

Reading Speed Metrics as Predictive Indicators of Reading Comprehension: A Data-Driven Analysis Among Elementary Learners

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ABSTRACT

This study was conducted to evaluate the pupils' reading level with the inclusion and exclusion of reading speed as a measure of comprehension in order to provide empirical data supporting Schema Theory. The respondents were randomly selected Grade 4 pupils from one of the districts in the Division of Zamboanga City enrolled during the School Year 2017–2018. The study utilized a Descriptive-Quasi-Experimental Quantitative Research Design. To answer the research questions, the Phil-Informal Reading Inventory (Phil-IRI) Silent Reading Passages were administered to two groups of pupils. Interviews and classroom observations were likewise conducted to support the quantitative findings and facilitate data triangulation. The results revealed that reading speed is not a measure of reading comprehension among the randomly selected Grade IV pupil-respondents. Furthermore, both groups—those assessed with the inclusion of reading speed and those assessed without it—were classified under the frustration level, the lowest category of reading proficiency among elementary pupils. Although both groups belonged to the same reading level and their reading scores showed no significant difference, pupils assessed without the inclusion of reading speed obtained relatively higher reading scores. The findings suggest that eliminating reading speed from the reading assessment process using the Phil-IRI passages may improve pupils' reading scores. The study further supports the claim that reading speed and reading comprehension may operate in competition rather than complementing one another.

Keywords: reading speed, silent reading, Phil-IRI, assessment, data-driven evaluation

Introduction

Today, more than ever being able to read is critical for one to be able to survive in our contemporary society. According to Gillaco ,(2014), reading is the training of the mind and the means to attain deeper meaning of reality. Hence, the role of reading teachers in the teaching of reading at the primary education is crucial part in the pursuit to providing relevant strategies in the teaching of reading skills to beginners to making them better able to meet the different challenges in life. However, reading without comprehension is only decoding or just uttering the printed symbols. Reading comprehension must be the basic consideration of all readers. The skill such as acquiring the current meaning, analyzing the author's point of view and applying what one learns from reading to

real-life situations are what constitute reading comprehension (Santos, 2003). Thus, reading alone is not enough. There must be comprehension so that learners may not only focus on the text but also on the interpretation of its deeper meanings.

Although the present curriculum has made reforms on the competencies in the elementary education, its impact on pupils remains an area of concern on the ground specially among school administrators and reading teachers themselves. Saavedra (2020) stated in her study that the reading skills of the pupils are also one of the problems that most of the schools noted in their School Improvement Plan (SIP) for the school year 2014-2015. This was found out after the yearly assessment of the reading skills of pupils particularly in English and Filipino using the Philippine Informal Reading Instrument (Phil-IRI) which is a standardized tool utilized by all elementary public schools nationwide. As reflected in the consolidated report of the Phil-IRI, most of the pupils in the Division of Zamboanga City belonged to the Frustration Level, the lowest level of reading skills. This observation is very alarming since reading is a macro skill which should be given attention. Basically, poor reading skills could lead to poor performance of the pupils academically. In this respect, if the school has many poor reader pupils, this will later on lead to the poor performance of the school as well.

In the reading assessment using the Philippine Informal Reading Inventory (Phil-IRI), part of the reading assessment of the pupils is the speed it took in reading the whole passage. It is being considered in the assessment of the over-all reading ability of the pupil with its comprehension. So the researcher was moved to pursue on the quest for more recent development to seek and to generate new facts and information, which shall be beneficial to streamline innovations relevant to the reading level of the pupils. Hence, this study was conceptualized to evaluate the pupils' reading level with the inclusion and exclusion of reading speed as a measure of comprehension.

Research Objectives

This study attempted to evaluate the pupils' reading level with the inclusion and exclusion of reading speed level as a measure of comprehension. Specifically, it sought answer to the following questions:

1. What is the over-all reading level of the pupil-respondents with the inclusion of the reading speed as a measure of comprehension?
2. What is the over-all reading level of the pupil respondents with the exclusion of the reading speed as a measure of comprehension?
3. Is there a significant difference in the reading level between the pupil-respondents whose reading speed is a measure of comprehension and those pupil-respondents whose reading speed is not a measure?

