

# DEVELOPMENT OF PISA-LIKE READING COMPREHENSION TEST

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**Abstract** This research aims to develop a reading comprehension test for English 7 not perfectly Programme for International Student Assessment (PISA) but similar to PISA and to determine the contributing factors of students' reading performance. This research type is formative evaluation development by Tessmer. The participants of this research were 150 high school students of two public schools in Jimenez, Misamis Occidental, Philippines. The results of this study show that the approximate distribution of tasks per targeted process and text availability can be applied in designing the Table of Specifications (TOS) and there are eight indicators to consider in selecting texts and contexts and in constructing the test items in order to develop PISA-like reading comprehension test namely: (1) cognitive process, (2) format of the text, (3) type of the text, (4) situation or context, (5) type of test (6) level of question, (7) type of question and (8) text medium and text environment. The developed reading comprehension test is not perfectly PISA but only PISA-like because the indicators do not include reading proficiency levels in PISA and do not deal much with questions and item difficulty for each reading proficiency level. Results also yield PISA-like reading comprehension test items that are: (1) valid as these adhere to the PISA reading literacy criteria and the sets of questions are highly reliable; (2) practical because teachers agree that the questions can assess students' reading literacy and thinking skills; and (3) effective because the mean score of students, although very low, reflects the 2018 PISA reading result. Contributing factors of the low performance are poor vocabulary, poor reading strategies, getting bored and tired of reading, multiple texts, expectations of reading the same texts previously discussed and writing the same answers already given, type of text and reading tasks. The use of PISA-like reading comprehension test may be a great help, so teachers can modify reading comprehension test and students will be familiar with PISA.

**Keywords:** PISA-Like Reading Comprehension Test, Reading Literacy, Development, Indicators

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## THE PROBLEM

### Background of the Study

The Programme for International Student Assessment (PISA) is used to assess the learning and application of essential knowledge and skills of 15-year-olds in Reading, Math and Science every three years (Katoningsih & Sunaryo, 2020; Mirizon et al., 2021; OECD, 2019; World Bank, 2020; Zaim et al., 2021). In addition, PISA gathers data on students' attitudes, family backgrounds, learning experiences and school contexts (OECD, 2019; World Bank, 2020).

The Philippines' participation in PISA began in 2018. In PISA 2018, the country got the lowest place (79<sup>th</sup>) in Reading and ranked 78<sup>th</sup> in Science and Mathematics among 79 countries. Most students in the Philippines did not achieve the minimum proficiency levels in all PISA subjects (Balagtas, 2020; OECD, 2019; PISA, 2018; San Juan, 2019; World Bank, 2020).

Regional PISA Reading and National Achievement Test (NAT) English scores have a significant positive correlation. Almost 33% of PISA takers in the Philippines enrolled in grade 10 are also those who took the NAT. Student performance on the grade 10 NAT has remained low, with mean percentage scores falling below 50 per cent (World Bank, 2020).

With these low results, DepEd wants to address the problem in Philippine education and advance the basic education quality in the country (San Juan, 2019; World Bank, 2020). In preparation, the Office of the Secretary provided the Briefer on PISA 2022 and the PISA Familiarisation Tests based on materials provided by OECD PISA. Through this briefer, educators and students will be able to access topics and resources from the Assessment Program and will familiarise the PISA testing environment. The Bureau of Education Assessment (BEA) has furnished the list of participating Divisions and Schools. One mechanism is to conduct a test simulation as a familiarisation activity using

the materials provided, combined with the test administration protocols overseen by BEA (DepEd, 2022). DepEd released memoranda “Supplemental Instructions on PISA 2022” dated March 2022, ensuring that the participating schools and students fully utilise the Briefer on PISA 2022, so they become familiar with PISA tests. In the Division of Misamis Occidental, selected personnel administered PISA Main Survey at Felina Sevilla Oaminal National High School based on Division Memorandum No. 128, s. 2022.

Weiss (2022) asserted that it is challenging to compare educational success in different countries until now because the measurement methods used differ significantly from country to country. Assessing global competence is a sensible project and should be further developed. According to Zaim et al. (2021), PISA reading literacy assessment was more complex even compared to assessment in senior high school. The differences can be seen in eight indicators. The indicators need to be used to operationalise a construct not supported by curricula that have evolved for decades. We take up the challenges described above and forecast how an adequate—valid, reliable and intercultural invariant—assessment of global competence can succeed.

Consequently, similar approaches will likely lead to different test instruments (Salzer, 2018). Educators can implement PISA implying reading literacy assessment at school being technologically literate, critical thinking, awareness of the surroundings and applying knowledge (Zaim et al., 2021).

Furthermore, most existing studies focused on emergent literacy and predictors of Reading (Bišćević et al., 2021; Memisevic et al., 2019). However, there is rare literature on developing assessments for reading based on PISA. Thus, this study aims to develop an assessment not perfectly PISA, but an assessment similar to PISA in the sense that it is anchored on English 7 Most Essential Learning Competencies (MELCs); it applies the PISA’s approximate distribution of tasks per targeted process and text availability in designing the Table of Specifications (TOS), and it outlines and considers the eight indicators of PISA reading literacy assessment in selecting texts and contexts and in constructing the test items.

## Theoretical Framework

This study includes the (1) SOLO Framework, (2) Revised Bloom’s Taxonomy and (3) PISA Reading Framework.

### SOLO Framework

Kevin F. Collis and John B. Biggs popularised the Structure of Observed Learning Outcomes (SOLO) in 1982 in their book “Evaluating the Quality of Learning: The SOLO

Taxonomy”. It is a framework for understanding with five levels, where each level embraces the previous level but adds something more (Balagtas, 2020).

Use SOLO in structuring responses to questions in a multiple-choice test format, in structuring rubrics, in describing responses to questions in an open-ended or constructed-response type of test, in describing the degree of correctness of responses given to questions in a test and scoring, interpreting and communicating test results (Balagtas, 2020).

### Revised Bloom’s Taxonomy

Revised Bloom’s taxonomy centers on cognitive process dimensions that move from remembering to creating that reflect thinking processes learners work on with knowledge (Da Costa & Arias, 2021).

For example, a verb under the “remember” category requires students to list the parts of a letter. In contrast, a verb under the “apply” category requires students to write a business letter (Anderson & Krathwohl, 2001).

