

AI-Assisted Evaluation of Emotional and Aesthetic Dimensions in Grade 8 English Reading Assessments: Alignment with the PISA 2022 Literacy Framework

Indah Fitri Nurhidayah^{1*}, Cindi Aulia¹, Nurhusni Yusriyyah Yumna¹, Lala Bumela Sudimantara¹, Muhsiyana Nurul Aisyiyah¹

¹Universitas Islam Negeri Siber Syekh Nurjati Cirebon, Indonesia

*Corresponding author's email: indahfitrinurhidayah@mai.syekhnurjati.ac.id

 <https://orcid.org/0009-0006-2775-6029>

 <https://doi.org/10.54855/paic.2694>

©Copyright (c) 2026 Indah Fitri Nurhidayah, Cindi Aulia, Nurhusni Yusriyyah Yumna, Lala Bumela Sudimantara, Muhsiyana Nurul Aisyiyah

Received: 29/09/2025

Revision: 09/03/2026

Accepted: 15/05/2026

Online: 23/07/2026

ABSTRACT

Keywords: AI in Education, Aesthetic Principles, Merdeka Curriculum, PISA 2022 Literacy Framework, Reading for Emotion

Indonesia faces a persistent learning crisis in which students can decode texts but struggle with comprehension, reflected in low PISA 2022 (69th out of 81 countries) and English Proficiency Index rankings (79th out of 113 countries). Despite multiple curriculum reforms, limited attention has been given to the emotional and aesthetic dimensions of reading assessments. This study aims to evaluate the alignment of Grade 8 reading assessments in the textbook English for Nusantara (2022) with the PISA 2022 Literacy Framework, Reading for Emotion, and neuroaesthetic principles. Using a qualitative design with deductive content analysis supported by Qwen AI, tasks were coded against a predetermined matrix. Findings indicate limited alignment with the PISA 2022 Literacy Framework, as the assessments predominantly emphasize surface-level comprehension while offering minimal engagement with higher-order, emotional, and aesthetic dimensions. The study highlights the need to strengthen critical, affective, and aesthetic dimensions in assessment design.

Introduction

The education system in Indonesia continues to perform poorly because, although many students can read words, they often fail to develop a deep understanding of texts (World Bank, 2020). Students' comprehension tends to remain minimal, with very limited ability to critically connect, analyze, and reflect on what they read (Mirizon et al., 2021; Yasinta et al., 2022), indicating a fundamental weakness in the development of high-level literacy skills. Despite eleven revisions to the curriculum since 1945, significant progress is still not evident in various international assessments, such as PISA 2022, which ranked Indonesia 69th out of 81 countries with a literacy score of 359, far below the global average of 476, while the EF English Proficiency Index 2023 ranked Indonesia 79th out of 113 countries with a score of 473, which

CITATION | Nurhidayah, I. F., Aulia, C., Yumna, N. Y., Sudimantara, L. B., & Aisyiyah, M. N. (2026). AI-Assisted Evaluation of Emotional and Aesthetic Dimensions in Grade 8 English Reading Assessments: Alignment with the PISA 2022 Literacy Framework. *Proceedings of the AsiaCALL International Conference*, 9, 63-78. ISSN: 2833-6836, ISBN: 979-8-90148-783-9. DOI: <https://doi.org/10.54855/paic.2694>

is classified as low proficiency. Overall, these results ultimately highlight the failure of the national education system to provide students with sufficient literacy and English language skills to face intense competition at the global level.

Issues related to learning outcomes remain a significant challenge in Indonesia, because even though school enrollment has increased by 31% since 2002, covering more than ten million students, in reality, nearly 70% of students still face difficulties in mastering basic reading and writing skills, according to a World Bank report (2020). This phenomenon has emerged amid Indonesia's economic stability, which has grown by around five percent, and a moderate increase in the Human Development Index (HDI) from 74.39 in 2023 to 75.02 in 2024.

The 2022 PISA results show that almost all Indonesian students did not reach level 5 or higher in reading literacy, while the OECD average reached 7%, indicating that many students still have difficulty understanding long texts, interpreting abstract or counterintuitive information, and distinguishing facts from opinions in implied contexts. This situation shows that, even though students can pronounce words, they are unable to develop a deeper understanding, so this literacy crisis requires immediate reform in curriculum, pedagogy, and assessment. Literacy is not limited to reading and writing skills, but also includes activities to access, interpret, evaluate, and apply information in various contexts (Shiferaw & Wedi, 2025). However, in reality, only a handful of Indonesian students can reach level 2, which is the basic standard for understanding fairly complex texts (Kusmaryono & Kusumaningsih, 2023). Compared to the PISA framework, the current education system still prioritizes basic skills over higher-order thinking skills, such as critical and reflective reading (Firanty et al., 2024). Textbooks and exams also often fail to emphasize higher-order thinking skills (Ariyati et al., 2025). Teaching in the classroom generally still focuses on the teacher, with material oriented towards grammar and linguistic description, while the teacher retains complete control over the entire process (Helyanti, Bumela, & Ikawati, 2022b, p. 2).

Neuroscience reveals that learners gain a much better understanding when new information is linked to existing experiences rather than simply memorizing it separately (Lian, 2018). The brain's processing process begins with comprehensively processing emotional components, rhythms, and stories in the right hemisphere, then moves to the left hemisphere for more detailed linguistic analysis, such as grammar and vocabulary (Sudimantara et al., 2025, p. 20). This shows that the traditional approach, which emphasizes accuracy and memorization, often overlooks the important role of emotions in the learning process. Panksepp (1998) and Panksepp and Biven (2012) highlight that emotions act as a core organizational system in the brain, shaping perception, memory, and behavior through mechanisms such as SEEKING and FEAR to direct the learner's attention and interpretation. Similarly, Damasio (1994, 1999) shows that emotions link bodily states with mental representations to support cognition and decision-making, making emotionally charged content, such as narratives that evoke empathy, crucial for successful learning. The Reading for Emotion element in Multisensory CALL adopts this principle by encouraging students to actively engage with texts, both linguistically and emotionally, to improve memory and support grammar and vocabulary mastery in later stages. By expanding this perspective, Solms (2013, 2021) emphasizes that emotions are the foundation of consciousness and learning processes, while the aesthetic aspect of M-CALL uses music, visual arts, and narratives to foster deeper emotional engagement. Support from Immordino-Yang and Damasio (2007) ultimately confirms that emotions actively shape thinking, memory, and social behavior, indicating that language knowledge will be retained and

applied more effectively in contexts that have emotional meaning for students.

