



The Implementation of the PISA Model of English Reading Literacy Assessment for Senior High School

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ABSTRACT

There are many factors why Indonesian students lack reading literacy, including the unfamiliarity with the PISA Reading Literacy Assessment characteristics. This paper describes (1) the design of a PISA Model of English Reading Literacy Assessment Model for Senior High School students; (2) the implementation of the assessment model to find out students' competence based on the PISA Model of Reading Literacy Assessment Model, and (3) the evaluation of the assessment model to find out its effectiveness in measuring reading literacy of senior high school students. Using the ADDIE development model, the assessment prototype was tried out limitedly in four senior high schools in West Sumatera. The study included 138 participants learning English in the first semester of the academic year 2022/2023. They took an English reading pre-test and post-test to see the effectiveness of the assessment model. This study resulted in an effective PISA Model of English Reading Literacy Assessment Model to improve students' higher-order thinking skills.

Keywords: PISA, Reading literacy assessment model, Reading competence.

1. INTRODUCTION

Text is something that we often find in this day and age, both in print and digital form, due to the rapid development of information communication technology (ICT) that results from various kinds of text. Besides using printed texts and less hand-written texts, many people nowadays prefer to create, share, and access information digitally because it can be edited, forwarded, retrieved, and referred to more quickly in this information age. Therefore, we often use it in our daily life, even to get our point across that is used to be delivered in spoken.

Therefore, we need the ability to deal with text is called literacy. Before, being literate meant being able to identify, understand, interpret, create, communicate, and compute using printed and written materials associated with varying contexts [1]. However, now literacy is seen as a means of today's identification, understanding, interpretation, creation, and communication [2]. That is how important literacy is. Moreover, ensuring that all young people achieve relevantly and recognized proficiency levels in functional literacy is one of the educational goals of the Sustainable Development Goals (SDGs). Hence, as the text transforms and a higher reading level becomes the

demand, literacy knowledge and skills need to be upgraded.

There are many types of literacy, such as reading, numeracy, information, and digital. However, they all start with reading. In other words, the most fundamental literacy is reading literacy. According to [3], reading literacy means "understanding, using, evaluating, reflecting on and engaging with texts to achieve one's goals, develop one's knowledge and potential, and participate in society." Therefore, it can be inferred that today's reading requires beyond comprehension level, namely critical reading, in order to acquire information and use it in society. Thus, reading knowledge and skills should be acquired and used in practice.

The question is, "do the students have the requisite knowledge and skills?" To answer this question, we can use assessment.

For teachers, assessment gathers information about students' learning progress, whether they have reached the learning objectives or not. The information may reflect the effectiveness of the learning materials, media, methods, and many other learning components. When the learning components are identified as ineffective, it is time for teachers and/or education stakeholders to find ways for requisite changes. Therefore, the learners

will be able to acquire the needed knowledge and skills. Without any changes, the achievement of learning objectives is impossible. In sum, assessment is an instrument that informs the teachers about the extent to which the learning objectives have been accomplished.

For example, Programme International Student Assessment (PISA) measures students' literacy knowledge and skills near compulsory education. It is a project of the Organization for Economic Co-operation and Development (OECD) comprising member countries with stable economic status, taking place at three-year intervals since 2000, to see how well the students acquire and use their literacy knowledge and skills. There are three main domains assessed in this test, namely reading literacy, mathematics literacy, and science literacy. It is expected that all of the students are literate in those domains in order to make them ready to face the work field or higher education.