### PISA Reading Literacy Assessment

In PISA, the test does not call for rote memorisation, instead, it requires students to comprehend what is read and solve problems related to real life situations (OECD, 2019). Task difficulty can be varied by manipulating text features and task goals, which then require deployment of different cognitive processes ranging from straightforward locating and comprehension activities to more sophisticated activities requiring the integration of information across multiple pieces of text. Students’ reading proficiency is assessed through cognitive processes in reading varied texts and scenarios (OECD, 2019).

Effective execution of these processes, in turn, requires that the reader have the cognitive skills, strategies and motivation that support the processes (OECD, 2019). The PISA 2018 reading framework acknowledges the goal-driven, critical and intertextual nature of reading literacy (McCrudden & Schraw, 2007; Vidal-Abarca, Mañá & Gil, 2010).

With regard to DepEd Assessment policy, teachers believed that a sound formative and summative assessment must be based on a standard and be developed from classroom to national levels. Teachers should undergo extensive training concerning classroom assessment (Rural et al., 2021).

Zaim et al. (2021) stated that PISA reading literacy assessment was more complex than the reading literacy assessment at senior high school. The differences can be seen in eight indicators.

**Table 1: Differences between PISA Reading Literacy Assessment and Reading Literacy Assessment at Senior High School (Zaim et al., 2021)**

| No. | Indicators         | PISA Reading Literacy Assessment                                                                                                        | Reading Literacy Assessment at Grade X Senior High School                 |
|-----|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| 1   | Cognitive Process  | Retrieving information, forming a broad understanding, developing an interpretation, reflecting on and evaluating the content of a text | Retrieving information, forming a broad understanding                     |
| 2   | Format of the text | Continuous, non-continuous, mixed text, multiple text                                                                                   | Continuous, non-continuous                                                |
| 3   | Type of the text   | Description, narration, exposition, argumentation, instruction, transaction                                                             | Description, narration, recount, transaction, announcement                |
| 4   | Form of the text   | Multiple choice, complex multiple choice, short answer, closed essay, open essay                                                        | Multiple-choice, short answer, open-ended question, closed-ended question |
| 5   | Situation          | Personal, public, educational, occupational                                                                                             | Personal, public, educational                                             |
| 6   | Level of question  | Remember, understand, apply, analyse, evaluate, create                                                                                  | Remember, understand, apply, analyze                                      |
| 7   | Types of questions | Literal, inferential, evaluation                                                                                                        | Literal, inferential                                                      |
| 8   | Text medium        | Print and digital                                                                                                                       | Print and digital                                                         |
|     | Text environment   | Authored, message-based                                                                                                                 | Authored and message-based                                                |

Table 1 shows the differences of the Reading Literacy Assessment indicators in PISA and at senior high school. As shown, PISA reading literacy assessment is more complex even compared to the reading literacy assessment at senior high school. The PISA assessment indicators suggest how complex the development of a dimensioned assessment framework is.

### Statement of the Problem

This study aimed to examine and outline the indicators in constructing a PISA-like reading comprehension test. How can a PISA-like reading literacy assessment be developed to measure students' reading comprehension? Specifically, this aims to answer the following questions:

How are PISA-like reading comprehension tests being constructed?

How PISA-like reading comprehension tests are made valid, practical and effective in assessing students' reading comprehension?

What are the contributing factors of students' performance in PISA-like reading comprehension test?

### Significance of the Study

PISA-like reading comprehension test can give insights on students' reading literacy, teachers' assessment and school-level factors towards academic achievement in comparison to international assessment.

#### ● Teachers

Through the PISA-like reading comprehension test, teachers can familiarise themselves with PISA reading assessment and administration. They can also modify their assessment and curriculum delivery through instruction by applying the outlined indicators and ways of developing a reading comprehension test anchored on the PISA Reading assessment.

#### ● Students

PISA-like reading comprehension test assesses students' reading literacy essential for them to be able to solve problems or to deal with real-life situations adequately and appropriately. With the kind of assessment anchored on international or global standards, more students can become globally competitive. Through PISA-like reading comprehension test, students will take a test that has standards similar to international standards of assessment.

#### ● Education System in the Country

PISA-like reading comprehension test serves as a response to Sulong Edukalidad that aims to improve the quality of education in the Philippines. PISA results provide the continuity of data and necessary feedback to monitor improvements and identify gaps and areas of growth for primary education, informed policy decisions and reforms.

## ● Policymakers

Policymakers can use the findings of the development of a PISA-like reading comprehension test to understand the relative strengths and weaknesses of the Philippine education system and to set policies against measurable goals of performing well in the next cycle of PISA assessment.

## ● Research and Development

Investments to conduct research allowed PISA to evolve and experiment over the years.

## Definition of Terms

*PISA-Like Reading Comprehension Test.* A teacher-made test anchored on English 7 MELCs, the PISA's approximate distribution of tasks per targeted process and text availability applied in the TOS and the eight indicators of PISA reading literacy assessment that served as the basis in selecting texts and contexts and in constructing the test items.

The assessment in this study is not exactly a PISA assessment but only a PISA-like because the indicators do not include reading proficiency levels in PISA reading and do not deal much about item difficulty for each reading proficiency level.

*Reading Comprehension.* When a student can scan and locate the information, generate and interpret ideas from texts correctly and reflect and evaluate content to answer the questions correctly, he has reading comprehension. The more difficult questions he can answer, the higher his reading proficiency.

*Reading Literacy.* Reading literacy means generating and interpreting ideas from the text and reflecting and evaluating content to answer questions correctly, applying knowledge in real-life situations and achieving goals.

## RESEARCH METHOD

This research focused on outlining the different indicators of PISA reading literacy assessment including its distribution of task per targeted cognitive process used in order to develop a PISA-like assessment anchored on the MELCs or the junior high school English curriculum. This study did not extend to the two other subject areas, science and math, that PISA assesses.

## Research Design

This study used the design of development studies. Edelson (2002) and Bakker (2004) stated that design research,

developmental research and design experiments place the design process as a strategy for developing theories or instructional design models. This study applied design research integrating learning theories to develop a PISA-like reading comprehension test. The researcher developed the test by undergoing it through preliminary and formative evaluation stages (Zulkardi, 2002). The formative evaluation phase consisted of the stages of self-evaluation, prototyping (expert review, one-to-one and small groups) and field tests (Tessmer, 1998).

