Development of Reading Literacy Assessment Questions: An Effort to Improve Students' Critical Thinking

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This study aims to (1) conduct needs analysis, (2) design literacy assessment questions, (3) validate literacy assessment questions, (4) test literacy assessment questions, (5) examine the validity and reliability of literacy assessment questions, and (6) analyze literacy assessment questions. This research employed a survey, need analysis, problem design, validation questions, revision questions, test questions, validity and reliability tests of questions, and item analysis of questions. The results show that 88% of students state that they still have difficulties to answer reading literacy assessment questions. The average validation score of the developed question items is 69.67 (87.08%). The average validation score of language is 66.5 (83.12%). Meanwhile, the validity and reliability tests indicate that 50 developed items are categorized as valid and reliable. The data on field trials of the developed items show that 50 question items of the questionnaire are readily used at school to improve reading literacy assessment questions.

Keywords: item analysis, question developments, reading literacy assessment

INTRODUCTION

Indonesia is always at the bottom level since it has participated in the Programme for International Student Assessment (PISA) from 2000 to 2018. Of 79 countries, Indonesia is in the five-bottom position with a score of 371 out of 500. Indonesia seeks to improve reading literacy skills by replacing the National Examination with a National Assessment (AN), which assesses reading literacy (*Pusat Asesmen dan Pembelajaran Badan Penelitian dan Pengembangan dan Perbukuan Kementerian Pendidikan dan*

Kebudayaan, 2020). The emphasis on reading literacy assessment proves that Indonesia is working to improve students' reading literacy skills.

Reading literacy assessment questions are related to critical thinking. Critical thinking skills are a pivotal part of the reading (Bataineh & Al-Shbatat, 2018; Hasanah & Malik, 2020; Zandena et al. 2020; Amhar et al. 2022; Hazaymeh & Alomery, 2022; Santos & Mukminin, 2022; Silviyanti et al., 2022).) and must be mastered by students to analyze the information read (Chalkiadaki, 2018; Nugraha & Octavianah, 2020; Herlina & Wardarita, 2020; Holandyah et al., 2022). Moreover, evaluation and reflection skills in reading are important and integral parts of reading literacy activities.

Reading literacy activities require higher-order thinking. High cognition ability is needed in the recent era of science and information development (Abosalem, 2016; Tang, 2016; Suarniati, Hidayah, & Handarini, 2018; Permana et al., 2019; Nazulrty et al., 2019; Walid et al. 2019; Ratnasari, Sarwanto, & Prayitno, 2020; Mustopa & Sugirin, 2020; Hamzah, Hamzah, & Zulkifli, 2022; Pursitasari, Rubini, & Firdaus, 2022; Ramdani, Susilo, Suhadi, & Sueb, 2022; Suwarma & Apriyani, 2022; Velasco, Ibarra, & Mukminin, 2022). Currently, false information (*hoax*es) is widespread and accessible to students. Therefore, it is necessary to have adequate reading literacy skills to successfully overcome various social and academic problems faced by students (Hidayati, Inderawati, & Loeneto, 2020; Nguyen & Henderson, 2020; Sharobiddinovich, Muxammadkasimovna, & Muxammadkasimovna, 2021; Mukminin, 2021; Ma'youf & Aburezeq, 2022).

Besides critical thinking, reading assessment questions pay attention to text content, text contexts, and cognitive levels. Text content refers to texts that stimulate the assessment, including literary and informational texts. Meanwhile, text contexts include three contexts: (a) personal contexts, (b) socio-cultural contexts, and (c) scientific contexts. This study assessed cognitive levels to (1) access and retrieve, (2) interpret and integrate, as well as (3) evaluate and reflect information.

Training in students' critical thinking requires a variety of exposure (Mukminin et al., 2021); one of them is providing various reading literacy questions that involve critical thinking (Belete & Mussa, 2021; Hadiyanto et al., 2022; Torppa et al, 2022). Unfortunately, reading literacy questions that correlate with critical thinking have not been found. Multifarious books have been published in Indonesia and contain reading assessment questions. However, the literacy questions in these books have not been validated. Therefore, reading literacy questions should follow the question development procedures so that these questions are standardized.

To get the initial data at schools, the researchers interviewed six high school teachers in South Sumatra; they are YK, DPS, RFL, DL, SK, and MM. The results have revealed that the teachers consider reading literacy assessment questions are very useful because they can improve students' critical thinking skills. On the other hand, teachers are used to arranging questions about low-level thinking. The teacher-made reading questions are generally at the knowledge level, only a few questions are at the comprehending level, and rare questions are at the evaluation level.

Moreover, the teachers do not know how to design and develop reading literacy problems. Therefore, they expect that reading literacy assessment questions are developed by universities; thus, these questions can be studied and adopted to prepare for the National Examination at school. Referring to the results of the previous studies, the development of reading literacy assessment questions is needed. The reading literacy questions are developed to obtain feasible, valid, and reliable reading literacy questions. To date, there has been no research using a series of scientific procedures to investigate the development of reading literacy assessment questions. Thus, this recent study has a novelty. This research aims to (1) design reading literacy assessment questions based on the results of a need analysis of teachers and students, (2) validate reading literacy questions, (3) test reading literacy assessment questions to students, and (4) investigate the validity and reliability of reading literacy assessment questions.