This study evaluates an English textbook for Grade 8 entitled English for Nusantara, published by the Ministry of Education, Culture, Research, and Technology in 2022. Given that Grade 8 is an important stage before students engage in international assessments such as PISA, learning at this level needs to focus not only on cognitive aspects but also on supporting students' social and emotional development, in line with UNESCO's emphasis and the Sustainable Development Goals (SDG) 4. This study uses a qualitative method with deductive content analysis supported by the application of Qwen AI in the evaluation process. This analysis specifically highlights the alignment of reading assessment with the PISA 2022 Literacy Framework as well as Lian's (2017) idea of Reading for Emotion and the aesthetic principles proposed by Ramachandran and Hirstein (1999) to present a comprehensive picture of the quality of the assessment instruments used.

This study uses three main analytical frameworks, beginning with the PISA 2022 Reading Framework, which covers aspects of access and retrieval, understanding and use, and reflection, as designed by the OECD to evaluate how 15-year-olds use their reading skills in real-life contexts beyond simply memorizing school material. Using this framework, this study examines whether 8th-grade textbooks support reading skills not only at a basic comprehension level, but also at higher reflective and critical levels. The second framework is Reading for Emotion from Lian (2017), which describes six stages ranging from focus, disturbance, dialogue, development, resolution, and moral, specifically highlighting the importance of emotion in the reading process. This model aligns with the multisensory approach through the load-reduction hypothesis, as expressed by Peterson (2017), which holds that the elements of rhythm, narrative, and emotion are mainly processed in the right hemisphere of the brain, with emotion as the main factor in meaning formation. Research by Immordino-Yang (2009a, b) and Immordino-Yang and Damasio (2007) indicates that social behavior is grounded in a long-established emotional system, thereby influencing both human actions and communication. Peterson (1999 in Lian, 2020, p. 443) further emphasizes that categories of meaning contain emotional and motivational value, where attention to these values can prevent distraction while empowering individuals to create reality, because exploratory behavior is crucial for success in learning. The third framework, aesthetics as proposed by Ramachandran and Hirstein (1999), encompasses peak shifts, isolation, grouping, contrast, perceptual problem-solving, as well as generic viewpoint and metaphors, symmetry, and balance. These principles were further expanded by Lian et al. (2017) into the area of writing, showing how aesthetic experiences are regulated by universal neurological laws that may involve the right hemisphere of the brain to build emotional and aesthetic connections that deepen understanding and help students construct meaning in a much more efficient way.

Despite ongoing curriculum reforms, Indonesia faces a persistent learning crisis characterized by suboptimal PISA 2022 results, in which students' reading comprehension remains at a surface level, competent at decoding but lacking in critical reflection. This issue is particularly critical for eighth-grade students, a pivotal stage for prioritizing cognitive and holistic development to meet international benchmarks. Consequently, this study employs a qualitative methodology with deductive content analysis to evaluate the 2022 Ministry of Education, Culture, Research and Technology English textbook through a multidimensional lens. By integrating the PISA 2022 Reading Literacy Framework, Lian's (2017) emotional stages, and Ramachandran and Hirstein's (1999) neuro-aesthetic principles, this research examines how

stimulating both cognitive and affective domains can bridge the gap between basic literacy and deep comprehension. Ultimately, this analysis supports the mandate of SDG 4 by fostering the social, emotional, and cognitive competencies necessary for inclusive, high-quality education.

Literature review

PISA 2022 Reading Framework

According to the OECD (2022), reading literacy is more than just the act of decoding symbols; it is the ability to understand, use, evaluate, reflect on, and interact with various texts to achieve the reader's personal goals. The PISA 2022 framework emphasizes three main cognitive processes, which include accessing and retrieving information as a form of searching for and collecting relevant data from texts, followed by the process of understanding, which involves developing literal and integrated understanding, and the process of evaluation or use, which requires assessing the quality and credibility of texts and applying their ideas in a meaningful way.

The framework expects students to not only recognize words but also demonstrate higher-order thinking skills, including searching for information, understanding complex concepts, and critically evaluating messages and their structure (OECD, 2019).

Reading for Emotion

The Reading for Emotion (RfE) model proposed by Ania Lian in 2017 places emotion at the core of text comprehension by combining affective responses and cognitive reading skills to encourage students to engage intellectually and emotionally. This model consists of six stages, including Focus, which identifies the context and characters; Disturbance, which presents conflicts or emotional triggers; Dialogue, which conveys conversations and reflections; Development, which serves to increase tension; Resolution, which provides solutions; and Moral, which emphasizes lessons or values in the narrative (Lian, 2017). This framework analyzes texts through emotional features to show how writers use narrative strategies to deepen readers' emotional engagement.

Neuroscience supports this approach by revealing that the human brain first processes emotions, rhythms, and narratives in the right hemisphere before the left hemisphere performs technical linguistic analysis, such as grammar or vocabulary. This shows that traditional teaching methods that emphasize memorization can neglect the important roles of emotions and storytelling in the learning process. Panksepp (1998) and Panksepp and Biven (2012) argue that emotions play a significant role in regulating attention, memory, and interpretation, while Damasio (1994, 1999) emphasizes the important role of emotions in linking bodily conditions to individual cognition and decisions. For language learners, the presence of emotionally resonant content such as stories that can evoke empathy is crucial because the Reading for Emotion component in Multisensory CALL encourages learners to interact with the linguistic and affective aspects of the text to improve comprehension and memory, which ultimately supports more effective mastery of grammar and vocabulary (Rosenblatt, 1994; Baehaqi, 2023).