## Research Environment

The locale of this study were two public schools located in Jimenez, Misamis Occidental. Jimenez, known as “An Old Mystical Heritage Town”, is a 3<sup>rd</sup> class municipality in Misamis Occidental, Philippines. Carmen Integrated School (CIS) is located about 12 kilometres from the downtown from the municipality while Jimenez National Comprehensive High School (JNCHS) is located about 1 kilometer. The study was conducted in junior high school department (Grade 7, 8, 9 and 10) in CIS and in one section in Grade 7 of JNCHS. In Carmen Integrated School, the junior high school consists of 1 section only per grade level – from Grade 7 to Grade 10.

## Research Participants

Total of one hundred fifty (150) boys and girls were selected. Participants (n = 150) were junior high school students of Carmen Integrated School and Grade 7 students of Jimenez National Comprehensive High School. The participation of males and females is approximately equal. Sahin and Hacettepe (2017) suggest that mix sample size and length of the population are essential factors for the correct estimation of parameters, and sample sizes of 150, 250, 500 and 750 students can be used to estimate IRT parameters.

## Research Instruments

This study used the developed and quality assured TOS applying the approximate distribution of tasks per targeted process and text source based on PISA Reading Literacy Framework (OECD, 2018), Grade 7 Quarter 4 MELCs, the formative evaluation (Tresser, 1993), observation and focus group discussion to develop a PISA-like reading comprehension test, answer sheets and answer keys.

## Data Gathering Procedure

The preliminary stage involved the needs and context analysis and development of a literature review that served

as a conceptual and theoretical framework for the research (Plomp, 2007). The researcher understood the students, the English 7 Quarter 4 MELCs and the existing examples of PISA questions for reading. Usnul et al. (2019) said that the researcher assessed the equivalent PISA questions developed. In this stage, the researcher prepared and designed PISA-equivalent questions.

Then, a prototyping stage followed using formative evaluation to improve the PISA-like reading comprehension test based on PISA model and its guidelines. This stage produced an initial prototype.

In the formative evaluation, self-evaluation happened first. (Rosana, Widodo & Setyaningsih, Warno, 2020). The researcher, the English supervisor and assessment professor evaluated the set of test items developed to produce a prototype 1.

Next, in the semi-evaluation phase, the test was examined whether it was run based on the target outcome. Recommendations were submitted to improve the intervention model.

Then, experts evaluated the validity of the content, the construct and the language of the test items. The construct refers to the PISA characteristics (Rosana et al., 2020). The content pertains to the appropriateness of the English 7 curriculum and the reading resources of English 7. For language, experts validated linguistic aspects and analysed the applicable language rules or grammatical rules (semantics, syntax, pragmatic and lexical) in each item. Validators submitted the suggestions and comments useful to improve the prototype 1.

Along with the experts' review, the researcher asked three students from different grade levels with varied abilities about how they found each test item to be readable and clear in purpose. Then, researcher or test developer revised prototype 1 using the comments and suggestion of the experts and the three students. Then, prototype 2 makings followed in which a group of six students with varied abilities answered the test items. The students gave their comments regarding the test items practicality. The inputs from this stage were used to revise the prototype 2 to become the prototype 3 which was used in the next stage, the field test (Rosana, Widodo & Setyaningsih, Warno, 2020).

In the field test, the prototype 3 was trialled among 150 junior high school students from two public schools of Jimenez in the fourth quarter of the S.Y. 2022-2023. The researcher analysed the answer sheets descriptively to determine the potential effects of the PISA-like reading comprehension test items that had been through the validation process.

## Data Analysis

Cronbach's Alpha (0-1) measures test items internal consistency that ensures validity. In addition, Cronbach's alpha can be used to obtain reliability estimates. Higher reliability estimate means lesser error.

Also, it is important to note that if Cronbach's alpha increases when deleting an item, it means that the item may not belong in the measure (Collins, 2007).

In obtaining Cronbach's alpha as an index of reliability, the researcher has to consider the tau-equivalent approach assumptions, if not met, alpha is low. A high value s alpha (> 0.90) may suggest redundancies and the need to decrease the items. (Tavakol & Dennick, 2011).

## Ethical Consideration in Research

The study was explained to the potential participants verbally. The researcher provided them all pertinent information and ample time to ask questions. Following the verbal explanation, the researcher gave a study information sheet and enough time for deciding whether to participate or not. When potential participants already read the study information sheet, the researcher answered any questions raised and gave verbal agreement when they agreed to participate.

The research was helpful to the majority of the students and teachers. The study provided a significant amount of benefit and the least amount of risk to the teaching-learning process. This research did not purposely cause harm or force students or participants to reveal information they did not wish to. The researcher safeguarded the personal information participants had agreed to disclose and hold personal identities confidential.

This research did not mislead or omit information about the purpose of the research. Since junior high school of Carmen IS and Grade 7 students of JNCHS were chosen to be the participants of this study, no students were excluded to participate in the research except for valid reasons.

## RESULTS AND DISCUSSION

In order to develop a PISA-like reading comprehension test, the PISA's approximate distribution of tasks per targeted process and text availability was applied in the TOS with the English 7 Quarter 4 MELCs. The eight indicators of PISA reading literacy assessment were outlined and considered as the basis in selecting the texts and contexts and in constructing the test items anchored on English 7 Quarter 4 MELCs.