METHOD

This research and development employed a modification procedure, consisting of (1) conducting an initial survey (2) analyzing the needs of students and teachers, (3) designing reading literacy questions by

focusing on content, contexts, and cognitive levels, (4) validating reading literacy questions, (5) revising questions, (6) testing reading literacy questions to students, (7) testing the validity and reliability of the questions, and (8) examining the developed questions.

Data Collection Techniques

The data in the preliminary survey were collected using the interview technique. Six teachers at a high school in South Sumatra were interviewed. The interview was conducted to determine (1) the teachers' opinions about the importance of literacy assessment questions, (2) teacher-made questions, (3) their experience in designing and developing literacy assessment questions, and (4) the usefulness of HOTS-oriented reading literacy questions. The data from the initial survey were employed as the basis for the research considerations.

The need analysis was employed to obtain data on students' and teachers' needs. This analysis involved 110 students of Class X of *SMA Negeri 8 Inderalaya Ogan Ilir*. The students' needs were analyzed using a Likert scale questionnaire, and the answers were classified into Strongly Agree, Agree, Disagree, and Disagree.

The questionnaire consisted of 11 statement items. The questionnaire was made in the Google Form and was distributed to the students through a WhatsApp group. The questionnaire contained (1) the similarity between literacy assessment and the National Examination, (2) students' knowledge of literacy assessment, (3) their desire to know about reading literacy, (4) the importance of reading literacy assessment, (5) more various forms of literacy assessment questions than National Examination questions, (6) knowledge of components measured in reading literacy (text contents, text contexts, and cognitive levels), (7) knowledge of cognitive levels in reading literacy assessment, (8) knowledge of literacy reading material that includes three contexts (personal, socio-cultural, and scientific contexts), (9) the importance of critical thinking to understand texts of the questions, (10) knowledge about HOTS, and (11) students' responses in answering reading literacy questions.

Meanwhile, the teachers' needs were examined by interviewing two teachers, namely MM and Y, who taught Class X SMA Negeri 8 Inderalaya Ogan Ilir. The interview was conducted to find out (1) the need for developing reading literacy questions, (2) the application of HOTS questions, and (3) the difficulties or obstacles in preparing reading literacy assessment questions.

The literacy assessment questions were validated to obtain the eligibility of the question items. Moreover, the components of question and language evaluations were validated. The question evaluation components were validated by LR (Universitas Sriwijaya) and NLY (Mover Teacher of Palembang City), and SI (Universitas Sriwijaya). Meanwhile, the language components were validated by YS (Universitas Tidar) and NLY (Mover Teacher of Palembang City). The validation assessment rubric of question evaluation components consisted of 20 statements. (1) The questions were composed following the content, contexts, and cognitive levels. (2) The texts of the questions did not contain elements of tribes, religions, races, intergroup, pornography, politics, propaganda, or violence. (3) The answer options were homogeneous and logical. (4) Types of questions could reveal important information from the material. (5) The question items did not depend on the answers to other questions. (6) The correct alternative answers were precise. (7) The questions met the HOTS category. (8) The subject matter was formulated clearly and firmly. (9) The instructions on how to answer the questions were clear. (10) The formulation of the subject matter referred to the required statement. (11) The answer choices referred to required statements. (12) The boundaries between questions and answers were clear. (13) The subject matter did not guide to the correct answer. (14) The subject matter did not contain double-negative statements. (15) No purpose and editorial form of the questions were repeated. (16) Pictures, graphs, tables, and figures used in the questions were presented clearly and functionally. (17) The length of formulation of each answer choice was relatively equal. (18) Answer choices did not contain the statement "all answer choices are correct" or "all answer choices are wrong". (19) Answer choices in numbers or times were arranged according to number sizes or chronological values. (20) Each question only had one answer key.

Meanwhile, the validation assessment rubric of language components consisted of 20 statements. (1) The language used was easily understood by students. (2) Instructions for the questions and answers were

clearly stated. (3) The language was suited to the cognitive development of the students. (4) The language was suited to the emotional development of the students. (5) The material was suited to the grammar rules of the Indonesian language. (6) The language used motivated the students. (7) The language used encouraged the students to think critically. (8) Messages and every detailed information in the questions were understandable. (9) Letters and images used were consistent. (10) The language used could motivate learners. (11) The language used encourages students to think critically. (12) The sentences used were unambiguous. (13) All sentences employed the correct spelling. (14) The questions had an equal idea to the answers. (15) The sentences used did not contain a negative statement. (16) Questions presenting data used suitable sentences. (17) The language used in figures, graphs, tables, and figures was presented clearly and functionally. (18) Sentences used in the answer choices were not ambiguous. (19) No answer was repeated. (20) Numbering was compiled precisely.

The validation rubric employed assessment scales with scores 1-4: score 1 = unqualified assessment, score 2 = under-qualified assessment, score 3 = qualified assessment, and score 4 = very qualified. A field trial was conducted to determine the validity and reliability of the literacy assessment questions. The field trial was conducted by providing the revised literacy assessment questions by considering the validators' suggestions to students. Literacy assessment questions were given to 110 students of Class X of SMA Negeri 8 Inderalaya Ogan Ilir. They represented students with high, medium, and low abilities. Moreover, they were selected based on the recommendations of the teachers. Class X was selected because the developed questions dealt with cognitive level 5.

