

Development and Validity of An Ecological Wisdom-Themed Reading Literacy Instrument

1st Akhmad Mukhibun¹, 2nd Andayani², 3rd Sumarwati³

{ akhmadmukhibun2@student.uns.ac.id¹, andayani@staff.uns.ac.id², sumarwati@staff.uns.ac.id³ }

Sebelas Maret University, Insinyur Sutami Street No. 36, Kentingan, Jebres,
Surakarta, Central Java, Indonesia 57126¹²³

Abstract. Reading literacy is an important competency for Indonesian students. This is because good reading literacy competencies will form literate Indonesian students. Literate students will be able to capture information, understand the context of the message, and be able to think critically. This study aims to develop and validate a reading literacy measurement instrument with the theme of ecological wisdom for junior high school students in the Karanganyar Regency Rural Area. This research is an exploratory mixed method research, namely mixed research with qualitative-quantitative stages. The data in this study are in the form of lingual units and numbers. Data sources were obtained through scientific documents on reading literacy, ecological wisdom, Indonesian language experts, students of SMPN 1 Karangpandan, and SMPN 2 Karangpandan. The data collection technique was done by literature study, expert validation questionnaire, and ecological wisdom-themed reading literacy instrument. The analysis technique was carried out qualitatively and quantitatively, namely through thematic analysis, content and empirical validity testing, and reliability testing. The results showed that the content validity with Aiken's V formula was 0.828 so that the instrument was declared to have high validity. Empirical validity testing shows the value of pearson corellation $r_{count} > r_{table}$ on 29 items and $r_{count} < r_{table}$ on 1 item so that 29 items are valid and 1 item is invalid. Cronbach's alpha reliability testing shows a value of 0.841 so that the instrument is declared to have very high reliability. The implication of this research is expected to be utilized in the measurement of reading literacy with the theme of ecological wisdom for seventh grade junior high school students.

Keywords: Development of reading literacy instruments, validity of reading literacy instruments, ecological wisdom, reading comprehension, junior high school students, rural areas

1 Introduction

The education curriculum in Indonesia encourages students to have the character profile of Pancasila students, namely faith, devotion to God Almighty, noble character, global diversity, mutual cooperation, creativity, critical reasoning, and independence (Kemdikbud, 2024)[1]. The Merdeka Curriculum is also oriented to form students who are proficient in six basic literacies such as literacy, numeracy, science, digital, financial, cultural and civic literacy; as well as proficient in new literacy competencies, such as data literacy, technology literacy,

human literacy, environmental literacy, and local wisdom literacy (Hamdi et al., 2022; Suryaman, 2020)[2], [3]. This makes the Merdeka curriculum expected to realize holistic, contextual, useful, and meaningful learning (Kemdikbud, 2024)[4].

Literacy competencies are important for students to have because they are used in life, a condition for achieving success, and a provision for becoming a superior generation (Irianto & Febrianti, 2017)[5]. Literacy competence is also a requirement for state resources to compete locally and globally (Pratiwi et al., 2019)[6]. With good literacy, students will become critical, insightful, and skilled in solving existing problems (Tusriyanto et al., 2022)[7]. This literacy competency is also important for students to have so that information acquisition and processing skills can be optimized and encourage reasoning and concentration (Mulasih & Hudhana, 2020)[8].

One of the important literacy competencies for learners is reading literacy. Reading literacy means the ability to understand, use and interpret a written text to develop knowledge, potential and participate in society (OECD, 2012)[9]. Reading literacy is also interpreted as the ability to understand, use, and reflect on written texts to achieve goals, gain knowledge, and solve problems (OECD, 2012; Angga, 2022)[10], [11]. Reading literacy is useful for individuals to be able to understand and apply forms of written language and obtain information from reading (Taylor et al, 2011)[12]. This makes reading ability an important competency to have.

Reading literacy competence has an advanced form or level known as reading comprehension (Kemdikbud, 2022)[13]. Reading comprehension means the ability to read with the aim of adding insight, understanding understanding, understanding the meaning, and finding the main idea (Saddhono, 2020)[14]. Reading comprehension is an individual's ability to read intensively in order to gain understanding, become a tool for learning, and add broader insights on certain topics (Tarigan, 2008)[15]. Reading comprehension is directed at the skill of mastering the content of reading (Lu, 2020)[16].

Reading comprehension skills are important for students to support learning success (Setyaningsih, 2019)[17]. This is because in reading comprehension, students can explore the information and knowledge outlined in the writing (Pratama, 2019)[18]. In reading comprehension, the role of the teacher is needed to provide guidance and direction to students to better understand the reading at hand. In line with the literacy development program, the learning aspect emphasizes more on the textual approach (Carrell & Carson, 1997)[19]. This means that to understand many things that happen in the student's environment begins with understanding the text. By reading comprehension, students are expected to be able to dive into the intentions and ideas expressed by the author in his writing. Thus, students are considered to have been able to absorb information and knowledge from the reading material they read. With the knowledge and insights gained from reading activities, students can develop other language skills, the closest of which is writing skills (Asiri, 2017)[20].