Aesthetic Principles

Aesthetic reading can be easily understood through neurological theories of aesthetics, as explained by Ramachandran and Hirstein (1999). Hirstein and Ramachandran outlined eight

stages of aesthetics: peak shift, grouping, contrast, isolation, perceptual problem-solving, symmetry, generic viewpoint, and metaphor. Peak shift refers to the exaggeration to emphasize the essence of an object, for example, the use of an exaggerated theme in a text. Grouping occurs when readers recognize repeated ideas or patterns as meaningful units, while contrast relies on sharp differences, such as opposing words to attract the reader's attention. Symmetry is used to highlight balance in sentence structure, which readers can naturally understand. Isolation serves to focus on key elements and eliminate distractions through the use of unique metaphorical devices. The generic viewpoint emphasizes perspective.

Lian et al. (2017) also applied these principles in writing and demonstrated that Ramachandran and Hirstein's framework involves the right hemisphere of the brain, which helps students form emotional and aesthetic connections. This can encourage learners to go beyond mere understanding and engage with language, its structures, and symbolism to create imaginative and emotionally rich experiences.

Deep Learning in Education

The transition of Indonesia's education system from the 2013 Curriculum to the Emancipation Curriculum is a strategic national response to the challenges of the learning crisis and the long-term impacts of the COVID-19 pandemic (Kemendikbud, 2021, 2022). This updated curriculum emphasizes Deep Learning as the main principle to encourage the understanding of complex thinking skills, as well as innovation and cooperation, leading to student independence (Sudimantara et al., 2025, p. 2). Deep Learning is supported by three main foundations: mindfulness, meaningfulness, and joyful learning. These principles are integrated into a broader framework that includes graduate profiles, structured learning, and learning experience principles to support a learning ecosystem (Kemendikbud, 2021, 2022). This curriculum orientation certainly goes beyond mere memorization, as it encourages students to engage with knowledge in a more reflective and transformative way in their learning.

The focus on Deep Learning is very much in line with the concept of Computer-Assisted Language Learning (CALL) because both clearly reject mechanical memorization patterns and instead prioritize meaningful and reflective engagement through the integration of cognition, emotion, and sensory experiences (Sudimantara et al., 2025, p. 9). In the field of language education, this relationship can be recognized in various ways, such as the Verbal Approach, Reading for Emotion, and the use of Aesthetic elements (Sudimantara et al., 2025, p. 2).

Top-Down Processing and Cognitive Learning

Studies in neuroscience reveal that perception is not merely a passive reflection of the outside world, but an active process influenced by top-down mechanisms, in which prior knowledge and expectations guide the interpretation of all sensory inputs (Seth, 2014, 2017). Although neurons can respond to basic elements such as lines or contrast differences, higher-level recognition, such as the ability to recognize faces, arises from distributed networks that combine information at multiple levels in complex ways (Kendrick et al., 2011). In this perspective, perception acts as a predictive process in which meaning emerges when the discrepancy between expectations and sensory input is reduced (Ramachandran & Hirstein, 1999; Fedorenko, 2014). This understanding extends to the realm of learning, where students do not merely passively receive information but actively construct meaning through dynamic interactions between existing knowledge and new information input (Lian, 2018a, 2018b). Learning occurs when discrepancies drive adjustments and deeper understanding through a

process described by Seth (2017) as “controlled hallucination.” In the context of reading and literacy, this perspective emphasizes that understanding is a dynamic negotiation between prediction, interpretation, and reflection, so that the process is not merely a linear decoding of text.

Based on this, the study aims to analyze the extent to which the reading assessment in the English for Nusantara English textbook for 8th-grade students includes tasks that stimulate active cognitive processes and foster deep emotional engagement among students. This evaluation is crucial to determine whether the current teaching materials still rely on a linear text analysis pattern or already support comprehensive meaning negotiation in line with neurology principles and the applicable international literacy framework.

Research Gap

Several studies in the domain of AI in language education have made significant contributions to the use of artificial intelligence in learning, as demonstrated by Hoang et al. (2025), who demonstrated that ChatGPT can assist EFL teachers in planning more structured IELTS Reading lessons, although issues of prompt reliability and accuracy remain a focus of concern. These research findings are supported by Tran (2024), who emphasized the significant potential of AI to improve academic vocabulary mastery, and by Nguyen and Le (2025), who expanded the discussion by highlighting increased student emotional engagement through the use of AI chatbots in learning. All of these studies have significantly enhanced the understanding of the strategic role of AI in pedagogical practices and student learning experiences. Therefore, this study seeks to expand the existing discourse by positioning AI not only as a learning aid but also as a systematic analytical instrument for more in-depth research and evaluation of reading assessments.

Although previous studies have examined reading literacy in the context of PISA and learning in Indonesia (Mirizon et al., 2021; Yasinta et al., 2022; Ramadhani & Zaim, 2023; Zaim et al., 2023), most focused only on students’ cognitive achievements or general teaching strategies. Other research has also linked reading instruction with emotional and aesthetic dimensions (Lian, 2017; Ramachandran & Hirstein, 1999), yet none have comprehensively integrated all three frameworks to analyze assessment instruments. Therefore, there is still a lack of studies that thoroughly examine how Grade 8 reading assessments published by the Ministry of Education, Culture, Research, and Technology are evaluated using the PISA 2022 reading literacy framework, Reading for Emotion, and aesthetic theory. This study aims to fill this gap by employing artificial intelligence (Qwen AI) to assess the extent to which reading assessments align with the cognitive, emotional, and aesthetic dimensions required in 21st-century literacy.