The field trial on the literacy assessment was held on 9 August 2022 and lasted for 120 minutes. Each student answered the questions on the available answer sheets and submitted the answers within the specified time. To test the validity of each question item and the reliability of all questions, the difficulty test and the discriminatory test were conducted using Anates Version 4.

Data Analysis Methods

Data from the interview in the initial survey were analyzed based on the question components. The data were analyzed using the content analysis technique. The scores of the questionnaire on the student's need analysis were summed up based on the classifications of the answers: strongly agree, agree, less agree, and disagree. The answers "strongly agree and agree" were classified as the answer "agree". Meanwhile, the answer "less agree" was classified as the answer "less agree". After all of the scores had been summed up based on the answer classification, they were converted into a percentage. Data from interviewing the teachers were classified based on questions and then described. Data on the draft design were described based on the procedures for designing literacy assessment questions.

The expert validation scores were summed up based on the answer classifications of "not feasible, less feasible, feasible, and very feasible". The scores were then converted into a percentage using the following formula.

$$\sum -the\ obtained\ scorehmaximum\ scorex100\%$$

The data on eligibility classification were categorized by referring to the following table.

TABLE 1
ELIGIBILITY CRITERIA

No	Percentage Scales	Categories
1	81-100	Very feasible
2	61-80	Feasible
3	41-60	Fairly feasible
4	21-40	Not feasible
5	0-20	Very not feasible

Source: Modified from Riduwan (2015).

FINDINGS

Results of Need Analysis on Students

The results of the student need analysis obtained from the questionnaire are presented in the following table.

TABLE 2
RESULTS OF STUDENT NEED ANALYSIS USING QUESTIONNAIRES

The Calculation Results of Students' Needs Using Questionnaires					
No	Statements	Strongly agree	Agree	Less Agree	Disagree
1.	I think the National Assessment is similar to the National Examination.	18%	25%	21%	35%
2.	I know the reading literacy assessment.	21%	29%	27%	23%
3.	If I have not known the reading literacy assessment, I will seek the information independently or with the help of others.	75%	21%	4%	0%
4.	I think the reading literacy assessment is crucially applied and implemented.	73%	25%	1%	1%
5.	I agree that the reading literacy assessment questions can be in the form of short answers, descriptions, matchmaking answers, multiple choices, and complex-multiple choices.	63%	25%	12%	0%
6.	I agree that the text content of reading literacy assessment questions is grouped into two: informational texts and literary texts.	68%	28%	3%	1%
7.	I agree that reading literacy has three proposed cognitive levels: finding, comprehending, and evaluating and reflecting information.	71%	29%	0%	0%
8.	I agree that reading literacy assessment texts include three contexts: personal, socio-cultural, and scientific contexts.	63%	31%	6%	0%
9.	Reading literacy assessment questions affect levels of critical thinking skills.	73%	25%	2%	0%
10.	Reading literacy is not merely about the ability to read but also the ability to understand the reading concepts.	75%	23%	2%	0%
11.	I have difficulty answering the reading literacy assessment questions.	71%	17%	10%	2%

Table 2 shows that 56% of the students have recognized that the National Assessment is not the same as the National Examination. only half of the students (50%) know about the reading literacy assessment. Although the students have not known about the reading literacy assessment, 97% of them will seek information about it independently or with the help of others. Almost all students (98%) agree that reading literacy assessment is crucially implemented at school. Meanwhile, 88% of the students state that reading literacy assessment questions could be in the form of short answers, descriptions, matchmaking answers, multiple choices, and complex-multiple choices. Moreover, 96% of the students agree that the text content of the reading literacy assessment questions is grouped into two: informational texts and literary texts. All students (100%) know that there are three cognitive levels proposed in the reading literacy assessment: finding, comprehending, and evaluating and reflecting information. 94% of the students know that reading literacy assessment texts include three contexts: personal, socio-cultural, and scientific contexts. 98% of the students state that reading literacy assessment questions affect their level of thinking ability and they should be able to understand reading concepts. Meanwhile, 88% of the students state that they still have difficulty answering reading literacy assessment questions.

Results of Teacher Need Analysis

The interview with the teachers has revealed the information on the need analysis. One of the teachers conveys the importance of developing literacy assessment questions. Teacher MM explains, "We need the development of these literacy questions. Moreover, this is something new. So, the questions are important right now." When composing literacy assessment questions, the teachers usually combine HOTS questions with LOTS questions. Teacher Y explains, "I apply 50% of HOTS questions and 50% of LOTS questions. Thus, the composition of HOTS and LOTS is balanced, and the students are not too perplexed reading and answering these questions." When the teachers give a long text, the students could not easily understand it. Such a situation is described by teacher Y as follows.

> "Students experience problems in answering literacy assessment questions designed by the teachers because the students are less thoroughly reading long questions. Moreover, in many cases, they only read quickly without comprehending the content of the text. They immediately read the question sentences and answer the questions based on *feelings*."