Research Literature and Studies

Reading speed is the rate at which a person reads written text (printed or electronic) in a specific unit of time. Reading speed is generally calculated by the number of words read per minute. It is also determined by a number of factors, including a reader's purpose and level of expertise as well as the relative difficulty of the text. Frank (1990) has estimated that a "rate close to 250 words-per-minute is the average reading speed of most people, including junior high school students" (*Remember Everything You Read*, 1990).

Speed reading is also defined as the process of rapidly recognizing and absorbing phrases or sentences on a page all at once, rather than identifying individual words. The amount of information that we process seems to be growing by the day, whether it's emails, reports and websites at work, or social

media, books and magazines at home. We likely feel pressure to get through this information more quickly, so that we can "stay in the loop" and make informed decisions. Most people read at an average rate of 250 words per minute (wpm), though some are naturally quicker than others. But, the ability to speed read could mean that you double this rate (Frank, 1990).

Speed reading is not just reading fast all the time. The technical content of the material, the print size, your familiarity with the subject and, particularly, your purpose in reading can affect the speed at which you read. The key to speed reading is having the choice to read as fast or as slow as you wish. "No matter how fast your reading speed, unless you remember what you read you will have wasted your time." (Hodder & Stoughton, 2003)

In addition, the mind, unlike the eye, does not need to 'read' only a word or short phrase at a time. The mind, that astounding instrument, can grasp a sentence or even a paragraph at a 'glance'--if only the eyes will provide it with the information it needs. Thus the primary task--recognized as such by all speed reading courses--is to correct the fixations and regressions that slow so many readers down. Fortunately, this can be done quite easily. Once it is done, the student can read as fast as his mind will let him, not as slow as his eyes make him.

There are various devices for breaking the eye fixations, some of them complicated and expensive. Usually, however, it is not necessary to employ any device more sophisticated than your own hand, which you can train yourself to follow as it moves more and more quickly across and down the page. You can do this yourself. Place your thumb and first two fingers together. Sweep the 'pointer' across a line of type, a little faster than it is comfortable for your eye to move. Force yourself to keep up with your hand. Keep practicing this, and keep increasing the speed at which your hand moves, and before you know it you will have doubled or trebled your reading speed (Mortimer J. Adler and Charles Van Doren, *How to Read a Book*, rev. ed. Simon and Schuster, 1972)

Theoretical Framework

This study is anchored on the Schema Theory (Smith, 1994). One of the reading theories which is highly associated to the reading speed and comprehension among young learners is the schema theory which also has a major impact on reading instruction. It describes in detail how the background knowledge of the learner interacts with the reading task and illustrates how a student's knowledge and previous experience with the world is crucial to deciphering a text. The ability to use these schemata, or background knowledge, plays a fundamental role in one's trial to comprehend a text.

Schema theory is based on the notion that past experiences lead to the creation of mental frameworks that help a reader make sense of new experiences. Smith (1994: 14) calls *schemes* the "extensive representations of more general patterns or regularities that occur in our experience". For instance, one's generic scheme of an airplane will allow him to make sense of airplane he has not previously flown with. This means that past experiences will be related to new experiences, which may include the knowledge of "objects, situations, and events as well as knowledge of procedures for retrieving, organizing and interpreting information" (Kucer, 1987: 31). Anderson (1994: 469) presents research showing that recall of information in a text is affected by the reader's schemata and explains that "a reader comprehends a message when he is able to bring to mind a schema that gives an account of the objects and events described in the message". Comprehension is the process of "activating or constructing a schema that provides a coherent explanation of objects and events mentioned in a discourse" (Anderson, 1994: 473). For Anderson and Pearson (1988: 38), comprehension is the interaction between old and new information. They emphasize: "To say that one has comprehended a text is to say that she has found a mental 'home' for the information in the text, or else that she has

modified an existing mental home in order to accommodate that new information". Therefore, a learner's schemata will restructure itself to accommodate new information as that information is added to the system (Omaggio, 1993). This theory can be linked to the present study because it is assumed that respondents may be able to comprehend the reading passage with the help of their stock knowledge (schema) with or without speed in reading.