Research Questions

1. How are the cognitive skills reflected in the reading assessments of the English for Nusantara Grade 8 textbook, according to the PISA 2022 Literacy Framework?
2. How are emotional dimensions reflected in the reading assessments of the English for Nusantara Grade 8 textbook, based on Lian’s Reading for Emotion framework?
3. How are aesthetic principles reflected in the reading assessments of the English for Nusantara Grade 8 textbook, according to Ramachandran & Hirstein’s neuroaesthetic framework?

Methods

Pedagogical Setting & Participants

This study was conducted in the context of junior high school education in Indonesia, with particular emphasis on grade 8, a crucial stage in students' literacy development. At this stage, learners are exposed to a range of texts that vary in terms of structure and content (OECD, 2022). The ability to fully understand texts at this age is a fundamental foundation as children prepare for major international literacy assessments such as the Program for International Student Assessment (PISA). Thus, an important consideration is how literacy assessment, especially reading evaluation, is constructed and carried out in 'reality' in the classroom.

This research focuses only on the reading tests in the English for Nusantara Grade 8 textbook as a whole, including test items, exercises, and other evaluation activities. This book was chosen as it is one of the textbooks implemented at the Junior High School level, and written by a team of writers affiliated with the Indonesian Ministry of Education, Culture, Research, and Technology (MoECRT).

Design of the Study

The study uses a qualitative method with a deductive content analysis design. The technique used in this research was selected to investigate in detail the reading assessment tasks in the English for Nusantara Grade 8 textbook issued by the Indonesian Ministry of Education, Culture, Research, and Technology, published in 2022.

The analytical design in this study is fully guided by theories derived from three main theoretical frameworks, namely the PISA 2022 Reading Literacy Framework (OECD, 2022), which emphasizes the cognitive aspects of reading literacy, as well as the concept of Reading for Emotion (Lian, 2017), which focuses on students' affective engagement and empathy in understanding texts, and the aesthetic principles of Ramachandran and Hirstein (1999), which serve to assess the aesthetic quality of texts or visual reading tasks. By combining all these frameworks, this study not only examines cognitive aspects but also explores emotional and aesthetic dimensions to enhance students' reading experience in a more profound and meaningful way.

Data collection & analysis

This study used the official government textbook, English for the Nusantara for Grade 8, which is commonly used at the junior high school level in the Merdeka curriculum (Damayanti et al., 2022). The collected data included all reading assessments and reading-related activities in this textbook. The focus of this study was intentionally limited to reading assessments and reading-based activities, as reading literacy is one of the core domains assessed within the PISA 2022 literacy framework. Moreover, emotional and aesthetic dimensions are most explicitly embedded and observable in written texts and narratives compared to other language skills, such as listening, speaking, or writing. Data analysis follows the model developed by Miles, Huberman, and Saldaña (2014), which includes three main stages: data condensation, data display, and conclusion drawing and verification. In the data condensation stage, all reading assessment items were reviewed and categorized using three different frameworks: the 2022 PISA Literacy Framework, Reading for Emotions (Lian, 2017), and the aesthetic principles proposed by Ramachandran and Hirstein. Qwen AI, a large language model, was employed as an analytical support tool to assist in the initial classification of reading assessment items into

three dimensions: cognitive, emotional, and aesthetic. The AI was prompted using predefined coding criteria derived from the three analytical frameworks. All AI-generated classifications were subsequently reviewed and verified by the researcher to ensure theoretical alignment, analytical accuracy, and methodological validity. The use of AI enhanced consistency in the coding process and reduced subjective bias, while final analytical decisions remained under human researcher control. For data display, a visual matrix was created, showing items arranged along these dimensions, which helped identify patterns, strengths, and areas requiring intervention. Ultimately, well-reached and verified conclusions are based on scientifically analyzed, valid, and reliable data. The use of AI also tends to reduce inconsistencies and subjectivity in the process.

Results/Findings and Discussion

The PISA 2022 Reading Literacy Framework, Ania Lian's Reading for Emotion framework, and the neuroaesthetic principles from Ramachandran and Hirstein are the three theories used in this study to examine reading assessments in English for the Nusantara Grade VIII textbook. Utilizing Miles, Huberman, and Saldaña's (2014) qualitative analysis method, we divided our results into three sections: data condensation, data display, and conclusion drafting and verification.

Data condensation

Each of the 18 reading assessment units, comprising 128 questions, was properly coded using a three-dimensional matrix based on three theories to condense the data. Each topic was divided into one or more groups based on aesthetic principles (Ramachandran & Hirstein), emotional stages (Lian), and cognitive difficulty (PISA). To guarantee that each unit was treated equally, Qwen AI helped with the code. Dividing the massive amount of data into more digestible patterns and focusing on the main trends rather than each individual question made it easier to examine.

Data display

Tables 1 (Cognitive), 2 (Emotional), and 3 (Aesthetic) present the condensed data based on predefined coding categories. The cognitive category was coded according to the PISA (Program for International Student Assessment) 2022 processes: Access and Retrieve, Understand, Evaluate, and Reflect. The emotional category was coded using Reading for Emotion (Lian, 2017), focusing on focus, disturbance, dialogue development, resolution, and morale. The aesthetic category was coded based on aesthetic principles proposed by Ramachandran and Hirstein (1999), such as peak shift, grouping, contrast, perceptual problem solving, generic viewpoint, and balance. These categories illustrate how the textbook's content aligns with global educational standards.

Cognitive Suitability: Based on PISA 2022 Reading Literacy Framework

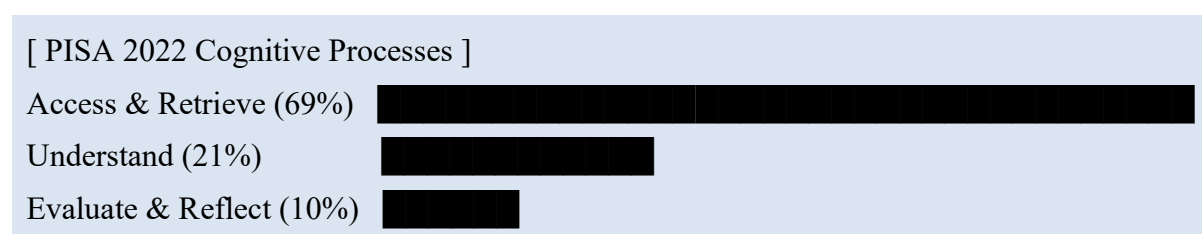
Table 1.