The teachers assert that they employed various ways, such as asking students to read a lot, to improve the students' reading literacy. On the other hand, the teachers usually have difficulties when composing literacy assessment questions. In addition, it is difficult for them to arrange questions by paying attention to the text content, including informational and literary texts. Teacher MM also argues that preparing the questions is quite difficult, especially if the questions should refer to HOTS. To implement literacy assessment questions, the teachers apply learning strategies and teaching methods that support and meet the students' competence to solve literacy assessment questions. Such a phenomenon is explained by teacher Y,

> "The teachers, especially me, usually explain literacy assessment first. When the students have understood what the literacy assessment is and I perceive that the assessment can really be applied, the literacy assessment questions will be used during the exam."

Based on the explanation above, the literacy assessment questions are necessarily developed to increase students' motivation in answering the questions. Furthermore, teacher Y clarifies as follows.

> "The development of literacy assessment questions not only increases students' motivation but also enables students and teachers to become more aware of the literacy assessment and improve the learning process."

The teachers consider that they still need to understand the literacy assessment and do not know how to arrange the HOTS questions. Thus, they need to develop reading literacy questions. They also argue that

the students have difficulties answering the reading literacy assessment questions. Thus, questions are necessarily developed to train students to read and improve teachers' methods of teaching reading literacy.

Reading Literacy Assessment Design

Designing refers to the process of composing a table of question specifications. Design activities include the process of selecting and setting the stimulus in the form of selected texts, including literary and informational texts. Afterward, the text content, text contexts, and cognitive levels are determined followed by determining the question numbers. The next activities are writing, reviewing, and revising the questions before they are submitted for the validation process. The table of question specifications comprises the content, contexts, cognitive levels, and question form of each item. The 50 questions are divided into several forms of questions: 12 essay questions, 4 short-answer questions, 10 multiple choice questions, 20 complex-multiple choice questions, and 4 matchmaking questions. The design of the reading literacy assessment developed in this research is presented in Table 3.

TABLE 3
READING LITERACY ASSESSMENT DESIGN

Texts	Content	Contexts	Cognitive Levels	Form of Questions	No. Questions
Traditional Art Music of Batanghari Sembilan	Information Texts	Socio-Cultural	Finding Information Evaluating & Reflecting Evaluating & Reflecting	Matchmaking Essays Multiple Choices	1, 2, 3
The Government's Continuous Effort to Intensify the COVID-19 Vaccination Program	Information Texts	Scientific	Evaluating & Reflecting Evaluating & Reflecting Find Information	Multiple Choices Multiple Choices Short Answers	4, 5, 6
Comparison between Plant Care and Human Care	Information Texts	Scientific	Evaluating & Reflecting Comprehending Finding Information	Essay Multiple Choices Matchmaking	7, 8, 9
Beware of La Nina, Price of Fish Skyrocketing	Information Texts	Socio-Cultural	Finding Information Finding Information Evaluating & Reflecting	Multiple Choices Essay Multiple Choices	10, 11, 12
Biography of Prince Diponegoro	Information Texts	Personal	Finding Information Finding Information Finding Information	Multiple Choices Multiple Choices Multiple Choices	13, 14, 15
The Story of Firman, a Successful Scholar from Processing Garbage	Information Texts	Socio-Cultural	Finding Information Finding Information Evaluating & Reflecting	Multiple Choices Multiple Choices Essay	16, 17, 18
A Pedicab Driver and a Judge	Literary Texts	Personal	Evaluating & Reflecting Evaluating & Reflecting Comprehending	Multiple Choices Multiple Choices	19, 20, 21