Thus, this research is focused on developing an ecological wisdom-themed reading comprehension literacy instrument. It is intended that this reading comprehension literacy measurement instrument can be used by educators to identify students' reading ability. This instrument can also be utilized by policy makers in determining educational policy-making strategies. Thus, the formulation of this research is (1) how is the concept and measurement instrument of reading comprehension literacy themed ecological wisdom, (2) how is the

content and empirical validity of the development of reading literacy instruments themed ecological wisdom.

Then, reading comprehension is a reading activity that is carried out with full appreciation with the aim of increasing insight, understanding understanding, understanding the meaning, and finding the main idea (Saddhono, 2014)[14]. Reading comprehension is a term that refers to intensive reading activities that are used to gain an understanding of something or become a tool for learning so as to gain greater insight into a particular topic (Tarigan, 2008)[15]. Reading comprehension is directed at the skills to understand and master the content of reading (Bakhtiar et al, 2019)[21].

Reading comprehension is an active reading process with the intention of obtaining meaning and involving the knowledge and experience that the reader already has (Simbolon et al, 2020)[22]. Reading comprehension can also be interpreted as a reading activity with the aim of understanding literary standards or norms, critical reviews, written drama, and fictional patterns (Tarigan, 2008)[15]. Reading comprehension is a complex process and includes two main abilities, namely the ability to be able to understand the meaning of a word and the ability to think about the concepts presented in written language (Septiani, 2023)[23]. Reading comprehension prioritizes individual skills in understanding the content of reading, expression of thoughts and feelings, the will of the author, and the linguistic elements therein.

The main purpose of reading comprehension is to gain understanding or understand the content of the text thoroughly and comprehensively (Simbolon et al, 2020)[22]. Reading comprehension so that individuals are able to find the main idea, important reading content, inference skills, implied / explicit messages, and find facts/opinions in the text read (Tarigan, 2008)[15]. According to Anderson (2019), reading comprehension aims to (1) obtain details and facts, (2) get the main idea, (3) get the order of text organization, (4) get conclusions, (5) get classification/grouping, and (6) make comparisons or contradictions.

Then, reading comprehension also has the aim of (1) knowing and being able to distinguish important and unimportant information based on the text read. (2) Understanding relevant or irrelevant information based on reading. (3) Acquire ideas based on explanations, examples, and illustrations in the text. (4) Understand the relationship between sentences, and (5) make predictions about what information is likely to appear in the reading. The purpose of reading comprehension is so that readers obtain sufficient information and successfully identify patterns, arguments, symbols, and other linguistic units used to convey messages (Simbolon, 2020; Tarigan, 2008)[15], [22].

The principles of reading comprehension include (1) comprehension is a human constructivist process. (2) Proficiency balance is a curriculum framework that helps comprehension development. (3) Teachers who read professionally influence student learning. (4) Good readers play an active role in the reading process. (5) Reading should occur in a meaningful process. (6) Students discover the benefits of reading from a variety of texts at different levels. (7) Vocabulary development and learning affect student comprehension. (8) Engagement is a key factor for comprehension. (9) Strategies and skills can be taught. (10) Dynamic assessment informs reading comprehension learning.

2 Research Method

This research is an exploratory mixed method research, which is research aimed at exploring phenomena that require a qualitative approach to build a basis for quantitative data collection

(Creswell, 2014)[24]. Exploratory mixed method is used to develop a reading literacy measurement instrument with the theme of ecological wisdom for junior high school students. This research design uses two stages, namely qualitative and quantitative stages (Sugiyono, 2020)[25]. In this study, the qualitative stage was used to export the phenomenon and understand the context of reading literacy in rural junior high school students. The quantitative stage was used to validate the findings through a quantitative survey to validate and confirm the research findings (Sugiyono, 2017)[26]

This research data is in the form of narrative about the concept of reading comprehension literacy with the theme of ecological wisdom. Other data are in the form of numbers that represent the validity value of the instrument through content and empirical validity. The research data sources are books/articles that contain the concept of reading literacy. Other data sources are four literacy experts with the initials BW, ASSC, ASL, RT, and 130 grade 7 students of SMP Negeri 1 Karangpandan and SMP Negeri 2 Karangpandan, Karanganyar.