Distribution of Cognitive Processes

PISA 2022 Cognitive Processes	Frequency	Percentage
1. Access and Retrieve	89	69%
2. Understand	27	21%
3. Evaluate and Reflect	12	10%

Figure 1.

The distribution of cognitive processes.



The significant predominance of access and retrieve (69%) indicates that the majority of exams prioritize literal comprehension over higher-order reasoning. While there are examples in instructional books like "Bali Cleanup" and in narrative novels like "The Greedy Fisherman," the pattern is essentially the same across all units. Since just 10% of the findings indicate review and reflection, the selection must essentially be appropriate for early secondary students. This suggests that PISA 2022's emphasis on critical literacy is still somewhat out of alignment. The "Why?" and "What do you think?" Examples of a consistent pattern observed in the study of all reading assessment units are questions that consistently fall under evaluate and reflect yet only account for 10% of the total. The majority of the activities focused on literal memory, which is similar to traditional teaching methods but does not meet the reflective and participatory literacy goals of PISA 2022. This discrepancy suggests that future curricula should put more of an emphasis on helping students become proficient critical evaluators.

Emotional Suitability: Based on Reading for Emotion Framework

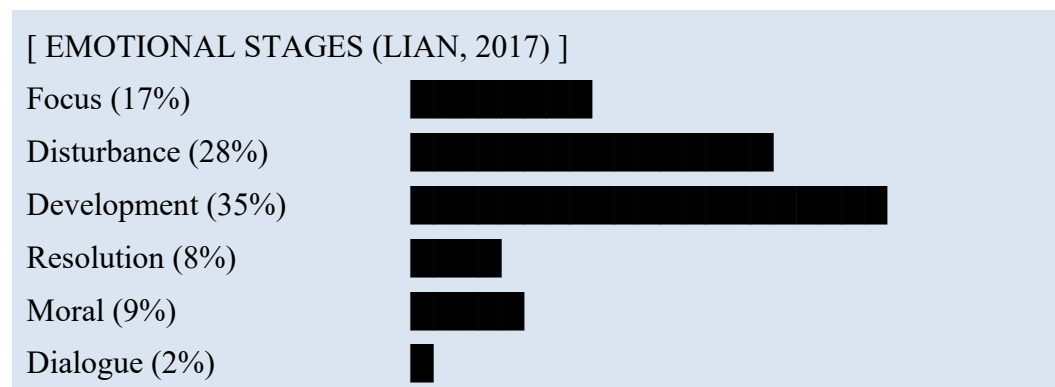
Table 2.

Distribution of Emotional Stages

Emotion Stage(s)	Frequency	Percentage
1. Focus	22	17%
2. Disturbance	36	28%
3. Dialogue	3	2%
4. Development	45	35%
5. Resolution	10	8%
6. Moral	12	9%

Figure 2

The emotional stage distribution.



The analysis showed that 35% reflected the development stage, making it the most dominant, followed by the disturbance stage at 28%. This indicates that the assessment focused more on the development of the plot and the onset of conflict. The focus stage accounted for 17%, providing students with situational context. Meanwhile, the resolution stage accounted for 8%, and the moral stage for 9%, indicating limited opportunities for students to reflect on the story's resolution or to draw deeper meaning from the text. The moral stage did occur, but it usually consisted of simple questions such as What lesson can you take and thus provided little opportunity for students to engage in in-depth reflection.

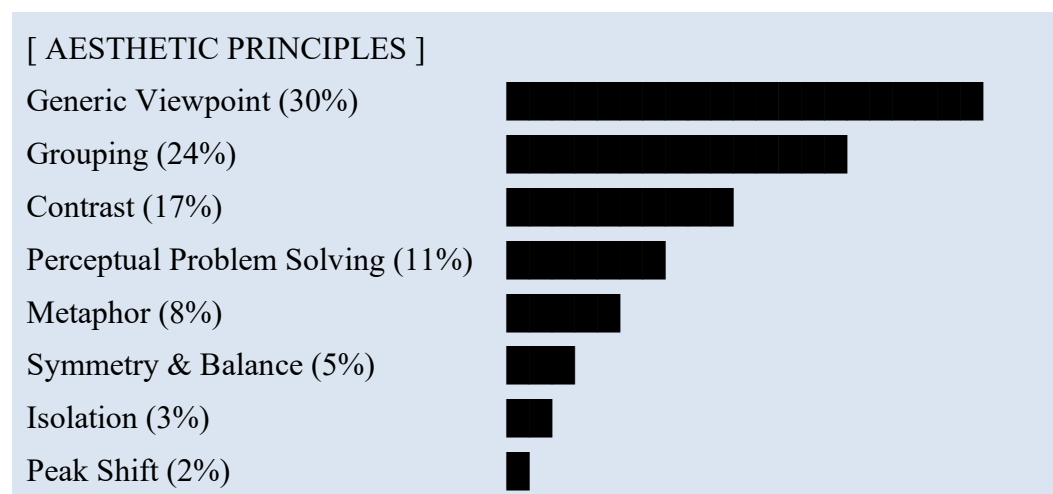
Most strikingly, the dialogue stage occurred at only 2%, indicating a serious lack of motivation for students to consider differing perspectives or participate in moral negotiation. For example, even though "The Elephant and Mumtazand" and "The Exam" depict interpersonal conflict, the questions generally focus on "what happened?" rather than questions like "How might Radit feel?" or "What would you say to Kak Shinta?" This means that, despite the potential for these works to evoke empathy and suspense, the reviews are superficial, emphasizing only the plot development and conflict. They fail to develop the emotional depth and introspective reading habits necessary for a compelling reading experience.