**Table 2. Table of Specifications Based on MELCs Applying the PISA's Approximate Distribution of Tasks Per Targeted Process and Text Availability**

| Most Essential Learning Competencies (MELCs)                                                                        |                  | Placement of Items     |                              |                                |                                                                 |                                     |                             |                                 |
|---------------------------------------------------------------------------------------------------------------------|------------------|------------------------|------------------------------|--------------------------------|-----------------------------------------------------------------|-------------------------------------|-----------------------------|---------------------------------|
|                                                                                                                     |                  | Single Text            |                              |                                |                                                                 | Multiple Text                       |                             |                                 |
| ENGLISH 7<br>Quarter 4                                                                                              |                  | Scan and Locate<br>15% | Literal Comprehension<br>15% | Inference Comprehension<br>15% | Assess quality and credibility; Reflect on content and form 20% | Search and select relevant text 10% | Inference Comprehension 15% | Corroborate/Handle conflict 10% |
| Distinguish features of academic writing                                                                            |                  |                        |                              |                                |                                                                 | 7,8,9,10                            | 1,2,4,5,6,11                | 3                               |
| Employ a variety of strategies for effective interpersonal communication (interview, dialog, conversation)          | 14,15            |                        |                              | 12,13,16                       |                                                                 |                                     |                             |                                 |
| Determine the worth of ideas mentioned in the text listened to (or read)                                            | 18,19, 20,21, 26 |                        | 17,23                        | 25,27,28                       | 22,24                                                           |                                     |                             |                                 |
| Determine the truthfulness and accuracy of the material viewed (or read)                                            | 40,41,42         |                        | 35,37,43,44                  | 38,39                          | 36                                                              | 30,32,33,34,49,52                   | 29,31,47,50,54,58,59,60,61  | 45,46,48,51,53,55,56,57         |
| Discover the conflicts presented in literary selections and the need to resolve those conflicts in non-violent ways | 70               |                        | 69,71,72                     | 64,65,66,67,68                 | 74,75,76,77                                                     |                                     |                             | 73                              |
| Discover literature as a tool to assert one's unique identity and to better understand other people                 | 88               |                        | 80,81,82                     | 62,63                          | 78,79,83,84,85,86,87,89                                         |                                     |                             |                                 |
| Discover through Philippine literature the need to work cooperatively and responsibly in today's global village     |                  |                        | 90                           |                                | 91,92,93,94                                                     |                                     |                             |                                 |
| Compose an informative essay                                                                                        | 95,96,97         |                        | 99,100                       |                                | 98                                                              |                                     |                             |                                 |
| TOTAL: 100                                                                                                          | 15               | 15                     | 15                           | 15                             | 20                                                              | 10                                  | 15                          | 10                              |

The table above shows the Table of Specifications (TOS) which applies the PISA's approximate distribution of tasks per targeted process and text availability composed of single text and multiple texts and cognitive processes in approximate or particular percentage: for single text - scan and locate 15%, literal comprehension 15%, inference comprehension 15% and for multiple text- assess quality and credibility/ reflect on content and form 20%, search and select relevant text 10%, inference comprehension 15% and corroborate/ handle conflict 10%, a total of 100%. Applying PISA's approximate distribution of tasks per targeted process and text availability made the TOS in this study different from the usual TOS.

The stages that follow explained the results of developing PISA-like reading comprehension test.

**Preliminary Phase.** In this stage, the researcher had taken two main steps: (1) prepared the TOS anchored on the English 7 Quarter 4 MELCs and the PISA's approximate distribution of tasks per targeted process and text availability, and (2) selected the texts and contexts and constructed the test items following the eight indicators. The eight indicators to construct PISA-like reading assessment are: (1) cognitive process, (2) format of the text, (3) type of the text, (4) situation or context, (5) type of the test (6) level of question, (7) type of question and (8) text medium and text environment. The researcher analysed the indicators of PISA reading literacy assessment, the PISA model questions and the English 7 Quarter 4 MELCs from the DepEd K to 12 Curriculum.

The designing stage consisted of 100 items anchored on the English 7 Quarter 4 MELCs, the PISA's approximate distribution of tasks per targeted process and text availability and the outlined eight indicators of PISA reading literacy assessment. There were eight English 7 Quarter 4

MELCs namely: distinguish features of academic writing, employ a variety of strategies for effective interpersonal communication (interview, dialogue and conversation); determine the worth of ideas mentioned in the text listened to (or read); determine the truthfulness and accuracy of the material viewed (or read); discover the conflicts presented in literary selections and the need to resolve those conflicts in non-violent ways; discover literature as a tool to assert one's unique identity and to better understand other people; and discover through Philippine literature the need to work cooperatively and responsibly in today's global village and compose informative essay.

The cognitive processes applied were grouped according to text formats. Under single text, there are 15 items for scan and locate, 15 items for literal comprehension, 15 items for inference comprehension. Under multiple text, there are 10 items for search and select relevant text, 15 items for inference comprehension and 10 items for corroborate or handle conflict. 45% of the test items were anchored on single text while 55% of the items were anchored on multiple text.

The text formats used were continuous, non-continuous, mixed and multiple texts. The text types used were description, narration, exposition, argumentation, instruction and transaction. The test types used were multiple choice, complex multiple choice, short answer, fill-in-the blank and identification. The situations or contexts were personal, public, educational and occupational. The levels of questions were remembering, understanding, applying, analysing, evaluating and creating. The types of questions were literal, inferential and evaluation. Print and digital are the text medium. Authored and message-based were the text environment.

**Table 3: The 8 Indicators Considered in Selecting Texts and Contexts and in Constructing the Test Items**

| Sr. No. | Indicators           | PISA Reading Literacy Assessment                                                                                                                                                                           |
|---------|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | Cognitive Process    | Scan and locate information, literal comprehension, inference comprehension, assess quality and credibility/ reflect on content and form, search and select relevant text and corroborate/ handle conflict |
| 2       | Format of the Text   | Continuous, non-continuous, mixed text, single texts, multiple texts                                                                                                                                       |
| 3       | Type of the text     | Description, narration, expositions, argumentation, instruction, transaction                                                                                                                               |
| 4       | Situation or Context | Personal, public, educational, occupational                                                                                                                                                                |
| 5       | Type of the test     | Multiple choice, complex multiple choice, short answer, closed essay, open essay                                                                                                                           |
| 6       | Level of question    | Remember, understand, apply, analyse, evaluate, create                                                                                                                                                     |
| 7       | Type of question     | Literal, inferential, evaluation                                                                                                                                                                           |
| 8       | Text medium          | Print and Digital                                                                                                                                                                                          |
|         | Text environment     | Authored, message-based                                                                                                                                                                                    |

Table 3 outlines the eight indicators that are the basis in selecting texts and contexts and in constructing PISA-like reading comprehension test items.

The results of this designation were called prototype 1.