Table 1. Instrument Test Sample

| School | Class | Total (N) |
|---------------------|-------|-----------|
| SMPN 1 Karangpandan | 7 D | 32 |
| | 7 F | 34 |
| SMPN 2 Karangpandan | 7 B | 32 |
| | 7 C | 32 |
| | 7 C | 32 |

The measurement criteria for expert validation are in the range of 1 to 4. A score of 1 represents that the item is not suitable. Value 2 represents that the item is declared less suitable. Value 3 represents that the item is declared appropriate and value 4 states that the item is declared very appropriate. The following is a summary table.

Table 2. Criteria for evaluating instrument items by experts (expert judgment)

| Score | Description |
|-------|---------------|
| 1 | Not Suitable |
| 2 | Less Suitable |
| 3 | Suitable |
| 4 | Very Suitable |

Then, for the Aiken V value it is stated that if the V score > 0.8 means that the question item is declared to have high content validity (very valid). If the Aiken value is stated as $0.4 < V \leq 0.8$, the question item is stated to have moderate content validity (moderately valid), and if the Aiken V value shows a value of $V \leq 0.4$, the item is stated to have low content validity (less valid). The following is a summary.

Table 3. Criteria for evaluating instrument items by Aiken's V index

| Indeks V | Aiken's | Criteria |
|--------------------|---------|------------|
| $V > 0.8$ | | Very Valid |
| $0.4 < V \leq 0.8$ | | Valid |
| $V \leq 0.4$, | | Less Valid |

For the empirical validity test by testing to students, if the Pearson correlation value $> R$ -Table with a significance level of 0.05 (5%), then the item is categorized as valid and can be used to measure the concept to be measured. Cronbach's Alpha reliability test stated that if the Cronbach's Alpha value > 0.7 , the instrument is categorized as reliable.

The procedures of this study include (1) identifying the concept of ecological wisdom-themed reading literacy in books and reference sources, (2) developing items based on the identified ecological wisdom-themed reading literacy concepts, (3) conducting expert tests with four experts with the initials BW, ASSC, ASL, and RT, (4) testing the instrument on 66 students of SMP Negeri 1 Karangpandan and 66 students of SMP Negeri 2 Karangpandan, (5) analyzing the data with the help of Microsoft Excel 16 for data tabulation and Aiken's V data calculation, and SPSS 26 software for Pearson correlation validity analysis and Cronbach Alpha reliability, (6) interpreting and presenting the data, and (7) drawing research conclusions.

3 Result And Discussion

The results of this study discuss about (1) the concept and measurement of reading comprehension literacy themed ecological wisdom, (2) the content and empirical validity of the development of reading literacy instruments themed ecological wisdom.

3.1 The concept and measurement instrument of reading comprehension literacy themed ecological wisdom

The principles of reading comprehension include (1) comprehension is a human constructivist process. (2) Proficiency balance is a curriculum framework that helps comprehension development. (3) Teachers who read professionally influence student learning. (4) Good readers play an active role in the reading process. (5) Reading should occur in a meaningful process. (6) Students discover the benefits of reading from a variety of texts at different levels. (7) Vocabulary development and learning affect student comprehension. (8) Engagement is a key factor for comprehension. (9) Strategies and skills can be taught. (10) Dynamic assessment informs reading comprehension learning.

Furthermore, reading comprehension has several types or levels, including literal comprehension, interpretative comprehension, critical comprehension, and creative comprehension (Burns & Rose, 2007)[27]. The following is the description. First, literal comprehension, which is the understanding of what is said or mentioned. This is obtained through understanding the meaning of words, sentences, and paragraphs found in reading. Information in literal reading is presented explicitly and directly in the text. At the literal comprehension level, readers can provide answers to questions asked according to the information in the reading.

Second, interpretative comprehension, which is a type of understanding of the author's intention in the reading text. Interpretative comprehension is not explicitly written in the reading text. Interpretative readers emphasize the ability to analyze and synthesize the reading text. Interpretive comprehension activities include drawing conclusions, making generalizations, understanding causal relationships, finding facts mentioned in the reading, making comparisons, determining new relationships between facts mentioned in the reading.

Third, critical comprehension, which is a type of understanding to be able to assess the content of a reading. Critical comprehension aims to provide an assessment of the reading text by involving oneself in the text. The reader assesses the content of the text by comparing it with the knowledge or experience they already have. Critical comprehension is characterized by the ability (1) to compare the reader's experience with the information obtained, (2) to question the author's intention, (3) to react or respond to the style of conveying the author's ideas critically.

Fourth, creative comprehension, which is the highest level of reading comprehension. At the creative reading stage, readers must be able to apply critical thinking skills and skillfully use their imagination. Creative reading ability is characterized by an aesthetic and emotional response to reading, the ability to be able to identify prominent ideas and combine them with the knowledge they have. The following is a summary.