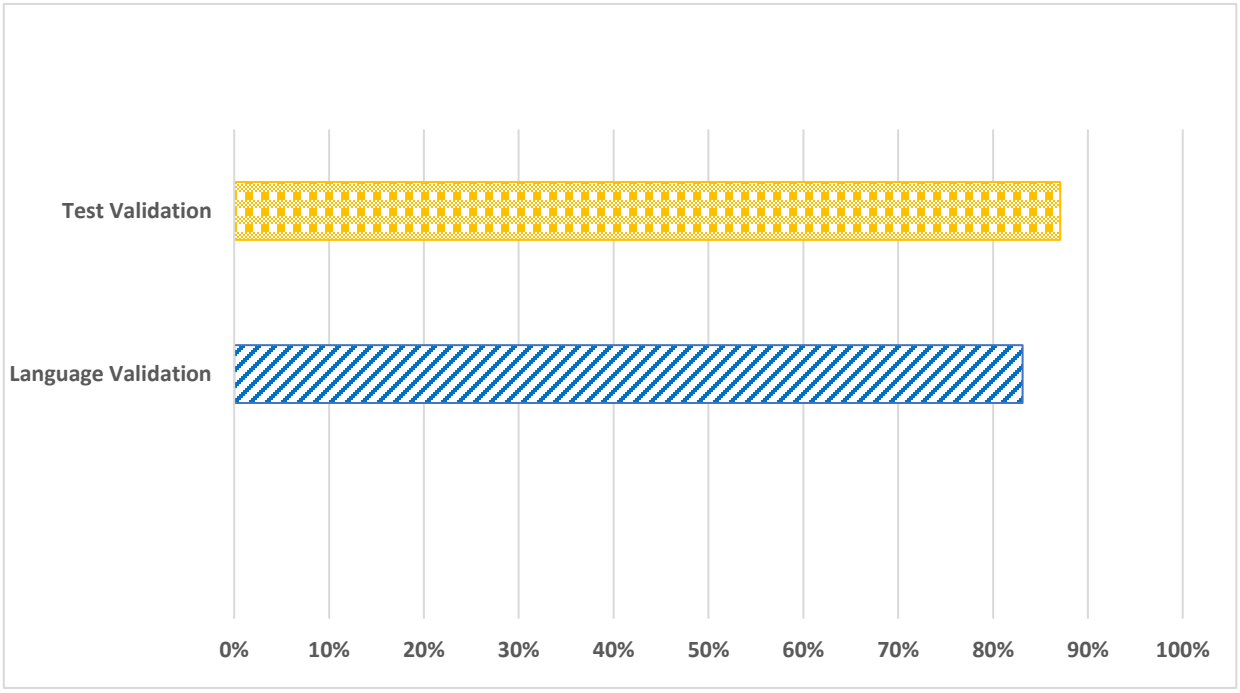
				Essay	
Biography of Taufik Ismail	Information Texts	Personal	Finding Information Comprehending Evaluating & Reflecting	Multiple Choices Multiple Choices Essay	22, 23, 24
Comparison between Swab Tests and Rapid Tests	Information Texts	Scientific	Evaluating & Reflecting Comprehending Evaluating & Reflecting	Short Answer Multiple Choices Essay	25, 26, 27
Loan Words and Affixes	Information Texts	Scientific	Evaluating & Reflecting Evaluating & Reflecting Evaluating & Reflecting	Matchmaking Multiple Choices Multiple Choices	28, 29, 30
"Minang Women must buy Minang Men to Get Married" and "the Higher the Education of a Minang Man, the Higher His Selling Values"	Information Texts	Socio-Cultural	Comprehending, Comprehending Evaluating & Reflecting	Multiple Choices Multiple Choices Essay	31, 32, 33
Legend of Lake Toba	Literary Texts	Personal	Finding Information Comprehending Evaluating & Reflecting	Multiple Choices Short Answer Multiple Choices	34, 35, 36
Demonstration of Time	Information Texts	Socio-Cultural	Finding Information Evaluating & Reflecting Finding Information	Multiple Choices Essay Multiple Choices	37, 38, 39
Biographical Texts of Asma Nadia	Information Texts	Personal	Finding information Evaluating & Reflecting Comprehending	Multiple Choices Essay Multiple Choices	40, 41, 42
5 Important Benefits of Napping for Health in Ramadhan	Information Texts	Scientific	Finding information Evaluating & Reflecting	Multiple Choices Essay	43, 44
What Can Indonesian Literature Graduates Do?	Information Texts	Scientific	Comprehending Evaluating & Reflecting Finding Information	Multiple Choices Short Answer Multiple Choices	45, 46, 47
Indonesia's Low Literacy Rate, Ranking 62 of 70 Countries	Information Texts	Scientific	Finding information Evaluating & Reflecting Finding Information	Multiple Choices Essay Matchmaking	48, 49, 50

Expert Validation Results

The expert validation has resulted in the following data. The first expert validator of the question evaluation scores 70 out of 80. Meanwhile, the second expert validator of the question evaluation scores 66 out of 80. Meanwhile, the third expert validator of the question evaluation scores 73 out of 80. Thus, the average score of the three expert validators in the question evaluation is 69.67. The scores from the three question validators are converted into a percentage of 87.08%. These findings indicate that literacy assessment questions are very feasible.

The first language validator scores 76 out of 80 with an average of 95%. Meanwhile, the second language validator score of 57 out of 80 with an average score of 71.25%. Thus, the average score of the two language validators is 66.5. The scores from the two language validators are converted into a percentage of 83.12%. This finding indicates that the language used in the reading literacy questions developed in this research was very feasible. The expert validation results in respective fields are presented in Figure 1.