However, as one of the participant countries of PISA, Indonesia has taken part seven times. Generally, the sampling students have always been reported to be under the minimum competency level. According to Indonesia Country Note PISA 2018 Result [4], 30% of students attained at least Level 2 proficiency in reading who can identify the main idea in a text of moderate length, find information based on explicit, though sometimes complex criteria, and can reflect on the purpose and form of texts when explicitly directed to do so. On the other hand, little can comprehend lengthy texts, deal with abstract or counterintuitive concepts, and establish distinctions between fact and opinion based on implicit cues on the content or source of information. Therefore, it is assumed that Indonesian students do not have enough knowledge and skills to be determined to be literate in reading, mathematics, and science. Another assumption is that they may have acquired the requisite knowledge and skills but do not use them in practice. Consequently, they will not be ready to meet real-life challenges after finishing their compulsory education. They will quickly be left in this increasingly digital, text-mediated, information-rich, and fast-changing world because of not have the means for identification, understanding, interpretation, creation, and communication in this age.

This is so urgent that many researchers have investigated the factors influencing students' poor performance in taking the PISA test. The factors come from the education system, teachers, students, and environment [5–10]. However, the quality of teaching and learning is still the main problem encountered [5].

Therefore, it was recommended that Indonesia reform education, especially the quality of teachers, teaching and learning process, education system, education fund, educational decentralization, and better assessment. Besides, the characteristics of the school and the learning method implemented at school is the root cause of student failure to get good learning results in the PISA [8].

Additionally, in connection with students' lack of reading literacy, the students, according to [6, 7, 9, 10], faced difficulties in reading comprehension of English text and were majoring in three themes. First, they lack the basic ability of English and attraction to the subject. Second, teachers performed insufficient teaching preparation and implementation, in which students were rarely trained in solving problems typical of PISA questions. Third, unfamiliarity with the types of texts, questions, and tasks presented in PISA is prominent. Finally, the PISA reading questions emphasized higher-order thinking skills. In sum, students' low reading literacy factors are not only the curriculum and learning environment but also teaching materials, teaching activities, and assessments.

Some possible solutions have been proposed to facilitate the acquisition and use of students' literacy knowledge and skills, such as developing supporting materials, using appropriate media, or constructing better assessments. For instance, 8 PISA Reading Framework-based reading materials were developed to improve Thai EFL learners' critical reading and thinking skills [11]. In Indonesia, PISA-based reading materials were created in the Indonesian context in the form of continuous text for the tenth graders of SMAN 1 Belitang by analyzing instructional materials, and students need learning environment and students' reading level [12]. As a result, the materials were proven valid, practical, and effective in increasing students' reading scores. Previously, PISA-based teaching materials were developed for mathematics and science subjects [13, 14].

On the other hand, an innovative dual-coded multimedia application was developed to help students enhance their reading comprehension using imagery deficits [15]. In addition, an effort was made to boost students' reading comprehension by developing interactive multimedia for teaching descriptive texts based on Palembang local culture [16]. In terms of assessment, a HOTS-based reading literacy scoring device model that can be used to assess students' reading literacy in Indonesian cultural contexts was

developed to improve reading literacy skills [17]. Furthermore, the development of PISA-based mathematical problems/ questions/ tasks with various contexts was undertaken [18–23]. Meanwhile, in another study [24], an assessment instrument of the PISA model was constructed to measure students' problem-solving skills and scientific literacy in junior high schools. However, constructing a PISA-based instrument for assessing students' reading literacy is demanded since there has not yet been done.

Therefore, research and development on a PISA model of English literacy assessment were conducted to familiarize the students with texts, questions, and tasks of PISA reading. This paper will describe the assessment's design, implementation, and evaluation.

1.1. PISA Reading Literacy Assessment

According to PISA 2018 framework [25], three significant characteristics build PISA reading literacy assessment: texts, processes, and scenarios (including tasks).

1.1.1. Text

Texts used in the assessment are presented in print or digital mediums, sourced from single or multiple sources. For example, such texts are newspapers, textbooks, forums, customer reviews, and question-and-answer websites. In the assessment, the texts loaded are in the format of continuous, non-continuous, and mixed texts. Continuous texts are texts that make up sentences that are organized into paragraphs, sections, chapters, or books. Texts such as newspaper reports, essays, novels, short stories, reviews, and letters are continuous. Besides, non-continuous texts are organized in a matrix based on the combination of lists. They, for example, can be lists, tables, graphs, diagrams, advertisements, schedules, catalogs, indices, and forms. Another is mixed texts that are about the combination of the previous text formats. For example, mixed texts might be composed of paragraphs with pictures and graphs.