Table 4. Synthesis of reading comprehension literacy indicators by Burn & Rose (2007)[27].

| Aspect | Reading Comprehension Indicators | Item |
|------------------------------|---|--------|
| Literal comprehension | Understand the meaning of words/terms in reading | 1, 2 |
| | Find the main idea in the reading passage | 3, 4 |
| Interpretative comprehension | Making conclusions | 8, 9 |
| | Making generalizations | 7, 15 |
| | Understanding cause and effect (causality) | 6, 10 |
| | Finding facts in the text | 5, 12 |
| | Making comparisons | 11, 14 |
| | Making new connections between facts | 13, 16 |
| Critical comprehension | Comparing the reader's experience with the information obtained | 29, 30 |
| | Questioning the author's intentions | 23, 26 |
| | Responding to the author's ideas critically | 17, 18 |
| Creative comprehension | Provides an aesthetic response | 21, 22 |
| | Demonstrate an emotional response to the reading | 27, 28 |
| | Identify salient ideas | 24, 25 |

| | | |
|--|-------------------------------------|--------|
| | Combine with the reader's knowledge | 19, 20 |
|--|-------------------------------------|--------|

Then, Nurgiyantoro (2010)[28] states that, in reading comprehension test materials there are four aspects that need to be considered. the four aspects are: (1) The level of difficulty of reading, in reading comprehension tests the level of difficulty of good reading is adjusted to the level of ability of students; (2) Reading content, for elementary school level students, the content or content of reading should not be contra or controversial. In addition, the content of this reading must be in accordance with the interests, needs, maturity of the learners, and must attract attention; (3) The short length of the reading, in the reading comprehension test at the junior high school level, the reading must be more complex than the reading at the elementary school level. (4) Type of reading, reading comprehension tests can be done with various types of reading, such as: news, reports, nonfiction, literary texts, dialogs, and so on.

This study uses reading comprehension test assessment indicators that refer to reading comprehension assessment indicators from various experts that have been synthesized. Reading comprehension assessment indicators include (1) Answering questions openly, meaning that students answer questions based on the reading text; 2) Making summaries, synopses, summaries, and adaptations, meaning that students can summarize important things both main ideas and natural ideas (Nurgiyantoro, 2010)[28]. Based on the description above, it can be concluded that the nature of reading comprehension ability in this study is a person's potential to master a reading (cognitively), namely to understand the purpose, main idea, and other important things in the reading. The level of reading comprehension is divided into four, namely (1) literal comprehension, (2) inferential comprehension, (3) critical comprehension, and (4) creative comprehension.

Then, Chungnngam & Worasesthaphong (2018)[29] explained that local wisdom-based reading learning is part of the learning process which is a strategy and learning experience in order to create an integrated cultural environment. Local wisdom-based reading learning is based on the recognition of culture as a fundamental (basic and important) part of education, the expression and communication of an idea, and the development of knowledge. Culture is a medium to motivate students to apply knowledge, work cooperatively, and prepare for connections between various subjects.

Local wisdom-based reading learning is learning that teaches and guides students in responding to situations they face every day. Local wisdom in Indonesia has diversity because Indonesia has many tribes with different languages and adheres to different customs and traditions depending on the region. The presence of ethnic minorities from outside Indonesia such as Indians, Chinese & Arabs further enriches the diversity of local wisdom in Indonesia. In addition, local wisdom can be used as a learning tool by teaching and maintaining local strengths. Local wisdom must be developed from the potential of the region, namely from the special assets that exist in a region. For example, from Malang's potential, such as Malang's typical customs, traditional dances, food, ceramic crafts, and others. In this study, ecological local wisdom is directed at the scope of local wisdom of language and literature. This means that the content of ecological wisdom is traced in ecological literary texts, such as folklore and folk poetry.

In Figure 1 below, the results of the development of reading literacy items based on relevant theories about ecological wisdom are presented.



Fig. 1. The development of reading literacy instruments with the theme of ecological wisdom.

The instrument in figure 1. contains elements of local wisdom. This is because the concept that is measured is the dimension of reading comprehension, such as literal, interpretative, critical, creative, which contains elements of ecological local wisdom. Naritoom defines local wisdom as knowledge discovered or acquired by local communities through accumulated experience in trials and integrated with an understanding of the surrounding nature and culture (Chungnngam & Worasesthaphong, 2018)[29]. Local wisdom is dynamic with the function of local wisdom made and connected to the global situation. The definition of local wisdom contains several concepts, among others 1) Local wisdom is a long experience, which is precipitated as a guide to one's behavior. 2) Local wisdom cannot be separated from the environment of its owner. 3) Local wisdom is dynamic, flexible, open, and always adjusts to the times.

The concept also illustrates that local wisdom is always related to human life and the environment. Local wisdom refers to knowledge derived from community experience and accumulated local knowledge. Local wisdom is found in society, communities and individuals. Thus, the instrument developed is based on texts with ecological local wisdom to measure the level of reading comprehension literacy for grade 7 junior high school students.