FIGURE 1
EXPERT VALIDATION RESULTS



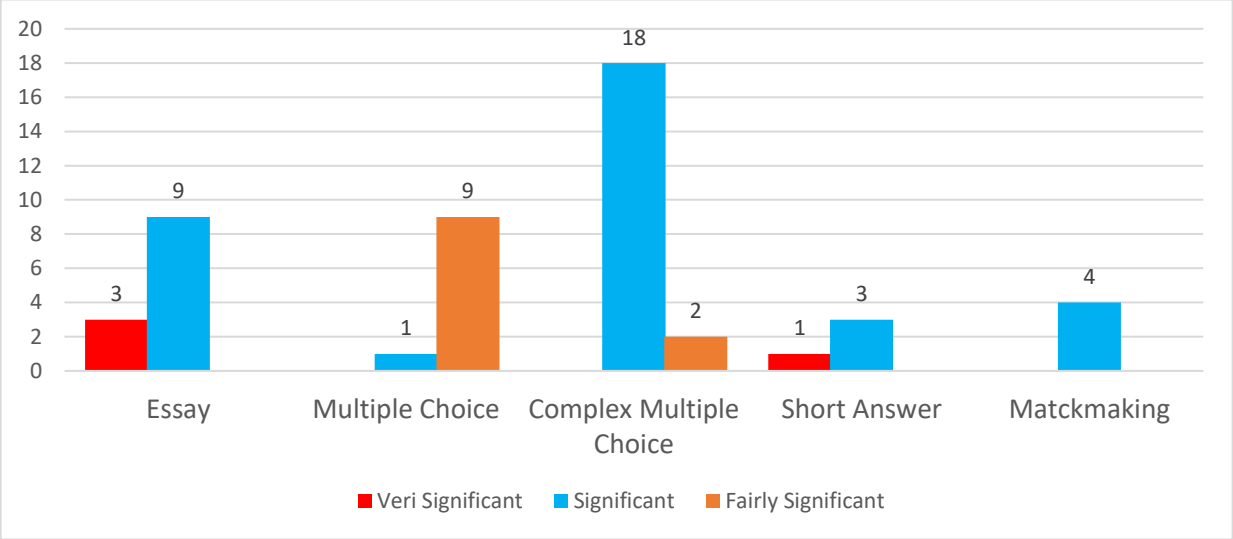
The expert validators of the question evaluation suggest that text content should be presented in a more balanced proportion: informational texts and literary texts for 70%:30%, respectively. A text should stimulate three items or questions. Each problem includes the cognitive level of finding, comprehending as well as evaluating and reflecting on the information. Thus, one set of questions consists of 15 stimulus texts. Meanwhile, language validation considers that these questions use correct language and spelling aspects. However, language and spelling aspects, such as capitalization, should be carefully corrected. Furthermore, the validators suggest that the researchers should revise each item of the developed questions.

Based on the series of the development process, it can be concluded that all 50 items of the reading literacy assessment instruments of level 5 have very feasible questions and language aspects. This finding means that the 50 items of reading literacy assessment instruments of level 5 are very feasibly tested on students. Afterward, the 50-question items are combined into a test set that is readily tested on students.

Validity and Reliability of Reading Literacy Assessment Questions

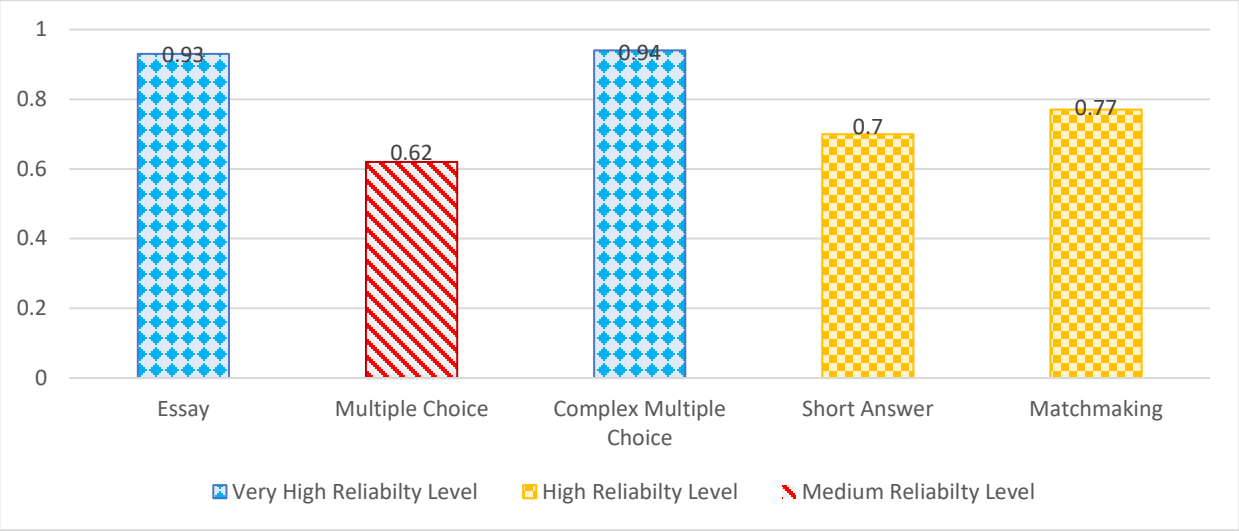
The data on the validity of items are presented in the following details. 12 essay questions are classified into 3 very significant questions and 9 significant questions. 4 short-answer questions are classified into 1 very significant question and 3 significant questions. 10 multiple choice questions are classified into 1 significant question and 9 fairly significant questions. 20 complex multiple-choice questions are classified into 18 significant questions and 2 fairly significant questions. 4 matchmaking questions are classified into significant questions. The validation results on 50 question items denote that all items of the reading literacy questions of level 5 in this study are categorized as valid. The following figure shows the significance of the validity of the developed reading literacy questions.

FIGURE 2
VALIDATION OF DEVELOPED READING LITERACY QUESTIONS



The reliability of the items of the developed reading literacy questions is presented in Table 4. The reliability of the essay question is 0.93 with very high reliability. The reliability of the short-answer question is 0.70 with high reliability. Meanwhile, the reliability of the multiple-choice questions is 0.62 with a medium reliability level. The reliability of the complex-multiple choice questions is 0.94 with very high reliability. The reliability of the matchmaking question is 0.77 with high reliability. Thus, the form of reading literacy question items of level 5 that has high reliability is the multiple-choice questions with sufficient reliability.