Expert Reviews and One-to-One. Three experts examined the test as prototype 1 and three students of varied reading ability levels (high, moderate, low) read the PISA-like reading comprehension test as prototype 1. They worked on 100 items, then the researcher asked each student to comment and suggest for the test items. Moreover, the researcher used the comments or suggestions from these stages to revise the test and produce prototype 2.

Small-Group Stage. The researcher asked another six students of varied reading ability levels to read and answer the PISA-like reading comprehension test as prototype 2. In the trial phase, 60 students took the test in three sets: set A (39 items), set B (23 items) and set C (38 items). The researcher supervised and observed students to determine if prototype 2 needed to be revised. The focus of this stage was practicality aspect of each item according to students. The results showed that, in general, all questions can be understood. Only few questions had to be revised because the students were confused to the actual intention of the questions. Then, the researcher used the findings to improve the test to make a prototype 3.

Field Test Stage. At this stage, 150 students from different grade levels in two of the public junior high schools in Jimenez took the final prototype. All 100 items were done in 1 hour and 30 minutes. The researcher obtained accomplished answer sheets. Then, the researcher interviewed the students about the test. This stage also aimed to determine the contributing factors of students' performance in PISA-like reading comprehension test.

### Reliability, Validity and Practicality of the Test Items

The researcher carried out product-moment correlation of Karl Pearson to determine the validity calculation and the Cronbach-Alpha formula to determine the reliability of the test, as shown in Tables 4.

**Table 4: Extent of Reliability of PISA-Like Reading Comprehension Tests (95 Items)**

| Estimate           | Cronbach's $\alpha$ | Interpretation   |
|--------------------|---------------------|------------------|
| Point Estimate     | 0.891               | High Reliability |
| 95% CI lower bound | 0.864               |                  |
| 95% CI upper bound | 0.913               |                  |

Cronbach's Alpha Scale: 0- No Reliability; 0.1-0.39- Low Reliability; 0.40-0.69- Moderate Reliability; 0.70-0.99- High Reliability; and 1.0- Perfect Reliability.

Note: The following items which correlated negatively with the scale are removed: Item \_6, Item \_20, Item \_58, Item \_71, Item \_91.

The result shows that PISA-like reading comprehension test is highly reliable. Out of 100 items of PISA-like reading comprehension test, 95 items are retained. Only five items are deleted since they correlate negatively with the scale indicating that they are not reliable test items.

**Table 5: Frequency Distribution Table of Students' Scores in the Test**

| Range | Frequency |
|-------|-----------|
| 1-5   | 0         |
| 6-10  | 1         |
| 11-15 | 2         |
| 16-20 | 6         |
| 21-25 | 11        |
| 26-30 | 12        |
| 31-35 | 21        |
| 36-40 | 29        |
| 41-45 | 24        |
| 46-50 | 15        |
| 51-55 | 9         |
| 56-60 | 4         |
| 61-65 | 9         |
| 66-70 | 3         |
| 71-75 | 3         |
| 76-80 | 0         |
| 81-85 | 0         |
| 86-90 | 1         |

Based on the table, out of one hundred fifty (150), only one (1) student scores higher than 75 while 3 students get scores that range from 71 to 75.

**Table 6: PISA-Like Reading Comprehension Test Practicality Result**

| No. | Description                                | Validation |   |   |    |
|-----|--------------------------------------------|------------|---|---|----|
|     |                                            | SA         | A | D | SD |
| 1   | The test displays clear texts and images.  | 3          | 2 |   |    |
| 2   | The instructions can be understood easily. | 3          | 2 |   |    |
| 3   | The test can be scored easily.             | 3          | 2 |   |    |

| No. | Description                                                                      | Validation |   |   |    |
|-----|----------------------------------------------------------------------------------|------------|---|---|----|
|     |                                                                                  | SA         | A | D | SD |
| 4   | Users can clearly understand the developed PISA-like reading comprehension test. | 3          | 2 |   |    |
| 5   | The test can aid teachers determine what students learned.                       | 3          | 2 |   |    |
| 6   | The test can aid teachers determine what students did not learn.                 | 2          | 3 |   |    |
| 7   | The test developed can be useful to improve the quality of learning.             | 3          | 2 |   |    |

Based on Table 6, the teachers agree (A) and strongly agree (SA) to the given descriptions. Three teachers strongly agree that the test displays clear texts and images; the instructions can be easily understood; the test can be scored easily; users can clearly understand the developed PISA-like reading comprehension test; the test can aid teachers to determine what students learned and can be useful to improve the quality of learning. Thus, PISA-like reading comprehension items meet the practical criteria.

Then, the researcher interviewed some students about their responses to the questionnaire. Here are the excerpts:

Researcher (R): How do you find the test? Support your answer.

Participants (P): The test is very difficult or hard to answer. (98% of the students said this.)

:The test is easy (Only 2 of the students (the highest scorer and one of the average students) of the class said this.

R : Why is the test difficult?

(P) Reason 1 : Unfamiliar words or not used to the English language  
 “Wako kabalo sa meaning sa ubang words. Lisud e translate.”  
 [I do not know the meaning of other words. It is difficult to translate.] G7A1, G7A11, G7A12, G7A15, G7S2  
 “Di kayo kasabot sa laglom nga English. Di kayo masud sa utok.”  
 [I hardly understand unfamiliar English terms.] G94, G95, G96, G97, G98, G910, G7S5, G7S6  
 “Lisud sabton ang texts kay English. Labad sa ulo. Nahutdan ug vocabulary.” [It is difficult to understand the texts because they are in English. I do not have vocabulary anymore.]

(P) Reason 2

G92, G94, G95, G96, G97, G98, G910, G7S5, G7S6

“Kailangan eexplain daan ang texts sa teacher adiser e quiz.” [The texts need to be explained by the teacher first before the quiz.] G7S5, G7S6

“The test is not easy kay English. Lisud sabton pero masabtan madugay pero kung dali- dalion, lisud sabton.” [The test is not easy because it is in English. It is difficult to understand, but it can be understood when not taken hurriedly.]

G101, G95, G9, G97, G98

: Long and multiple texts to read confused some learners and made them forget what they just read and, for some, made them feel bored and tired while others felt nervous.