3.2 The content and empirical validity of the development of reading literacy instruments themed ecological wisdom

Based on the analysis above, the following are the results of the calculation of content validity and empirical validity. Content validity was carried out by calculating the Aiken's V value with the involvement of four literacy experts with the initials BW, ASSC, ASL, and RT. The experts were asked to fill in the instrument validation questionnaire using a Likert scale of 1-4. Then, the results of expert scoring were tabulated and tested with the required Aiken's V value. The final results of the Aiken's V value showed that all items had an average value of 0.828. This value is above the reference value of >0.8 , which means that the content validity value of the reading comprehension literacy instrument with the theme of ecological wisdom is in the very

high/very suitable category. The following presents the results of Aiken's V and Pearson Correlation testing in table 5 below.

Table 5. Aiken's V and Pearson Correlatin Test Results.

| Item | Aiken's V | | | | Pearson Correlation | | | | |
|------|------------|----|-------|----------|---------------------|----------------|----------------|----------|----------|
| | ΣS | N | V | Decision | <i>Pearson</i> | <i>R-Table</i> | <i>P-Value</i> | α | Decision |
| 1 | 10 | 12 | 0.833 | High | 0.343 | 0.172 | 0.000 | 0.05 | Valid |
| 2 | 11 | 12 | 0.917 | High | 0.256 | 0.172 | 0.003 | 0.05 | Valid |
| 3 | 10 | 12 | 0.833 | High | 0.252 | 0.172 | 0.004 | 0.05 | Valid |
| 4 | 8 | 12 | 0.667 | Medium | 0.146 | 0.172 | 0.097 | 0.05 | Invalid |
| 5 | 7 | 12 | 0.583 | Medium | 0.396 | 0.172 | 0.000 | 0.05 | Valid |
| 6 | 10 | 12 | 0.833 | High | 0.336 | 0.172 | 0.000 | 0.05 | Valid |
| 7 | 9 | 12 | 0.750 | Medium | 0.420 | 0.172 | 0.000 | 0.05 | Valid |
| 8 | 7 | 12 | 0.583 | Medium | 0.320 | 0.172 | 0.000 | 0.05 | Valid |
| 9 | 9 | 12 | 0.750 | Medium | 0.288 | 0.172 | 0.001 | 0.05 | Valid |
| 10 | 9 | 12 | 0.750 | Medium | 0.267 | 0.172 | 0.002 | 0.05 | Valid |
| 11 | 11 | 12 | 0.917 | High | 0.210 | 0.172 | 0.016 | 0.05 | Valid |
| 12 | 9 | 12 | 0.750 | Medium | 0.393 | 0.172 | 0.000 | 0.05 | Valid |
| 13 | 10 | 12 | 0.833 | High | 0.483 | 0.172 | 0.000 | 0.05 | Valid |
| 14 | 12 | 12 | 1.000 | High | 0.570 | 0.172 | 0.000 | 0.05 | Valid |
| 15 | 10 | 12 | 0.833 | High | 0.505 | 0.172 | 0.000 | 0.05 | Valid |
| 16 | 11 | 12 | 0.917 | High | 0.566 | 0.172 | 0.000 | 0.05 | Valid |
| 17 | 9 | 12 | 0.750 | Medium | 0.546 | 0.172 | 0.000 | 0.05 | Valid |
| 18 | 8 | 12 | 0.667 | Sedang | 0.347 | 0.172 | 0.000 | 0.05 | Valid |
| 19 | 12 | 12 | 1.000 | High | 0.521 | 0.172 | 0.000 | 0.05 | Valid |
| 20 | 10 | 12 | 0.833 | High | 0.634 | 0.172 | 0.000 | 0.05 | Valid |
| 21 | 9 | 12 | 0.750 | Medium | 0.489 | 0.172 | 0.000 | 0.05 | Valid |
| 22 | 11 | 12 | 0.917 | High | 0.539 | 0.172 | 0.000 | 0.05 | Valid |
| 23 | 11 | 12 | 0.917 | High | 0.712 | 0.172 | 0.000 | 0.05 | Valid |
| 24 | 11 | 12 | 0.917 | High | 0.576 | 0.172 | 0.000 | 0.05 | Valid |
| 25 | 10 | 12 | 0.833 | High | 0.554 | 0.172 | 0.000 | 0.05 | Valid |
| 26 | 10 | 12 | 0.833 | High | 0.502 | 0.172 | 0.000 | 0.05 | Valid |

| | | | | | | | | | |
|-----------|----|----|-------|------|-------|-------|-------|------|-------|
| 27 | 11 | 12 | 0.917 | High | 0.516 | 0.172 | 0.000 | 0.05 | Valid |
| 28 | 10 | 12 | 0.833 | High | 0.501 | 0.172 | 0.000 | 0.05 | Valid |
| 29 | 11 | 12 | 0.917 | High | 0.448 | 0.172 | 0.000 | 0.05 | Valid |
| 30 | 12 | 12 | 1.000 | High | 0.327 | 0.172 | 0.000 | 0.05 | Valid |