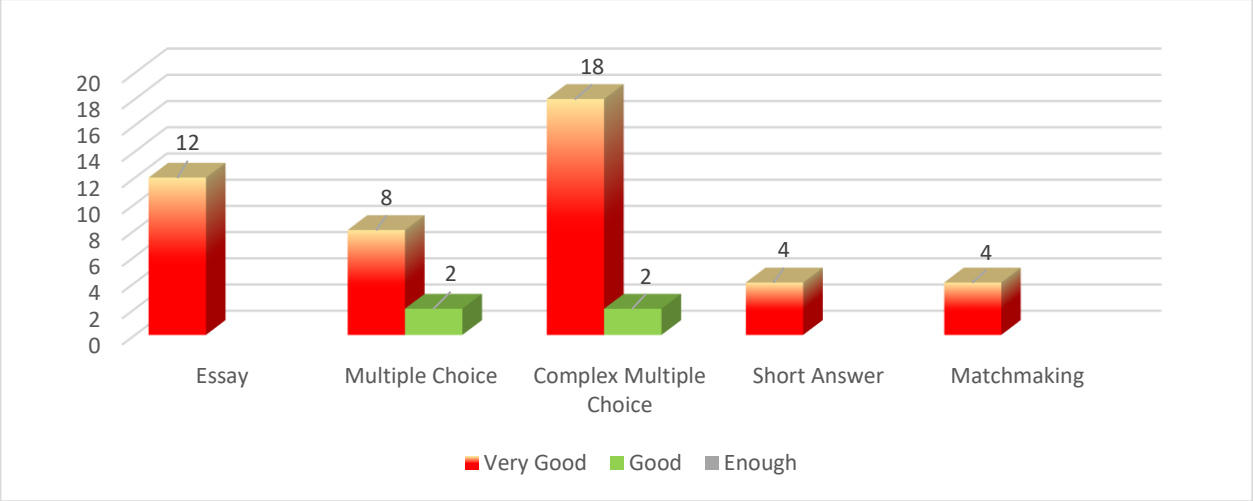
FIGURE 3
RELIABILITY OF READING LITERACY ASSESSMENT QUESTIONS



Item Analysis of Reading Literacy Assessment

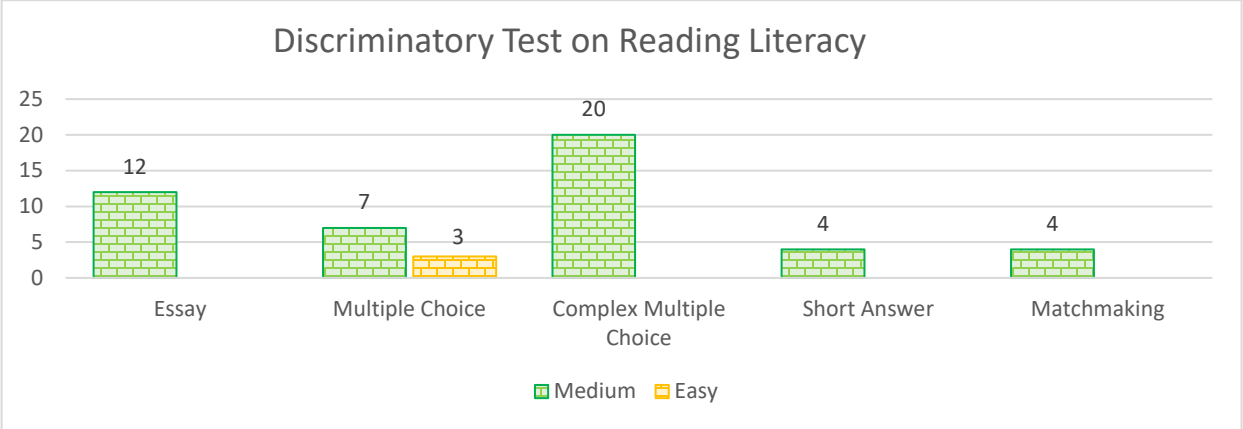
The difficulty level test on each item of the question has obtained the following data. 47 question items are classified as fairly difficult; they are numbers 1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, and 50. Meanwhile, 3 question items are classified as easy; they are numbers 5, 12, and 36. The figure of these results is as follows.

FIGURE 4
LEVELS OF DIFFICULTY TEST ON READING LITERACY



The discriminatory test has revealed the following data. 45 question items are classified very good; they are numbers 2, 3, 4, 6, 7, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 49, and 50. Meanwhile, 5 question items are classified as good; they are numbers 1, 5, 12, 22, and 48.

