JOURNAL OF EDUCATION AND INNOVATION

Research Article

THE RELATIONSHIP BETWEEN READING FLUENCY COMPONENTS AND COMPREHENSION SKILLS: A DESCRIPTIVE CORRELATIONAL STUDY

Received: March 27, 2023 **Revised:** September 10, 2023 **Accepted:** October 6, 2023

Bebielyn Balnig[1] Lovely Joy Guibone[2] and Rivika Alda[3*]

[1]Asian College of Technology International Educational Foundation-Main Campus, Philippines

[2]Tagjaguimit, City of Naga, Philippines

[3]Cebu Normal University, Philippines

*Corresponding Author, E-mail: aldar@cnu.edu.ph

Abstract

Reading fluency and comprehension are two fundamental components of reading development that play a crucial role in students' academic success. However, the nature of the relationship between these two skills remains unclear. This research therefore aimed to investigate the relationship between students' reading fluency and comprehension skills. The study employed a descriptive correlational research design and utilized three measures of reading fluency - accuracy, automaticity, and prosody - to assess the participants' reading fluency level. Pearson correlation analysis was used to determine the relationship between the fluency components and comprehension at a significance level of 0.05. The results revealed that while accuracy and prosody did not show a significant correlation with reading comprehension, automaticity exhibited a statistically significant relationship with reading comprehension. Students who demonstrated higher automaticity scores also exhibited higher reading comprehension scores. However, the directionality of this relationship remains unclear. Therefore, this study recommends further research to investigate effective strategies for improving reading automaticity and interventions for enhancing reading accuracy and prosody skills. The findings of this study could be used to develop effective interventions to enhance students' reading fluency and comprehension, ultimately leading to improved academic outcomes.

Keywords: Comprehension Skills, Reading Fluency, Reading Automaticity, Reading Comprehension

Introduction

Reading is a foundational skill that is critical for academic success and lifelong learning. It is the basis for acquiring knowledge and skills in all subjects, including math, science, and social studies. It is an essential skill for functioning in today's society. In today's world, the ability to read is necessary for many jobs, as well as for understanding news, information, and instructions. Strong reading skills also enable individuals to engage in critical thinking, problem-solving, and decision-making, which are vital for success in all aspects of life. For these reasons, developing strong reading skills is crucial for individuals, communities, and nations to thrive in the 21st century.

Reading comprehension is a fundamental skill that enables individuals to extract meaning from text. According to Cain and Oakhill (2011), reading comprehension involves both bottom-up and top-down processes. Bottom-up processes refer to decoding, recognizing words, and understanding the meaning of sentences, while top-down processes involve using prior knowledge, predicting, and understanding the context. Therefore, reading comprehension is an interactive process that requires the reader to integrate their linguistic and cognitive abilities. According to Leipzig (2001), reading comprises a varied process involving word recognition, comprehension, and fluency, which many consider the fundamental components of reading instructions that help teachers teach reading to students.

Nevertheless, an evaluative study on reading impact revealed that among the five essential components of reading instruction, fluency was found to be the least important compared to the rest of the components (Gamse et al., 2008). Teachers are more focused on teaching and enhancing the student's reading comprehension skills, putting aside nurturing their reading fluency skills (Allington, 2006; Bigozzi et al., 2017). However, Rasinski et al. (2015) asserted that reading fluency is a critical component of successful reading instruction. They further reiterated that reading fluency involves three components; the rate of one’s reading, the accuracy at which words are pronounced, and the prosody (meaning expression). Accuracy refers to the ability to read words correctly, rate refers to the speed of reading, and prosody refers to the use of appropriate phrasing, intonation, and expression. According to Schatschneider et al. (2004), these components are interrelated, and deficits in any of these components can lead to reading difficulties. LaBerge and Samuels (1974) argued that good readers must also be automatic in their word decoding. When readers develop automaticity in text processing, they become effective in text processing, beginning with letters, syllables, whole words, and phrases. According to Rasinski and Padak (2008) prosodic features, such as rhythm and stress, can help children to develop an awareness of the sound patterns in language, which is an important prerequisite for reading.

Several studies conducted revealed a significant connection between fluency and comprehension. Kim et al. (2021) found that fluency components such as accuracy, rate, and prosody are closely related to reading comprehension. The ability to read fluently is a critical component of reading development, and fluency is highly related to reading comprehension. Fluent readers can read the text more quickly, accurately, and with appropriate prosody than non-fluent readers (Rasinski, 2017). In contrast, non-fluent readers may experience

challenges with reading comprehension, which can affect their academic performance across all subjects. Furthermore, studies have shown that these components are highly interdependent, with accuracy and fluency influencing each other (Kuhn & Stahl, 2003). Students who struggled with fluency also had problems understanding what they read. In a study conducted in 1995, the National Assessment of Educational Progress (NAEP) found that nearly half of the fourth graders who participated in the study were incompetent to read fluently and demonstrated difficulty comprehending what they read. Pikulski and Chard (2005) aptly describe fluency as a bridge between word recognition accuracy (phonics) and reading comprehension.