Table 6. Final average of Aiken's V test on the reading comprehension literacy instrument.

| Rater 1 | Rater 2 | Rater 3 | Rater 4 | ΣS | V | Decision |
|----------------|----------------|----------------|----------------|-----------|----------|-----------------|
| 75 | 73 | 69 | 81 | 298 | 0.828 | High |

Based on table 6. above, it is known that the average Aiken's result is $0.828 > 0.8$. That is, the final value of Aiken's V indicates that the instrument has high content validity (very suitable) and can be used to measure the concept to be measured. Then, regarding the empirical test with direct testing on grade 7 junior high school students as many as 130 students, based on table 5 above, it is known that the Pearson correlation value shows the Pearson value $> R$ -Table on 29 question items. This means that the questions developed were declared valid 97% (29 question items) and 3% (1 question item) were declared invalid.

The item that was declared invalid was item number 4. This item is at the level of literal understanding which asks about the main idea. Item 4, based on Aiken's calculation, is categorized as having moderate validity. However, the results of the Pearson correlation calculation show that the item is invalid. This is because, generally, students have difficulty in finding the main idea. The number of students who did not answer the fourth question item correctly made the fourth item invalid.

This fourth question item can be improved by rearranging the form of the question with an easier text, so that students understand the idea of the text/paragraph better. To improve this question can also be retested. Then, in table 7. below are the results of the reliability calculation which shows that the Cronbach Alpha value is $0.841 > 0.70$. This value means that the instrument developed is declared reliable and stable.

Table 7. Reliability test of reading comprehension literacy instrument on ecological wisdom

| Reliability Statistics | | |
|-------------------------------|------------------|-----------------|
| Reference value | Cronbach's Alpha | Decision |
| 0.70 | 0.841 | Reliabel |

The development of a reading comprehension literacy instrument is a serious effort to create a measurement tool that is valid, reliable, reliable and can measure the concept to be measured. It is intended that this literacy measurement instrument can map students' abilities, needs and shortcomings. This is expected to create an ideal measurement so that the measurement results can be considered in policy formulation, problem solving strategies by teachers, and as a joint evaluation of the reading literacy conditions of grade 7 junior high school students in Indonesia. The development of this reading literacy instrument can use various techniques and approaches, such as factor analysis,

Aiken's V, confirmatory factor analysis, and others. In this study, Aiken's V was used as a technique for determining content validity with a result of 0.828 (high) and very suitable.

Kharismawati's research (2024) developed a reading literacy instrument for 15-year-old students in Indonesia. The number of samples used was 6539 from 294 schools in 34 provinces in Indonesia [30]. The findings of this study were that the reading instrument developed was declared valid with a reliability level of 0.805 (good). Another study by Hall et al (2024) developed a teaching ability assessment instrument for elementary school teachers [31]. The sample used in the trial of this instrument was conducted in 313 elementary schools. The components tested included sound knowledge, reading fluency, decoding and encoding, oral language, and reading comprehension. The overall instrument developed showed a very good level of validity and reliability. Azmi's research (2024) conducted strategies to improve the reading skills of elementary school students through a socio-cultural approach [32]. The results showed that the experimental group had a better initial reading level than the control group.

Nejadghanbar (2024) also developed an academic reading instrument for applied linguistics students [33]. This study used exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) with a total sample of 552 students. The results of this EFA and CFA analysis showed that there were 8 components that were developed into 37 question items. Research by Bachiri et al (2024) developed a reading assessment by utilizing AI. The utilization of AI is used to assess the suitability of reading/pronunciation and reading speed [34]. Thus, it is concluded that the development of this reading instrument has a major contribution to efforts to measure the level of reading comprehension literacy for grade 7 junior high school students in Indonesia. This research is expected to be useful in efforts to strengthen reading literacy and mapping the level of reading literacy in Indonesia.

