiveness in creating an engaging learning environment where students can independently discover and pursue their learning goals.

Social constructionist learning is built through three aligned domains for intrinsic motivation for literacy learning. According to this view, high reading literacy motivation can be realized through three domains of activity. These three domains are dynamically, interactively, and ecologically related to each other (Guthrie et al., 2012). This PISA-oriented model of Authentic Literacy Education with Social Constructivism Approach presents reading materials whose texts are created for factual communicative purposes as a stimulus in accordance with the learning objectives and reading literacy assessment. This authentic text was also chosen in the reading literacy assessment initiated by international institutions. Traditional texts have evolved into a wide variety of texts set in real life as the authenticity of text materials has become an important issue in reading literacy learning and assessment.

In this study, three authentic texts were used to enhance reading literacy: "*Kaulinan Barudak*" (Traditional Children's Games), "*Struktur Bumi*" (Earth's Structure), and "*Kebaikan Alam yang Allah Ciptakan*" (The Goodness of Allah's Natural Creation). These texts were chosen for their real-world relevance, linking students' cultural, scientific, and spiritual knowledge. "*Kaulinan Barudak*" highlighted local Sundanese culture, leading to improved reading comprehension scores, with 97% of students in the good and very good categories post-test. "*Struktur Bumi*," a scientific text, improved

understanding, particularly for lower-performing students, with scores rising from 40 to 67. “*Kebaikan Alam yang Allah Ciptakan*” connected with students’ spiritual and environmental awareness, with 59% achieving very good post-test scores. The combination of cultural, scientific, and spiritual texts provided a well-rounded learning experience, reducing score variability and demonstrating how authentic texts can boost student engagement and comprehension, aligning with PISA’s emphasis on authentic reading contexts.

4 Conclusion

The authentic literacy education model with a PISA-oriented social constructivist approach is proven to increase 68% of students’ reading literacy. Post-test results of the model show that there are no more learners with reading literacy criteria in the very low and low categories. The criteria for students’ reading literacy skills based on the post-test results showed that 59% of students were in excellent reading literacy ability criteria, 38% had good criteria, and only 3% with moderate criteria. The results of testing with the Wilcoxon Test obtained pre-test and post-test results are 0 in the N value, Mean Rank, and Sum Rank. This means that there is a significant increase in all students after the application of the Authentic Literacy Education Model with a PISA-oriented Social Constructivism Approach with an average increase value of 71.5 with a Ties value of 0, which means that there is no similarity in the value of the pre-test results with the post-test values. In addition to these empirical data, the Authentic Literacy Education Model with a PISA-oriented Social Constructivism Approach received positive responses from teachers and students. They agreed that the authentic literacy model was proven to help improve learners’ literacy.

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