FIGURE 5
DISCRIMINATORY TEST ON READING LITERACY



DISCUSSION

The results of the students' and teachers' need analysis show that they do not comprehensively know the reading literacy questions. In addition, the teachers have not been able to design and organize reading literacy questions. Several studies have proven that teachers have not been able to prepare the minimum competency assessment questions, including reading and numerical literacy questions (Wujiati et al., 2019; Marrypadang, 2021; Astuti & Mering, 2022; Sariningsih, Kadarisma, & Ristiana, 2022; Mukhlis et al., 2022). Therefore, it is understandable that the teachers need the development of reading literacy assessment questions (Normurodovna 2022). Moreover, they consider that the literacy assessment questions have different forms from those of National Examination questions. They rarely develop questions at the comprehending level and the evaluation level.

Meanwhile, the students need reading literacy questions because they want to practice critical reading. They realize that critical reading is pivotal for them to gain various information. The ability to filter information is indispensable and requires critical thinking skills. This finding is in line with the statement of Hidayati, Inderawati, and Loeneto (2020). Critical reading skill is strongly correlated with critical thinking (Alzubi and Attiat 2021; Fikriyatii, Agustini, & Sutoyo, 2022). A critical thinking skill demonstrated through the expertise in reading HOTS questions becomes a very important skill in education in the 21st century (Changwong, Sukkamart, & Sisan, 2018; Ulger 2018 ; Ridho, Wardani, & Saptono, 2021). During the learning process, critical thinking skills refer to skills that must be continuously optimized (Larsson, 2017; Chusni, Suranto, & Rahardjo, 2020).

Critical thinking does not emerge by itself (Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher, 2020; Ghanizadeh, AL-Hoorie, & Jahedizadeh, 2020; Trinidad et al., 2020) but must be trained (Saleh, 2019; Pnevmatikos, Christodoulou, & Georgiadou, 2019) by using reading activities with HOTS questions. Thus, the development of reading literacy questions has met the needs of students and teachers. This research has also discovered that teachers perceive the need for diverse texts. Therefore, the researchers provide diverse texts and more scientific texts. The researchers employed 7 scientific texts, 5 socio-cultural texts, and 5 personal texts. Of the 17 texts, the portion of information texts is 88% while that of literary texts is 12%. The portion of information texts exceeds the quota recommended in the guidelines for the preparation of the minimal competence assessment questions at level 5. The guidelines stipulate the comparison between the information text and literary text is 70%:30%. The stimulus texts comprise ecosystem texts because this type of text helps students make decisions based on their understanding of future projections of the natural environment (McBride et al. 2013). Other texts are about health, social, literacy, biology, linguistics, local culture, and biography. Text diversity is requisite because the characteristics of reading literacy questions penetrate across subjects.

This study designs the question instruments by referring to the reading literacy assessment, which includes three types of cognitive levels. First, the cognitive level of finding information consists of (1) accessing and searching for information in the text and (2) searching for and selecting relevant information. Second, the cognitive level of comprehending information consists of (1) comprehending texts literally and (2) constructing inferences, making connections, and predicting singular and plural texts. Third, the cognitive level of evaluating and reflecting consists of (1) assessing the quality and credibility of content in singular and plural information texts, (2) assessing the format of text presentation, and (3) reflecting on the discourse for making decisions, making choices, and relating text content to personal experiences. The validity test has revealed that the question items are classified as valid. Moreover, the question items with various forms are classified as reliable because they had been rigorously validated by experts and revised based on the validators' suggestions before being tested on the students.

CONCLUSION

The need analysis on students concludes that only some students know the reading literacy assessment. They also have difficulties answering the reading literacy questions. Meanwhile, the teachers need reading literacy assessment questions to learn and exemplify. This study has also discovered that certified HOTS question items are needed to improve students' critical thinking. This statement is proven by the data that 98% of the students agree that the items of reading literacy questions affect their critical thinking. The results of validation and reliability tests indicate that the developed question items are valid and reliable because they have passed a series of procedures, especially questions about content, contexts, and cognitive levels have been validated. In addition, language aspects have been validated, including language suitability with students' development, critical thinking, and Indonesian language grammar.

The analysis has revealed that the developed question items do not contain very difficult, difficult, and very simple questions. 94% of the questions are fairly difficult while 6% of the questions are easy. The item analysis has shown that no item is categorized as acceptable, poor, or very poor. This study has found that 90% of the questions are very good while 5% of the questions are good. These findings show that the developed question items agree with the cognitive level 5. Therefore, these 50 questions are readily used at school and referred to as a resource for reading literacy assessment questions.

RECOMMENDATIONS

The results of this study can be used as recommendations for policy makers, for example for the Department of Primary and Secondary Education in Palembang City and South Sumatra Province. The results of the study prove that many teachers in the field have not participated in the socialization related to the Literacy Assessment. Teachers also do not know the basics of developing reading literacy questions based on Higher Order Thinking Skills. Therefore, training for teachers is needed to develop reading literacy questions. In addition, training in critical reading methods for teachers in schools is also needed. The development of reading literacy questions only covers cognitive level 5. Therefore, it is necessary to do research on reading literacy questions at other cognitive levels, including cognitive levels 1 to 6.

LIMITATIONS

This research has several limitations due to the relatively small number of trial samples. Thus, this research recommends that further research conducts a trial with a larger sample and involves more schools. This study has also revealed that many teachers do not know how to arrange the HOTS questions; therefore, it is necessary to conduct training activities on designing and developing HOTS questions.

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