Aesthetic Suitability: Based on Aesthetic Principles

Table 3.

Distribution of Neuroaesthetic Principles

PRINCIPLE	Frequency	Precentage
f. Generic Viewpoint	38	30%
c. Grouping	31	24%
d. Contrast	22	17%
e. Perceptual Problem Solving	14	11%
g. Metaphor	10	8%
h. Symmetry & Balance	7	5%
b. Isolation	4	3%
a. Peak Shift	2	2%

*Figure 3**The aesthetic principle distribution*

This suggests a strong preference for well-structured and easily understood reading materials as well as reading assessment tasks. These features are suitable for Grade 8 students at this developmental stage, as they reduce cognitive load, enhance readability, and support task comprehension. Concepts that enhance emotional or symbolic meaning, like peak shift (2%) and metaphor (8%), were also rarely discussed. For example, although *The Greedy Fisherman's* "gold chain" is a powerful metaphor for greed, students aren't asked to consider its implications. In a similar vein, the fable's final "hefty kick" demonstrates peak shift by escalating moral consequences through exaggerated actions, though this approach is rarely used in assessments. Further highlighting a lost opportunity to encourage students' engagement with ambiguity, inference, and sensory details, all essential for richer reading experiences, is the comparatively low frequency of Perceptual Problem Solving (11%).

Conclusion drawing and verification

Research findings on the English for Nusantara assessment for Grade VIII show an organized structure but reveal significant cognitive and affective imbalances when viewed through the lens of PISA 2022, Reading for Emotion, and neuroaesthetic principles.

Based on the PISA 2022 Reading Literacy Framework (OECD, 2019), the Access and Retrieve process, defined as the ability to find relevant explicit information in a text, dominates at 69% of the assessment, indicating that most of the reading tasks remain focused on literal information retrieval. According to OECD (2019), "this dominant percentage reflects a learning tendency that views texts solely as sources of facts and disregards their role as a site of meaning negotiation for readers." Meanwhile, the Understand aspect, which refers to the integration of information and making inferences, only reached 21%, confirming that relational comprehension activities are not yet optimal, while the Evaluate and Reflect aspect, which relates to assessing the quality and reflecting on the content of the text based on external knowledge, was only at 10%. Thus, the demand for critical thinking in the analyzed tasks is very low.

Based on the Reading for Emotion framework proposed by Lian (2017), emotional engagement

unfolds through six stages ranging from Focus to Moral. The analysis indicates the dominance of the Development stage at 35%, reflecting the unfolding of events emerging from character interactions and previously established conflicts. The prominence of the Development phase suggests that emotional engagement is shaped more by plot progression than by reflective exploration of deeper emotional meaning (Lian, 2017). The Disturbance stage appears at 28%, showing that readers' emotional dynamics are largely triggered by disruptions in narrative stability, while the Focus stage accounts for 17% as the situational grounding prior to conflict escalation. However, limited opportunities for meaning negotiation are evident in the very low percentages for the Dialogue stage (2%), the Resolution stage (8%), and the Moral stage (9%), even though these stages are essential for emotional closure and interpretive consolidation (Lian, 2017).

Based on the analysis using the neuroaesthetic principles proposed by Ramachandran and Hirstein (1999), the Generic Viewpoint principle dominates at 30%, indicating a preference for cognitively accessible and stable perspectives. The Grouping principle (24%) emphasizes organizing elements into coherent wholes, while Contrast (17%) highlights efforts to direct attention through perceptual differentiation. In contrast, symbolic and interpretive engagement is less prominent, as shown by the relatively low percentages of Perceptual Problem Solving (11%) and Metaphor (8%), further supported by Symmetry & Balance (5%), Isolation (3%), and Peak Shift (2%). Overall, this distribution suggests that the assessment's aesthetic orientation prioritizes regularity and readability over artistic intensity or provocative interpretive engagement.

Conclusion

From this study, it can be concluded that the assessment in the Grade VIII *English for Nusantara* textbook emphasizes surface-level comprehension through access and retrieval tasks, while giving limited attention to higher-order processes such as evaluation and reflection. Emotionally, the assessment items mainly focus on development and disturbance, but rarely involve dialogue, consideration, or morality. Aesthetically, the assessments rely predominantly on stability-oriented principles, such as generic viewpoints and grouping, whereas metaphorical elements and peak shifts are rarely used. These patterns indicate that although the assessment provides structural clarity, it offers limited engagement with students' critical, affective, and aesthetic dimensions. The use of AI-assisted analysis enabled systematic and consistent coding across cognitive, emotional, and aesthetic dimensions, enhancing analytical rigor while maintaining human control over interpretation. Given the focus on a single textbook, future studies should examine a wider range of instructional materials to further validate and extend these findings.

Acknowledgement

As the authors of this research, we sincerely express our gratitude to Mr. Lala Bumela Sudimantara, Ph.D., a researcher whom we hold in high regard. In addition to being a researcher, he is also a lecturer in English language teacher education at UIN Siber Syekh Nurjati Cirebon, Indonesia. His extensive expertise in pedagogy, technology-based learning, literacy, and critical thinking has greatly motivated us and served as a source of inspiration in preparing our research. Once again, we sincerely thank him for his motivation, guidance, and valuable contributions to the development of our research and growth as novice researchers.