4 Conclusion

In conclusion, the reading comprehension literacy instrument with the theme of ecological wisdom contains four levels of comprehension, namely literal comprehension, interpretative comprehension, critical comprehension, and creative comprehension. These four levels were then developed into reading indicators such as understanding the meaning of words/terms in reading, finding the main idea in the reading passage, making conclusions, making generalizations, understanding cause and effect (causality), finding facts in the text, making comparisons, making new connections between facts, comparing the reader's experience with the information obtained, questioning the author's intentions, responding to the author's ideas critically, providing an aesthetic response, demonstrating an emotional response to the reading, identifying salient ideas, combining with the reader's knowledge. Then, the indicators were developed into 30 question items. The development of question items was then tested for validity with content and empirical validity. Content validity with Aiken's V with the involvement of four experts showed a V value of $0.828 > 0.80$. This value indicates that the instrument is declared to have high content validity (very suitable). The calculation of empirical validity with Pearson Correlation shows that $R\text{-count} > R\text{-table}$ on 29 question items and $R\text{-count} < R\text{-table}$ on 1 question item. That is, 29 question items (97%) were declared valid and 1 question item (3%) was declared invalid. Reliability testing with Cronbach's Alpha shows a value of 0.841. This means that the instrument developed is considered reliable and

stable. The results of this study are expected to be useful for measuring reading literacy for grade 7 junior high school students.

Acknowledgments. We would like to thank SMP Negeri 1 Karangpandan and SMP Negeri 2 Karangpandan for their willingness to help with the data collection process. Thanks also go to the teachers at both schools who helped with the data collection process.

References

- [1] Kemdikbud, "Profil Pelajar Pancasila," Direktorat Jenderal Pendidikan Anak Usia Dini, Pendidikan Dasar, Pendidikan Menengah, Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.
- [2] S. Hamdi, C. Triatna, and N. Nurdin, "Kurikulum Merdeka dalam Perspektif Pedagogik," *SAP (Susunan Artikel Pendidikan)*, vol. 7, no. 1, Aug. 2022, doi: 10.30998/sap.v7i1.13015.
- [3] M. Suryaman, "Orientasi Pengembangan Kurikulum Merdeka Belajar," in *Seminar Daring Nasional Pengembangan Kurikulum Merdeka Belajar Program Studi Pendidikan Bahasa Indonesia*, 2020. [Online]. Available: <https://ejournal.unib.ac.id/index.php/semiba/issue/view/956>; Tersediadi: <https://ejournal.unib.ac.id/index.php/semiba/issue/view/956/>
- [4] Kemdikbud, "Kurikulum Merdeka untuk Kelulusan Pendidik dan Pembelajaran Berkualitas," kurikulum.kemdikbud.go.id.
- [5] P. O. Irianto and L. Y. Febrianti, "PENTINGNYA PENGUASAAN LITERASI BAGI GENERASI MUDA DALAM MENGHADAPI MEA," in *Proceedings Education and Language International Conference*, 2017.
- [6] S. N. Pratiwi, C. Cari, and N. S. Aminah, "Pembelajaran IPA Abad 21 dengan Literasi Sains Siswa," *Jurnal Materi dan Pembelajaran Fisika (JMPF)*, vol. 9, no. 1, pp. 34–42, 2019, doi: <https://doi.org/10.20961/jmpf.v9i1.31612>.
- [7] T. Tusriyanto, N. Nadiroh, and J. Japar, "Pembelajaran IPS Berbasis Literasi dalam Meningkatkan Keterampilan Berpikir Kritis Siswa," *Ri'ayah: Jurnal Sosial dan Keagamaan*, vol. 7, no. 2, p. 214, Dec. 2022, doi: 10.32332/riayah.v7i2.5837.
- [8] M. Mulasih and W. D. Hudhana, "URGensi BUDAYA LITERASI DAN UPAYA MENUMBUHKAN MINAT BACA," *Lingua Rima: Jurnal Pendidikan Bahasa dan Sastra Indonesia*, vol. 9, no. 2, p. 19, Aug. 2020, doi: 10.31000/lgrm.v9i2.2894.
- [9] OECD, *Green at Fifteen?* Paris: OECD, 2009. doi: 10.1787/9789264063600-en.
- [10] OECD, "Young people's environmental sustainability competence: Emotional, cognitive, behavioral, and attitudinal dimensions in EU and OECD countries," Paris, Aug. 2022.
- [11] A. Angga, Y. Abidin, and S. Iskandar, "Penerapan Pendidikan Karakter dengan Model Pembelajaran Berbasis Keterampilan Abad 21," *Jurnal Basicedu*, vol. 6, no. 1, pp. 1046–1054, Jan. 2022, doi: 10.31004/basicedu.v6i1.2084.
- [12] K. S. Holllweg, J. R. Taylor, R. W. Bybee, T. J. Marcinkowski, W. C. McBeth, and P. Zoido, *Developing a framework for assessing environmental literacy*. Washington DC: North American Association for Environmental Education (NAAEE), 2011.
- [13] Kemdikbud, "Latar Belakang Kurikulum Merdeka," Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.