Methodology

This study evaluated the pupils' reading level with the inclusion and exclusion of reading speed level as a measure of comprehension. It is confined to the selected Grade IV pupils in one of the districts in the Division of Zamboanga City. They were enrolled in the school year 2017-2018 during the conduct of the study. The district is composed of seven schools, however only four schools voluntarily participated in this study. The other three schools of the District and other Grade level are part of the exclusion of the study. This research made use of the Descriptive-Quantitative-Quasi-Experimental Research Design. The quantitative part is taken from the respondents' scores on the silent reading passages adapted from the Phil-IRI (Morris and Gunning, 2008). A total of 168 respondents voluntarily participated in this study which comprised of 80 pupil-respondents who were also part of the group with the inclusion of the reading speed (control group) who were exposed with visual and performing arts activities, 80 pupil-respondents who belonged to the group with the exclusion of the reading speed (experimental group) and the eight (8) teacher-respondents who are also teaching in the four (4) participating schools in the District where the study was conducted.

This study was purposely conducted to answer the six (3) research questions stated in the earlier part. To answer all the research questions and for the purpose of triangulation, three (3) research instruments were utilized as instruments such as: (1) Phil-IRI Silent Reading Passages (Morris and Gunning, 2008), validated interview questionnaire and class observations.

After everything was cleared and understood, the researcher started administering the Phil-IRI silent reading test to the group of pupils with the inclusion of reading speed (control group) following the procedure indicated in the Phil-IRI manual.

Ethical Consideration

When the clearance for Ethics Implementation was granted to the researcher, the researcher immediately sought permission from the office of the Schools Division Superintendent Department of Education (DepEd), of Zamboanga City. Upon the approval of the permission to conduct the study, the letter was sent to all the school principals of the participating schools where the study was conducted. Both the teacher-respondents and the pupil-respondents were properly coordinated and oriented under the guidance of the respective school heads. When the schedules were set, the researcher started with the orientation to the pupil and teacher-respondents. During the orientation, the important details about the present study which includes the objectives and the process of the research were clearly discussed. The rights and privileges of the respondents were also discussed wherein it was made clear to them that their identity will be dealt with utmost confidentiality and their participation should be voluntary. Parents' Assent for the pupil-respondents and informed consent for the teacher-respondents were secured before the data gathering.

Data Analysis Procedure

The scores of the pupil-respondents in the control group with the inclusion of the reading speed were encoded in the Phil-IRI template and were interpreted automatically by the software. Table 0.3 below shows the rubric used to interpret the reading level of the pupil-respondents in the group with the inclusion of speed.

Table 1. Phil-IRI Silent Reading Test Criteria for Control Group (with the Inclusion of the Reading Speed)

Reading Level	Reading Speed Word Per Minute (WPR)	Comprehension
Independent	160 below	90% -100% correct answers
Instructional	161-189	75%-89% correct answers
Frustration	190 above	74% below correct answers

Whereas, to interpret the reading level of the pupils in the group with the exclusion of the reading speed, the criteria used by the researcher were still taken in the Phil-IRI manual (2008).

Table 2. Phil-IRI Silent Reading Test Criteria for Experimental Group (with the Exclusion of the Reading Speed)

Reading Level	Comprehension
Independent	90% -100% correct answers
Instructional	75%-89% correct answers
Frustration	74% below correct answers

Results and Discussion**On the Overall Reading Level of the Pupil -respondents with the Inclusion of the Reading Speed Level as a Measure of Comprehension**

Table 3. presents the over-all reading level of the pupil -respondents with the inclusion of the reading speed as a measure of comprehension. As shown in this table, the pupil-respondents fall under frustration level with the mean of 38.01 and are homogenously grouped in terms of their over-all reading level with a standard deviation of 16.38. This means that the pupil-respondents reading level with the inclusion of reading speed as a measure of comprehension is still on the process of development.