References

- Ariyati, E., Yokhebed, & Marlina, R. (2025). How is Technology Positioned in the Implementation of SSI-Based Learning? *Jurnal Pendidikan Progresif*, 15(2), 1207-1219. <https://doi.org/10.23960/jpp.v15i2.pp1207-1219>
- Baehaqi, K. (2023). Application of the KWL (Know, Want to Know, Learned) learning model to improve students' reading comprehension. *AIM: Journal of Islamic Education Management*, 5(1), 35–46. <https://journal.uinsgd.ac.id/index.php/aim/article/view/30724>
- Damasio, A. R. (1994). Descartes' error and the future of human life. *Scientific American*, 271(4), 144.
- Damasio, A. R. (1999). *The Feeling of what happens: Body and emotion in the making of consciousness*. Harcourt Brace.
- Damayanti, I. L., Nurlaelawati, I., Hutasuhut, M. L., Febrianti, Y., Ramadhani, R., & Devianty, G. A. (2022). *English for Nusantara: SMP/MTs Kelas VIII*. Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.
- EF Education First. (2023). EF English Proficiency Index 2023. <https://www.ef.com/epi/>
- Fedorenko, E. (2014). The role of domain-general cognitive control in language comprehension [Hypothesis and theory]. *Frontiers in Psychology*, 5(335). <https://doi.org/10.3389/fpsyg.2014.00335>
- Firanty, R., Dayu, D., & Mayangsari, N. (2024). Upaya meningkatkan literasi membaca menggunakan teknik bercerita di sekolah dasar. *AS-SABIQUN*, 6(5), 999-1008. <https://doi.org/10.36088/assabiqun.v6i5.5347>
- Helyanti, N. D., Bumela, L., & Ikawati, L. (2022). Developing Digital Literacy Resources For Middle School Students: A Highlight On Literacy Level. *ELT Echo : The Journal of English Language Teaching in Foreign Language Context*, 7, 186–202. <https://doi.org/10.24235/eltecho.v7i2.12081>
- Hoang, T. T. H., Dang, H. N., Pham, N. B. Q., & Truong, T. K. X. (2025). EFL Teachers' Perceptions of Utilizing ChatGPT in Designing Lesson Plans for IELTS Reading Skills. *International Journal of AI in Language Education*, 2(3), 19-39. <https://doi.org/10.54855/ijaile.25232>
- Immordino-Yang, M. H., & Damasio, A. (2007). We feel, therefore we learn: The relevance of affective and social neuroscience to education. *Mind, Brain, and Education*, 1(1), 3–10. <https://doi.org/10.36510/learnland.v5i1.535>
- Immordino-Yang, H. (2009a). Our bodies, our minds, our selves: Social neuroscience and its application to education. In S. Feifer & G. Rattan (Eds.), *The neuropsychology of emotional disorders*. School Neuropsychology Press. Retrieved from https://www.researchgate.net/publication/242078625_our_bodies_our_minds_our_selves_social_neuroscience_and_its_application_to_education
- Immordino-Yang, M. H. (2009b). Our bodies, our minds, our selves: Social neuroscience and its application to education. *The Neuropsychology of Emotional Disorders*, 15–22. Retrieved from

<https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=4b6a1f620812bd3f58b807921ab5c2d6023bb88e>

- Kementerian Pendidikan dan Kebudayaan Republik Indonesia. (2021). *Kurikulum dalam rangka pemulihan pembelajaran*. Jakarta: Kemendikbud.
- Kementerian Pendidikan dan Kebudayaan Republik Indonesia. (2022). *Kurikulum Merdeka*. Jakarta: Kemendikbud.
- Kendrick, K. M., Zhan, Y., Fischer, H., Nicol, A. U., Zhang, X., & Feng, J. (2011). Learning alters theta amplitude, theta-gamma coupling and neuronal synchronization in inferotemporal cortex. *Neuroscience*, 12, 1–23. <https://doi.org/10.1186/1471-2202-12-55>
- Kusmaryono, I., & Kusumaningsih, W. (2023). Evaluating the results of PISA assessment: Are there gaps between the teaching of mathematical literacy at schools and in PISA assessment? *European Journal of Educational Research*, 12(3), 1479–1493. <https://doi.org/10.12973/eu-jer.12.3.1479>
- Lian, A. (2017, December 4). *Reading for emotion with ICT tools*. In *Proceedings of the 25th International Conference on Computers in Education (ICCE 2017)* (pp. 874–883). Asia-Pacific Society for Computers in Education.
- Lian, A. B. (2018). Differentiated learning and evidence from neuroscience: Some implications for computer-assisted language-learning (CALL) pedagogies. *Văn Hiến University of Journal of Science*, 6(1), 5–16. <https://doi.org/10.58810/vhujs.6.1.2018.6111>
- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative Data Analysis (3rd ed)*. SAGE.
- Mirizon, S., Vianty, M., Rosmalina, I., & Erlina, E. (2021). Secondary school students' English literacy achievement based on PISA reading literacy test 2009. *Englisia: Journal of Language, Education, and Humanities*, 9(1), 165–182.
- Nguyen, L. A. D., & Le, . T. T. P. (2025). Exploring the Effects of an AI Chatbot on Emotional Engagement in English Speaking Lessons: Insights from Call Annie. *International Journal of AI in Language Education*, 2(2), 79-99. <https://doi.org/10.54855/ijaile.25225>
- OECD (2019), *PISA 2018 Assessment and Analytical Framework*, OECD Publishing, <https://doi.org/10.1787/b25efab8-en>.
- OECD. (2022). *PISA 2022 Assessment and Analytical Framework: Science, Reading, Mathematics and Global Competence*. <https://doi.org/10.1787/dfe0bf9c-en>
- OECD. (2023a). PISA 2022 Results Factsheets Indonesia. In *OECD (Organisation for Economic Co-operation and Development) Publication*. https://www.oecd.org/en/publications/pisa-2022-results-volume-i-and-ii-countrynotes_ed6fbcc5-en/indonesia_c2e1ae0e-en.html
- OECD.(2023b). Transforming Education in Indonesia: Examining the landscape of current reforms. *OECD Education Policy Perspectives*, 88(Level 2). <https://www.oecd.org/pisa/data/2022database>
- Organisation for Economic Co-operation and Development. (2023). *PISA 2022 Results*