- [14] K. Saddhono, M. Ridwan, A. Suherman, K. Anwar, and N. Q. H. Putri, "The Development of Interactive E-book of Teaching Indonesian for Speaker of Other Language (TISOL) Containing Local Wisdom with Scientific-Thematic Approach," *J Phys Conf Ser*, vol. 1573, no. 1, p. 012002, Jul. 2020, doi: 10.1088/1742-6596/1573/1/012002.
- [15] H. G. Tarigan, *Membaca sebagai suatu keterampilan berbahasa*. Bandung: Angkasa, 2008.
- [16] O. H. T. Lu, A. Y. Q. Huang, C.-Y. Kuo, I. Y. L. Chen, and S. J. H. Yang, "Sequence pattern mining for the identification of reading behavior based on SQ3R reading strategy," in *ICCE 2020 - 28th International Conference on Computers in Education*, Taoyuan: Asia-Pacific Society for Computers in Education, 2020.
- [17] E. Setyaningsih, "Bringing critical literacy into tertiary EFL reading class," *Indonesian Journal of Applied Linguistics*, vol. 9, no. 2, Oct. 2019, doi: 10.17509/ijal.v9i2.20220.
- [18] R. Pratama and I. Permana, "Pengaruh metode paikem terhadap kemampuan membuat teks puisi," vol. 2, no. November, pp. 935–948, 2019.
- [19] P. L. Carrell and J. G. Carson, "Extensive and intensive reading in an EAP setting," *English for Specific Purposes*, vol. 16, no. 1, pp. 47–60, Jan. 1997, doi: 10.1016/S0889-4906(96)00031-2.
- [20] A. Asiri, "THE EFFECTIVENESS OF USING SQ3R TO TEACH READING SKILLS," *Asian Journal of Educational Research*, vol. 5, no. 1, 2017, [Online]. Available: www.multidisciplinaryjournals.com
- [21] H. Bakhtiar, K. Salija, and A. Abduh, "The Effectiveness of SQ3R Strategy in Teaching Reading," 2019.
- [22] N. Simbolon et al., "The Effectiveness of Learning Models and Achievement Motivation for Students' English Reading Comprehension in a State University in Medan," *International Journal of Innovation, Creativity and Change*. www.ijicc.net, vol. 12, no. 12, 2020, [Online]. Available: www.ijicc.net
- [23] I. F. Septiyanti, S. Wibawa, Y. Yulia, and B. H. Cahyani, "Kemampuan Berpikir Kritis pada Tahapan Operasional Konkrit," *Wacana Akademika: Majalah Ilmiah Kependidikan*, vol. 7, no. 2, pp. 195–203, 2023.
- [24] J. W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Los Angeles: Sage, 2012.
- [25] Sugiyono, *Metode Penelitian Kombinasi (Mixed Methods)*. Bandung: Alfabeta, 2020.
- [26] Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta, 2017.
- [27] P. C. Burns and B. D. Roe, *Teaching reading in today's elementary schools*, 10th ed. Boston: Houghton Mifflin, 2007.
- [28] B. Nurgiyantoro, *Penilaian pembelajaran bahasa: Berbasis kompetensi*. Yogyakarta: BPFE, 2010.
- [29] B. Chunngam and T. Worasesthaphong, "A procedure of local wisdom: learning, transferring, and utilizing social media," 2018.
- [30] L. R. S. Kharismawati, P. Widodo, and H. Retnawati, "Valid and reliable instrument for measuring Indonesian students' reading literacy," *Journal of Education and Learning (EduLearn)*, vol. 18, no. 4, pp. 1495–1504, Nov. 2024, doi: 10.11591/edulearn.v18i4.21037.
- [31] C. Hall et al., "Validation of an instrument for assessing elementary-grade educators' knowledge to teach reading," *Read Writ*, vol. 37, no. 8, pp. 1955–1974, Oct. 2024, doi: 10.1007/s11145-023-10456-w.

- [32] N. A. Alwi, A. K. Kenedi, . A., Y. Anita, C. Handrianto, and S. Rasool, "Socio-Cultural Approach through Digital Teaching Modules: A Solution to Improve Beginning Reading Skills in Elementary Schools," *Journal of Ecohumanism*, vol. 3, no. 7, Oct. 2024, doi: 10.62754/joe.v3i7.4552.
- [33] H. Nejadghanbar, M. R. Atai, and C. E. Snow, "Development and validation of an academic reading instrument for graduate students of applied linguistics," *The Australian Journal of Language and Literacy*, vol. 47, no. 1, pp. 17–38, Apr. 2024, doi: 10.1007/s44020-023-00039-1.
- [34] Y. A. Bachiri, H. Mouncif, B. Bouikhalene, and R. Hamzaoui, "INTEGRATING AI-BASED SPEECH RECOGNITION TECHNOLOGY TO ENHANCE READING ASSESSMENTS WITHIN MOROCCO'S TaRL PROGRAM," *Turkish Online Journal of Distance Education*, vol. 25, no. 4, pp. 1–15, Oct. 2024, doi: 10.17718/tojde.1335062.