“Makalibug answeran ang questions kay tag as ang basahun, naay duha tulo ka texts like sa kadtung articles 1, 2 and 3 nga basahun ug sabton adiser mag answer sa questions.” [It is confusing to answer some questions because the texts to read are long and there are two or more texts like Articles 1, 2 and 3 to read and understand before answering the questions.] G7A2, G7A7, G7A10, G7A11, G7A15, G94

“Very confusing and tiring because of long texts to read.” G7A7, G7A11, G7A15, G94

“It is confusing to analyse the texts because they are too long. It makes me feel tired. There are many texts to read.”(G7A2, G7A10).

The texts are long like about the bamboo (story).” G7A1, G7A2, G7A3, G7A4, G7A5, G7A6, G7A7, G7A8

“It is also confusing because there are many points-of-view like one wants to ban extracurriculars while Cayetano says that it will not be banned. Reading long texts makes me feel bored. G7A2

“I feel bored kay taas kaayo ang basahon ug mga items. I can say that it was long and it was finished for 2 hours.” G7S1

“Tag as ang basahon. Tagduha ka paklian ang basahon.”[The texts to read are too long. There are two pages to read.] G7S2

“Nakulbaan ko kay taas ang basahon ug ang items; makalimot ug asa dapit ang answer sa gibasa kay taas.” [I felt nervous because of long texts to read; forgot where to locate the answers in the text because it is long.] G7S3

“Tungod sa taas ang basahon, ang naunag basa malimtan. Nadugay ug basa.”

[Because of long texts to read, the texts read first are forgotten. It took a long time to read.] G7S4

“Makaingun ko nga nanapol kog basa kay tag as kaayo ang basahon.

boring kaayo magbasa ug taas.” [I can say that I felt tired to read

because of long texts.] G7S5, G7S6

(P) Reason 3 : Items are time-consuming. Time is not enough. Conscious of the time

“Na-conscious ko sa time, Ma’am.”[I am conscious of the time,

Ma’am.] G7A9, G91

“Lisod kay gitayman. Di makabasa ug tarung kay gahunahuna ug mahutdan sa time; gamay rakog kuha kay wa natarong ug basa kay gadali. Makabitin man sa oras; taas kayo ang basahon” [It is difficult because it is timed. I couldn’t read well because of the thought of running out of time; I got low score for I was not able to read well because I was in a hurry. The time was not enough; the texts to read are long.] G91, G93

“Makahurot ug time ang isa ka question. Malangan ko ug basa.” [One

question is time consuming. It took me a long time to read.] G911

“Makaingun ko nga nanapol kog basa kay tag as kaayo ang basahon.

Boring kayo magbasa ug taas.” [I can say that I get lazy reading too long texts. It is so boring to read long texts.] G7S5, G7S6

(P) Reason 4 : Not used to take 100-item test “Karun pa ka exam ug 100 items. [It is the first time to take a 100-item exam.] G7A10, G7A11, G94, G95, G96, G97, G98, G910. “100 items. Dugay kayo maansweran or mafigure out ang answer. Sometimes malimatan ang topics. Daghan kayo ang stories.” [It was 100 items. It took so long to answer or to figure out the answer.] G912

“Dili mi anad ug 100 items dayun story nga taas basahon.” [We are not used to answer 100 items and read a long story.] G7S7, G7S8, G7S9, G7S10

“Wala namo naayo ug sabot kay gadali dali, kapoy basa kay daghan. Lisod e pronounce, so long.” [We were not able to understand well because we were in a hurry and tired of reading because they were many. Hard to pronounce, so long.] G7S9

“Taas ang story.”[The story is long.] G7S10

“Ang lisud taas ug basahon. Ang asweran 1 minute kada question, maansweran more than 1 minute tungod sa basahon.” [What’s difficult is the long texts to read. The question to answer for 1 minute will be answered more than 1 minute because of the text to read. ] G102

(P) Reason 5 : Very hard/ difficult. Requires a reader to analyse or understand the text before answering Lisud gyud sya. Kinahanglan sabtun ug e analyse pag ayu. Grabe ug di sabtun di gyud makaanswer, Ma’am. [It was really difficult. It had to be understood and analysed well. If not understood, we really could not answer.] G7A1, G7A9, G91, G7A12, G7A13

“Difficult kay laglom ang story or question. Kelangan sabtun ug ayo. Makalisud ang stories, lisud basahon.” [It was difficult because the story or question had deep meaning. It should be understood well. The stories make it difficult, difficult to read.] G104, G105, G106, G107, G108

“Lisud e identify ang paragraph nga nagcontain sa answer.” [It is difficult to

identify the paragraph that contains the answer.] G107

“Naglisud sa articles kay daghan statements nag ingun nga ban naa ang extracurricular pero ang uban ni ingon nga wala.” [We are having difficulty with the articles because of many statements saying extracurricular is banned already while others say it is not banned.] G105, G106, G107, G108

(P) Reason 6 : Stressful not knowing what answers will come out

“Stressful kay wala ka kabalo unsay mugawas nga answers.” [It is stressful because you do not know what answers will come out.] G7A10

“Some of the answers, for me, are correct, but I doubt if correct.” G7A13

“Maglibog ko asa puniton ang answer. Dapat basahon ug tarong para dili ma-wrong.” [I am confused where to find the answer. It should be read comprehensively in order to not be incorrect.] G91

“Di mi kaanswer kung di basahon ug sabton. Kinahanglan jud sabton para makaanswer. Ang gitun an wa nanggawas or nanggawas pero kinahanglan sabtun.” [We cannot answer if we do not read and understand. It has to be understood to be able to answer. The lessons being studied do not come out in the test or come out but need to be understood.] G94, g95, G96, G97, G98, G99, G910

“Wa nako natarong ug analyse ang question. Tag-as ang basahon; nalibog asay answer kay parepareha ang options.” [I am not able to analyse the questions well. The texts to read are long; I am confused which is the answer because the options are plausible.] G7S2

(P) Reason 7 : Not able to review or lesson not discussed in the class

Wala na discuss ang uban. Galisud ko ug analyse sa sentence kay wa natun an ang uban. [Some were not discussed. I hardly analyse the sentence because some were not studied. G7A1, G7A9, G7A10, G93

“Ang uban wana discuss.” [Some were not discussed.] G93

“Ga review review ko sa notebook pero di mao ang ninggawas.” [I reviewed my notes, but what came out was not those I reviewed.] G92

(P) Reason 8 : Plausible choices

“Galibog ko sa answers kay wa gatoon.” [I was confused with the answers because I did not study.] G7S2

“Naglibog ko sa item 39 nga mag check check sa boxes kay ang ubang options mura ug sakto, mura ug parepareha.” [I am confused with item 39 in which there are boxes to check because some options seem correct and similar.] G7A14

R : Why do you think you were not able to answer some items correctly?