Investigations on the impact/effect of reading speed in the reading comprehension among learners have been widely carried out. It is an issue that sparks constant debate not only among recent researchers. Though there are various studies supporting the connection between reading speed and reading comprehension, however, there are also research that presented argument to this relationship. Samuel (1976) claimed that when a learner read a text with speed, comprehension may decrease because attention is not involved in the reading process. Brumfit (1985), Carver (1990) and Champeau de Lopez (1993) will result to reduction of comprehension since the execution of reading with speed leads to low-level processes which makes the action ineffective. It is claimed that reading speed and reading comprehension work in competition and do not complement each other. Thus, the over-all reading level of the pupil -respondents in this study with the inclusion of the reading speed as a measure of comprehension falls under frustration level.

Table 3. Pupil Respondents Overall Reading Level with the Inclusion of the Reading Speed Level as a Measure of Comprehension

Variable	Mean	SD	Reading Level
Overall Reading Level	38.01	16.38	Frustration

n= 80 (90-100 Independent; 75-89 Instructional; 74- below Frustration)

On the overall Reading Level of the Pupil-Respondents with the Exclusion of the Reading Speed Level as a Measure of Comprehension

Table 4. points out the over-all reading level of the pupil-respondents with the exclusion of the reading speed as a measure of comprehension. Looking closely at this table, it shows that the over-all reading level of the pupil-respondents belongs to the frustration level with the mean of 39.07 and standard deviation of 26.02 which suggests that pupil-respondents in this group are homogenous in terms of their reading level. This means that even the exclusion of reading speed, the pupil-respondents' reading level still belonged to the lowest reading level.

It is a common inference that without time pressure in reading, one can significantly increase his/her reading comprehension. Though Fraser (2007) agrees that automatic word processing which is a significant component of speed in reading is a good indicator of reading comprehension. He also argued that presence or absence of speed does not alone determine the failure and success when it comes to the reading comprehension of a learner. Reading comprehension is profoundly affected and determined by various factors such as the learners' purpose of reading, the nature of the tasks given, difficulty of the text/reading materials, familiarity of the topic being read, or even physical conditions of the learners or the readers. These factors may have contributed to the frustration level in terms of the reading comprehension of the pupil-respondents of this study even with the absence of pressure in time.

Furthermore, this result is in consonance with the idea of Chang (2010), based on the concept of working memory. She proposed that the absence of time pressure or speed does not stimulate the working memory to store and process information. She explained that when learner reads very slowly (below 200 word per minute), they may be reading word by word; hence, they tend to forget what is being read, resulting to poor comprehension.

Table 4. Pupil Respondents Over-all Reading Level with the Exclusion of the Reading Speed Level as a Measure of Comprehension

Variable	Mean	SD	Reading Level
Overall Reading Level	39.07	26.02	Frustration

N= 80 (90-100 Independent; 75-89 Instructional; 74- below Frustration)

On the Significant Difference in the Reading Level Between the Group with the Inclusion of the Reading Speed as a Measure of Comprehension and the Group with the Exclusion of the Reading Speed as a Measure of Comprehension

Table 5. shows the significant difference in the reading level between the two groups of pupil-respondents in this study; the group of respondents whose reading speed level is a measure of comprehension and those pupil-respondents whose reading speed level is not a measure. Respondents with the inclusion of reading speed or the control group got a mean of 38.01 with a standard deviation of 16.38 while the pupil-respondents with the exclusion of reading speed or the experimental group got a mean of 39.07 with standard deviation of 26.02. Given the T value of -0.308 with the probability value of .758, it is not significant at $\alpha=0.05$. Hence, there is a sufficient sample evidence to prove that speed did not contribute a significant disadvantage on the reading comprehension of the pupil-respondents who were under time pressure and significant gains on the reading comprehension of the respondents whose reading speed level is a measure of comprehension.

The result of this study supports the research carried out by Chang (2010) which explored the effect of a timed reading activity on EFL learners' speed, comprehension, and perceptions. Specifically, her study aimed to answer whether students who received the timed reading intervention comprehend better than those who did not. It was shown there was no significant difference found in terms of comprehension among the two groups.

Further, the result of this study agrees with Armagan and Genc (2017). They researched on the impact of timed reading on comprehension and speed and sought to answer the question if EFL students who did not receive a timed reading intervention improve their comprehension during the study. Their study yielded a result showing that the difference of control group's (did not receive a timed reading intervention improve their comprehension) pre-test and post-test is not statistically significant considering comprehension.