There are some types of texts used in the assessment. They are description, narration, exposition, argumentation, instruction, interaction, and transaction. According to Harsiati (2018)[26], exposition text most frequently appears among the text types. Moreover, based on her analysis, she found that the texts are quite long, consisting of 135 – 600 words, and complex sentences are shown a tendency. Furthermore, they use various contexts such as people, education, personal and

work of western culture, or the place where the questions are made.

1.1.2. Process

The processes here refer to cognitive processes involved in reading. The processes need to be executed by readers to achieve specific purposes and goals like those done in daily life. For example, some reading purposes foster reading fluency to locate specific information, understand, evaluate and reflect on the text. Since the test takers are given a limited time to do the assessment, it is necessary to manage tasks to be accomplished effectively. To do so, it depends on the readers' awareness of the reading demands of a situation and reading strategies so that they can set up task-relevant goals, monitor progress toward those goals, and self-regulate their goals and reading strategies throughout the activity based on their interests and initiative.

1.1.3. Scenario

The PISA reading questions are presented with a scenario-based assessment approach so that students test takers have an overarching purpose for reading a collection of thematically related texts, namely to complete a higher-level task ranging from level 1b to 6, along with traditional standalone PISA reading units. This approach is beneficial because it makes the readers engage more with the tasks and use literate source material more authentically, presents realistic problems and issues to solve, and involves using both basic and higher-level reading and reasoning skills. For example, in a single text, questions require scanning and locating information in texts, and inferential comprehension is distributed approximately 15% for each task. In contrast, the higher-level tasks (assessing quality and credibility and reflecting on content and form) are about 20%. Additionally, multiple texts load questions with multiple-text inferential comprehension for about 15%, and questions requiring searching for and selecting relevant text and corroborating/ handling conflict are distributed approximately 10%. That means there are more questions about reading single text than multiple texts, and the questions require evaluating and reflecting on text processing.

2. METHOD

This study used the ADDIE model of development. All documents related to learning reading, such as

curriculum, syllabus, learning materials, learning processes, and assessments, were analyzed. Based on the findings of the document analysis, the current curriculum used in the research setting, and characteristics of assessment for reading and of PISA reading literacy assessment, a prototype of the PISA-model English reading assessment was developed. The prototype was also tried out limitedly in four senior high schools in West Sumatera. The study included 138 participants learning English in the first semester of the academic year 2022/2023. In order to see the effectiveness of using the prototype, the participants took an English reading pre-test and post-test.

3. FINDINGS AND DISCUSSION

3.1. Design

PISA Reading Literacy Assessment (RLA) Model was developed through the following procedures. First, PISA RLA Model was developed by following the characteristics of PISA RLA concerning text, reading process, and scenario (as reviewed earlier in the second headings of this paper). Second, the three aspects involved in PISA RLA were adjusted to the basic reading skills competencies found in the English subject curriculum for grade X (tenth) of senior high school (see

inputted, resulting in a PISA RLA Model prototype. There are 21 question items with various Difficulty levels range from Level 5 to 1b.

3.2. Students' reading competence was recorded in a pre-test and a post-test

The results of students scored in the pre-test and post-test were summarized in the following table.

Table 2 illustrates the classification of students' reading competence according to PISA reading proficiency levels. Most test-taker students were below level 1 before the PISA RLA Model was piloted. That means they can find a single plainly stated item of information prominently placed in a brief, syntactically straightforward language with a well-known setting and text genre, such as a story or a shortlist. Texts in this level assignment generally provide the reader assistance by repeating material, using images, or using symbols they are acquainted with. There is not much competitive information. Readers at this level can comprehend texts by drawing direct links between related bits of knowledge. Instead, we can find one student who could answer all Level 5 questions correctly.