- (Volume I): *The State of Learning and Equity in Education*. Paris: OECD Publishing. <https://doi.org/10.1787/53f23881-en>
- Panksepp, J. (1998). *Affective Neuroscience: The Foundations of Human and Animal Emotions* (R. J. Davidson, P. Ekman, & K. Scherer (Eds.)). Oxford University Press, Inc.
- Panksepp, J., & Biven, L. (2012). *The archaeology of mind: Neural origins of human emotion*. W. W. Norton & Company.
- Peterson, J. B. (2017). 2017 *Maps of Meaning 08: Neuropsychology of symbolic representation*. Retrieved from <https://www.youtube.com/watch?v=Nb5cBkbQpGY>
- Peterson, J. B. (1999). *Maps of meaning: The architecture of belief*. Routledge.
- Ramachandran, V., & Hirstein, W. (1999). The science of art: A neurological theory of aesthetic experience. *Journal of Consciousness Studies*, 6(6–7), 15–51.
- Ramadhani, P. L., & Zaim, M. (2023). The implementation of PISA reading literacy assessment for the tenth grade students: A preliminary study. In H. Ardi et al. (Eds.), *Proceedings of the International Conference on English Language and Teaching (ICOELT 2022)* (pp. 248–253). Atlantis Press. https://doi.org/10.2991/978-2-38476-166-1_36
- Rosenblatt, L. M. (1994). *The reader, the text, the poem: The transactional theory of the literary work*. Southern Illinois University Press.
- Seth, A. K. (2014). *30-second brain: The 50 most mind-blowing ideas in neuroscience, each explained in half a minute*. Icon Books.
- Seth, A. K. (2014). A predictive processing theory of sensorimotor contingencies: Explaining the puzzle of perceptual presence and its absence in synesthesia. *Cognitive Neuroscience*, 5(2), 97–118. <https://doi.org/10.1080/17588928.2013.877880>
- Seth, A. (2017). *The neuroscience of consciousness*. The Royal Institution channel. Retrieved from <https://youtu.be/xRel1JKOEbI>
- Shiferaw, Y. G., & Wedi, S. A. (2025). The practices and challenges of accelerated educational programs in North Wollo zone, Amhara region, Ethiopia. *Frontiers in Education*, 10, 1558188. <https://doi.org/10.3389/feduc.2025.1558188>
- Solms, M. (2013). The conscious id. *Neuropsychoanalysis*, 15(1), 5–19. <https://doi.org/10.1080/15294145.2013.10773711>
- Solms, M. (2021). *The hidden spring: A journey to the source of consciousness*. W. W. Norton & Company
- Sudimantara, L. B., Lian, L. B., Lian, A., & Lian, A.-P. (2025). *Multisensory CALL for UnderResourced Universities and Schools in Indonesia* (pp. 1–234). PalgraveMacmillan. <https://doi.org/10.1007/978-3-031-91387-7>
- The Promise of Education in Indonesia. (2020). In The World Bank. <https://doi.org/10.1596/34807>
- Tran, K. Q. (2024). The Effects of Integrating Artificial Intelligence into Learning Academic Vocabulary Among Masters in English Studies Students. *International Journal of AI in Language Education*, 1(1), 1-19. <https://doi.org/10.54855/ijaile.24111>

- UNESCO. (2015). Education 2030: Incheon declaration and framework for action. UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000233137>
- Yasinta, I. N., Hamsa, A., & Usman. (2022). The Ninth Graders' PISA-Based Reading Literacy Competence. *Curricula: Journal of Teaching and Learning*, 7(1), 12–29. <https://doi.org/10.22216/jcc.2022.v7i1.919>
- Zaim, M., Refnaldi, Zainil, Y., Tiarina, Y., & Zakiyah, M. (2023). The implementation of the PISA model of English reading literacy assessment for senior high school. In H. Ardi et al. (Eds.), *Proceedings of the Eleventh International Conference on Languages and Arts (ICLA 2022)* (pp. 19–26). Atlantis Press. https://doi.org/10.2991/978-2-38476-124-1_4

Biodata

Indah Fitri Nurhidayah is a student in the English Language Education Department at UIN Siber Syekh Nurjati Cirebon, Indonesia. Her research interests include reading literacy, language assessment, textbook evaluation, and ELT materials development, particularly the integration of cognitive, affective, and aesthetic dimensions into reading assessment to promote student engagement and critical literacy.

Cindi Aulia is an English Language Teaching Department student at UIN Siber Syekh Nurjati Cirebon, Indonesia. She is interested in language learning, reading activities, and creative approaches to English education. She actively develops her academic and teaching skills through coursework, collaborative projects, and educational activities. Her interests also include learner engagement and the use of meaningful learning experiences to support students' understanding and motivation in English learning.

Nurhusni Yusriyyah Yumna is currently a fourth-semester student in the English Language Education program at UIN Siber Syekh Nurjati Cirebon, Indonesia. She is actively developing her academic competencies in English language learning, with a particular focus on reading literacy and creative approaches to language and literature instruction in EFL classrooms. She also engages in practical academic activities that support her understanding of educational practices and professional communication in academic settings.

Lala Bumela Sudimantara is an educator and researcher in English Language Teacher Education at UIN Siber Syekh Nurjati Cirebon, Indonesia, where he also serves as Director of the International Office. He holds a Ph.D. in Interdisciplinary Literacy Studies from Charles Darwin University, Australia. His research focuses on language pedagogy, technology-enhanced learning, and critical literacy in English language education, with a particular interest in multisensory Computer-Assisted Language Learning (CALL) for under-resourced contexts. He is Editor-in-Chief of ELT ECHO and co-host of the podcast Teaching and Learning English with AsiaCALL. His work integrates neuroscience, educational technology, and language teaching to promote equitable and student-centered learning.

Muhsiyana Nurul Aisyiyah is a lecturer in the English Education Department at IAIN Syekh Nurjati Cirebon, Indonesia. Her academic interests focus on language education, linguistics, and translation studies.