Salian's (2024) study also suggests that mobile fiction applications provide learners with accessible and engaging reading opportunities that can strengthen their literary competence and comprehension skills. As students become more familiar with digital texts through regular reading on mobile platforms, they may develop greater reading fluency and efficiency. However, consistent with research on reading comprehension, improvements in reading speed should not be viewed as the primary indicator of reading success. Rather, the value of mobile fiction apps lies in their capacity to promote meaningful engagement with texts, enabling learners to construct understanding and interpret literary content effectively while reading at a pace that supports comprehension.

Table 5. Overall Reading Level Between the Group with the Inclusion of the Reading Speed and the Group with the Exclusion of the Reading Speed as a Measure of Comprehension

Variable	Group	Mean	SD	Mean Difference	T Value	Sig	Interpretation
Overall Reading Level	Group with the inclusion of the reading speed as a measure of comprehension	38.01	16.38	-1.06	-0.308	.758	Not Significant
	group with the exclusion of the reading speed as a measure of comprehension	39.07	26.02				

Margin of error @0.05

Conclusion

Based on the findings of this study, it is safe to conclude that speed is not a measure of reading comprehension among the selected Grade IV pupils in one of the districts of the Department of Education in the City. The study found that the pupil-respondents assessed with the inclusion of reading speed and those assessed with the exclusion of reading speed both fell under the frustration level, the lowest category in the reading levels of elementary pupils. The results further suggest that the pupils' schema or prior knowledge may not have been sufficiently activated during the reading activity. This indicates that they may not have effectively recalled or connected information from the text to their existing knowledge. According to Bransford (1994), difficulties in comprehension may be attributed to the lack of background knowledge presumed by the text.

Therefore, the readers' schemata were not adequately activated at the time the study was conducted. They were unable to bring to mind a schema that could account for the objects and events described in the passages they read. As explained by Omaggio (1993), learners' schemata must be restructured to accommodate new information for meaningful comprehension to occur. Although the study found that the pupils' reading levels with and without the inclusion of reading speed fell within the same category, it is noteworthy that the pupil-respondents obtained higher reading scores when reading speed was excluded from the assessment. This finding supports the view of Hodder and Stoughton (2003) that effective reading involves the flexibility to read as fast or as slowly as necessary. Similarly, Samuel (1976) argued that excessive focus on speed may reduce comprehension because attention is not fully engaged in the reading process. Brumfit (1985), Carver (1990), and Champeau de Lopez (1993) likewise maintained that reading speed and reading comprehension may compete rather than complement each other, resulting in reduced comprehension when speed becomes the primary focus.

These findings support the view that effective reading involves flexible pacing according to readers' needs rather than adherence to predetermined speed requirements. Furthermore, the study underscores the importance of data-driven evaluation in reading assessment, as empirical evidence enables educators to identify meaningful indicators of reading achievement and make informed instructional decisions. By leveraging data analytics in literacy assessment, schools can develop more

accurate, learner-centered intervention programs that prioritize comprehension outcomes and enhance reading proficiency among elementary learners.

Recommendation

Therefore, anchoring on this premise, the study concludes that eliminating reading speed in the process of reading assessment using the Phil-IRI passages may improve the reading score of the pupil-respondents. Thus this study highly recommends to the Department of Education Curriculum Planner Technical Group to look into the exclusion of the reading speed as a component of the reading assessment as one of the standard guidelines in the Phil-IRI reading assessment.

This study also recommends for curriculum planner for a review of the curriculum content of the education courses particularly in teaching reading. Also conduct a consultation with students, parents, and reading teachers to look into the appropriateness and suitability of the reading assessment (Phil-IRI instrument to the reading characteristics and abilities of the Filipino children or conduct further study on other factors e.g. environment, learning experiences and preparedness of the learners which might be contributory to the failing result.

Furthermore, this study encourages educators to develop and implement a data-driven Reading Analytics Information System that integrates reading speed, comprehension scores, learner profiles, and assessment results to provide real-time monitoring and predictive insights into students' reading performance. Such a system can assist teachers and school administrators in identifying learners at risk of poor reading comprehension, generating individualized intervention plans, tracking progress over time, and supporting evidence-based decision-making for literacy instruction.

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