P : “Ang uban lisud answeran. Naglibog ko kay taas ang basahon. Naay tulo ka topics basahon adiser answeran ang questions. Inig answer malimtan ang gibasa.” [Some are difficult to answer. I am confused because the texts to read are long. There are three topics to read before answering the questions. I forget what I read when answering.] G7A11

“More on reading sya. Wa nako mabasa ang ubang texts. Galabad na akong ulo. Katugon ka kay taas ug basahonun.” [It is more on reading. I was not able to read some texts. My head was aching. You felt asleep because of long texts to read.] G93

R : What items are difficult to answer?

P : “The items about the articles are hard because I did not get it. I forgot about the articles. I did not remember some of the articles. First time nga 3 topics to read before answering a question.” [It was my first time to read three topics before answering a question.] G7A13

“Wala ko kabalo asa dapit pangitaon ang answers kay taas kaayo ang basahon.”

[I did not know where to locate the answers because the texts to read are too long.] G7A14

“Items 41-42, naglibog ko asa dapit pangitaon ang answer. Taas kayo ang text.” [In items 41-42, I was confused where to locate the answer. The texts to read was too long.] G7A7

“Many get confused in item 69.” G7A9

“Lisud kung wa kabalo sa topic.” [It is difficult if you do not know the topic.] GS711

“Maglisud ug identify sa topic sentence kay kailangan pa basahon. Dapat tarungan

ug basa ang text para makita gyud ang topic sentence.” [It is difficult to identify the topic sentence because there is a need to read. The text should be read comprehensively in order to locate the topic sentence.] G102

“Imo gyud basahon syag ayo para makuha nimo ang answer. Kailangan balik balikon ug basa ang text, di sya makaya ansuran ug isa ka basahon. If nahuman nag basa sa text, pagbasa sa question makalimot napud. Kailangan mubasa napud sa text. Makawa ug gana ang pagbasa kay daghan ang basahon.” [You really need to read comprehensively in order to get the answer. There is a need to read the text again and again. You cannot answer questions in just one reading. If you are done reading the text, you forget about it when you read the question. There is a need to read the text again. Reading makes me unmotivated because there are many texts to read.] G103

“Dili kaayo ko kasabot adtung conflict. Lisud eanalyze what type of conflict.” [I hardly understand about conflict. It is hard to analyse what type of conflict.] G7A12

R : In what ways can you find the test easy to answer?

P : “It is easy because answers can be found on text. We can answer the questions after reading the texts.” G911

: “Multiple choice ra.” [Multiple choice only.] G7S3, G7S6, G7S7, G107, G109, G106

R : Why do you think you got the correct answers?

P: “Naansweran ra nako ang ubang questions kay ang answer mabasa ra sa kinaunhan like sa Academic Writing. Wala na nako nakita ang answers sa bamboo kay taas kaayo ang basahon. Hapit na time ni proceed na ko sa next question. Namili nalang ko sa masabtan nako.” [I answered some questions because the answer could be read in the first part like in the academic writing. I was not able to locate the answers about the bamboo because the texts to read were long. It was almost time, so I proceeded to the next question. I chose to answer the

items that I understood.] G7S4

“Need ug reading comprehension. Kung masabtan ang pangutana, macheck or masakto ang answer. Kinahanglan gyud sya sabtun. Nidut kung dako ug time.” [It needs reading comprehension. If the question is understood, the answer will be correct.] G7S7, G7S8, G7S9, G7S10

“ABCD raman ang uban, Ma’am.” [Some are only ABCD.] G106, G107, G93

R : How do you find computer-based test?

P : Sayun ra sya kay naay guide. Sayon ra kay eclick ra ang right answer.”

[It is easy because there is a guide. It is easy because you just click the right answer.] G91

“Kung matuplukan ang wrong answer, dali ra mailisan ang answer.” [If you click the wrong answer, it is easy to replace that answer.] G92

“Mas nice kaysa sa testpaper kung taas lang ug time para makafocus. Pagtime limit, maglisud ug focus kay maghunahuna mi sa oras.” [It is nicer than the testpaper if the time is long in order to focus. If time is limited, it is difficult to focus because we are thinking of the time.] G91, G92, G93

“OK ra kay makaanswer ra mi dayun. Magbasa ra mi sa text dayun mupili rag ABCD. Nindut sa computer kay dali ra.” [It is okay because we can answer immediately. We just read the text and then choose a letter A, B, C, or D.] G912

Based on the responses, most of the students find the PISA-like reading comprehension test items difficult. There are many unfamiliar words and many of the students are not used to using the English language. In the test, reading long and/or multiple texts confuse learners. In reading those types of text, many forget what they just read. Those long and/or multiple texts also make them feel tired and bored.

Navigation is an essential feature of reading digital texts. Good readers have reading strategies appropriate to do the tasks like minimising reading irrelevant texts to locate necessary information or passages efficiently. PISA assesses reading literacy by engaging students to do tasks with a variety of processes, text formats and situations (OECD, 2019).

Some items require reading and understanding 2 or 3 texts before answering the questions. That’s why, it is difficult for them to answer the questions. Some students find the test time-consuming. Also, most of them are not used to answer a 100-item test and some find it stressful, not knowing what

answers will come out and some of the options seem all the answers (plausible). Many find the PISA-like reading comprehension test very hard/ difficult as it requires them to understand, analyse, synthesise or evaluate texts before answering. However, some students say that there are easy items— those in multiple choice type, but get wrong answers in many of those items. Maybe some of them just guess or choose from the given options without understanding.

Moreover, some of the students claim that they are not able to review or the lesson is not discussed in the class. Actually, the test assesses students based on competencies. In some of the test items, the teacher requires students to demonstrate the competencies practised through a story, but another story is given to assess the same competencies, so there would be no rote memorisation or simple recall. Instead, learners had to read and understand well the new stories or texts to prove that they met or acquired the target competencies.