3.3. Students' reading competence based on

Table 1. Summary of Contents of Reading Skills in the Curriculum

No	Topic/ Basic Competence	Types of Texts	Cognitive Process/Question Types
1	Information about identity and family relationships	Dialogue/Email/Letter	Locate Information <ul style="list-style-type: none"> Access and retrieve information within a text Searching and selecting relevant texts. Understand <ul style="list-style-type: none"> Represent literal meaning Integrate and generate inferences Evaluate and reflect <ul style="list-style-type: none"> Access quality and credibility Reflect on content and forms Detect and handle conflict
2	Congratulating and complimenting others	Dialogue/Email/Letter Transactional interaction text	
3	Information related to the intention to take action/activity	Transactional interaction text	
4	Information about famous tourist attractions and historical buildings	Descriptive Text	
5	Information about specific texts in the form of an announcement	Announcement	
6	Information about narrative text	Narrative Text	
7	Information about recount text	Recount Text	
8	Song lyrics	Song Lyrics	

Table 1 below). Third, the PISA RLA model's blueprint was drawn based on the two preceding steps. Next, the question items that met the two principles above were

Table 2. Students' Test Scores

Level	Pre-Test		Post-Test	
	f	%	f	%
6	0	0	0	0
5	1	0,7	7	5,1
4	2	1,4	17	12,3
3	9	6,6	38	27,6
2	13	9,4	34	24,6
1	27	19,6	29	21,0
Below 1	86	62,3	13	9,4
Total	138	100	138	100

Table 3. The Map of Students' Reading Competence Based on Cognitive Processes Involved in Answering Questions in PISA RLA Model Prototype (%)

Difficulty Level	Retrieving Information	Understand and interpret	Reflecting and evaluating
6	0	0	0
5	0,7	0	0,9
4	1,3	2	7
3	13,5	13,3	9,1
2	21,5	29,7	25,2
1	29	26	26,8
Below 1	34	29	31

PISA reading cognitive processes

The students' reading competence was mapped from the post-test according to the processes proposed in answering PISA RLA. At first glance, Table 3 shows that all students could answer the questions that involved retrieving information from each difficulty level. Most answered the question correctly in levels 1ab and 1a, and the least correct answers were in levels 4 and 5.

Meanwhile, in answering questions that needed understanding and interpretation, more students could solve them until the questions with level 2. Then, however, no one could answer the question whose difficulty was level 5. Finally, the most difficult questions were eaten mainly by most of the students whose difficulty was in level 2. What was good is that 0,9% of students could answer the questions that entailed reflecting and evaluating the process in level 5.

Familiarity is an outcome of frequent stimulation that makes it possible for students to recognize something [27] so that ease will come [28]. We also feel less stress if we are familiar with it. When students take the test and know precisely what they will face, they will be more prepared.

4. CONCLUSION

After using the PISA RLA Model in the teaching and learning English classrooms, there was a significant increase in students reading competence. The number of students in Levels 5, 4, and 3 increased slightly, and those below 1 decreased by more than 50 percent. However, we can see a slight increase in the number of students in Level 2.

The results of the two tests indicated that the use of the PISA RLA Model was effective in improving students reading competence. That students' reading literacy scores increased significantly was a relief, showing that they have already been familiar with that assessment. Thus, the problem of dealing with unfamiliarity with such questions was solved. Hopefully, students' reading literacy assessed in the next PISA RLA will show a better performance.

AUTHORS' CONTRIBUTIONS

The authors claim that all contributed to this paper by forming the idea of the study, designing the research, collecting the data, analyzing the data, interpreting the results, and preparing draft manuscripts. In addition, all authors approved the paper's final draft after evaluating the findings.

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