PISA assesses students' efficiency and metacognitive aspects in reading. In PISA reading, the test does not call for rote memorisation, instead, it requires students to comprehend what they read and solve problems related to real life situations. While there may be individual differences in *reader* factors based on the skills and background of each reader, these are not manipulated in the cognitive instrument but are captured through the assessment in the questionnaire (OECD, 2019).

## SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

### Construction of PISA-Like Reading Comprehension Test

To develop PISA-like reading comprehension test anchored on DepEd K to 12 English 7 MELCs, the researcher applied the PISA's approximate distribution of tasks per targeted process and text availability in designing the TOS and outlined and considered the eight indicators of PISA reading literacy assessment that served as the basis in selecting the texts and contexts and in constructing the test items.

In designing the TOS, the researcher applied the PISA's approximate distribution of tasks per targeted process and text availability. Tasks or cognitive processes were categorised under single and multiple texts in approximate or particular percentage: for single text - scan and locate 15%, literal comprehension 15%, inference comprehension 15% and for multiple text- assess quality and credibility/ reflect on content and form 20%, search and select relevant text 10%, inference comprehension 15% and corroborate/ handle conflict 10%, a total of 100%. Applying PISA's approximate distribution of tasks per targeted process and text availability

made the TOS in this study different from the usual TOS.

In selecting the texts and contexts and in constructing the test items, eight indicators were considered: (1) the cognitive processes that were reflected in approximate distribution embedded in the TOS; (2) text formats used were continuous, non-continuous, mixed and multiple texts; (3) the text types used were description, narration, exposition, argumentation, instruction and transaction; (4) the test types used were multiple choice, complex multiple choice, short answer, fill-in-the blank and identification; (5) the situations or contexts were personal, public, educational and occupational; (6) the levels of questions were remembering, understanding, applying, analysing, evaluating and creating; (7) the types of questions were literal, inferential and evaluation; (8) text medium was print or digital and text environments were authored and message-based.

### Contributing Factors of Students' Performance in PISA-Like Reading Test

To know the contributing factors of PISA-like reading comprehension test, the researcher interviewed the participants and developed five (5) themes.

PISA-like reading comprehension test does not call for rote memorisation, instead, it requires reading, understanding, analysing, synthesising and/or evaluating texts before answering. That's why, some students said that they did not know what answers would come out and the texts were not discussed in the class.

Students hardly understand what they read and hardly construct sentences in English because of the many words they are unfamiliar with and many of them are not used to the English language.

Many students are not used to reading long passages and multiple texts before answering questions. Some students find one hour and 30 minutes not enough to answer a 100-item test. Many students find a 100-item test very long. Test takers will require much time if they read without reading strategies since there are many texts for them to read before answering questions.

Some students feel confused, bored, nervous, tired and stressed and tend to forget what they just read when reading multiple texts and/or long passages in a test.

Items have plausible options.

### Response Formats and Item Difficulty

Identification test that calls for scanning and locating information only may not be in multiple choice type to

refrain students from guessing answers from the given options. It may be better to ask them to write the answer without options to choose from. In that way, the test will not be simply recalling of facts.

In addition, the assessment in reading or other subjects may include not only one but also two or more texts or passages such as two or more articles to read followed by questions about what they read, so students will be used to reading not only one but also multiple (two or more) texts or passages before answering questions. That is, for them to practice using reading strategies and develop more of their Higher Order Thinking Skills.

With computer-based assessment, response formats include highlighting and dragging-and-dropping, multiple choice and short constructed-response. Several studies on PISA suggest that the response format significantly affects students' scores. The difficulty of items go through cognitive processes, tasks and text format variables (OECD, 2019).

### Reliability, Validity and Practicality of PISA-Like Reading Comprehension Test

The results of this study yield PISA-like reading comprehension test items that are: (1) valid as these adhere to the PISA reading literacy criteria, and the sets of questions are highly reliable; (2) practical because teachers agree that the questions can assess students' reading literacy and thinking skills; (3) effective because the mean score of students, although very low, reflects the 2018 PISA Reading result.

### CONCLUSION

The TOS was designed before constructing test questions. In developing a PISA-like reading comprehension test, the test developer used the English 7 MELCs and applied in the TOS the PISA's approximate distribution of tasks per targeted process and text availability. Applying PISA's approximate distribution of tasks per targeted process and text availability made the TOS in this study different from the usual TOS.

Factors affecting item difficulty was based on the eight indicators of PISA reading literacy assessment that served as the basis in selecting texts and contexts and in constructing the test items. The eight indicators were (1) cognitive processes grouped according to text formats--for single text---scan and locate information 15%, literal comprehension 15% and inference comprehension, 15% and for multiple text---assess quality and credibility/ reflect on content and form 20%, search and select relevant text 10%, inference comprehension 15% and corroborate/ handle conflict 10%, a total of 100%, (2) text formats---continuous, non-continuous, mixed and multiple texts, (3) text types---description, narration,

exposition, argumentation, instruction and transaction, (4) test types---multiple choice, complex multiple choice, short answer, fill-in-the blank and identification, (5) situations or contexts -- personal, public, educational and occupational, (6) levels of questions---remembering, understanding, applying, analysing, evaluating and creating, (7) types of questions---literal, inferential and evaluation, (8) text medium---print and digital and text environment---authored and message-based.

The developed PISA-like reading comprehension test is not perfectly PISA but similar to PISA. It is PISA-like in the sense that it is anchored on English 7 MELCs, the PISA's approximate distribution of tasks per targeted process and text availability applied in TOS and the eight indicators for factors for item difficulty in PISA reading literacy assessment. Moreover, it is only PISA-like because the indicators do not include reading proficiency levels in PISA and do not deal much with item difficulty for each level.

### RECOMMENDATIONS

The assessment may be standardised or may be made similar to PISA by applying the approximate distribution of tasks per targeted cognitive process and text availability to the TOS and by considering the eight indicators of PISA as factors affecting item difficulty in choosing the texts and contexts and in constructing the test questions. Teachers may refrain from giving tests that only ask students to recall or simply remember the lessons.

For further studies, test developers or researchers may design an assessment intended for the different reading proficiency levels of PISA reading literacy assessment, so item analysis and item difficulty in PISA reading literacy assessment will be examined in detail.

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