Consequently, research on reading in the Philippines is essential because of the current challenges in reading proficiency among Filipino students. According to the Philippine Informal Reading Inventory (Phil-IRI) National Report in 2019, only 50.44% of grade 4 students are considered proficient readers. This percentage is even lower among grade 6 students at 48.24%. Additionally, the report shows that there is a decline in reading comprehension skills among students from grades 4 to 6.

The current status of reading performance among students in the Philippines is a cause for concern. According to the 2018 Programme for International Student Assessment (PISA), the Philippines ranked 79th out of 79 countries in reading comprehension, with an average score of 340 (Schleicher, 2019). This is significantly lower than the global average of 487. The same assessment also revealed that more than half of Filipino 15-year-olds could not comprehend basic reading tasks, such as identifying the main idea of a text. Additionally, the 2019 Southeast Asia Primary Learning Metrics (SEA-PLM) showed that the majority of grade 5 students in the Philippines were not proficient in reading, with only 5% achieving the minimum proficiency level. The poor reading performance of Filipino students can be attributed to various factors, including inadequate resources for reading instruction, lack of teacher training in teaching reading, and a shortage of reading materials. The government has implemented several programs and policies to address the issue, such as the K-12 program, which aims to improve the quality of basic education in the country, and the National Early Language and Literacy Program (NELLP), which seeks to enhance the reading and writing skills of kindergarten to grade 3 learners. Further, the Department of Education (DepEd) released the DepEd Memo No 173, s. 2019 entitled “Hamon: Bawat Bata Bumabasa (3Bs Initiative) to fill the gaps and improve and strengthen the reading skills of the students. However, it remains to be seen whether these initiatives will have a significant impact on reading performance in the country.

Thus, this study aimed to assess the reading fluency and comprehension levels of grade 7 students. Even with their age and grade level, the expected reading competencies are not yet mastered. This study also sought to figure out whether fluency and comprehension have a significant relationship that might affect the student's reading performance. Researching reading is crucial because it can provide insights into the factors that contribute to low reading proficiency and comprehension skills among Filipino students. It can also help teachers design appropriate reading interventions to improve and strengthen students' proficiency in reading.

Research Objective

This study examines whether there is a correlation between the student's reading fluency (accuracy, automaticity, and prosody) and their reading comprehension skills.

Research Methodology

Research Design and Respondents

The study utilized a descriptive correlational research design to determine the student's oral reading fluency and its components, respectively, the accuracy, automaticity, and prosody, as well as their reading comprehension skills. It also looks to discover whether there is any correlation between a student's reading fluency and comprehension abilities. The purpose of this study is to determine whether or not students' reading fluency increases their understanding, if there is a relationship between the two, or if there is none at all. The participants of this study are grade 7 students at one of the secondary schools in Cebu province. From among the five sections in grade 7, one group is purposively selected having been identified as least performing in terms of comprehension skills. There were thirty-three (33) students in the group; 14 of whom are male, and 19 are female.

Research Instruments

The study used the PHIL- IRI (Philippine Informal Reading Inventory) as the main material for the reading test to gather the necessary data for the study. The Phil- IRI comprises graded passages where the readability levels of each text are tailor-fitted to the grade level intended for that learning material. These graded passages are outlined to ascertain students' reading performance in terms of their oral reading, silent reading comprehension, and listening comprehension skills. Although, this study only focuses on the student's oral reading and silent reading comprehension skills. The researchers adopted three (3) assessment tools to assess and measure the students' reading performance: Informal Reading Inventory (IRI), Curriculum-Based Measurement (CBM), and Multidimensional Fluency Scale.

The Informal Reading Inventory (IRI) is a diagnostic tool used to assess student's reading accuracy and comprehension skills to determine their reading performance. The word accuracy is determined by the percentage score from the oral reading by counting the total number of words in the passage and then subtracting the number of miscues or errors committed by the student during the reading task. After that, divide it by the total number of words in the passage and multiply the result by one hundred (100) to get the reading accuracy scoreof the student. The Informal Reading Inventory (IRI) is composed of three (3) reading levels, the Independent, Instructional, and Frustration levels. It is an assessment tool used to determine how well students recognize and decode words from a selection. It helps the researchers determine whether a student is an independent, instructional, or frustrated reader.

The second assessment tool used in this study is the Curriculum-Based Measurement (CBM/Oral Reading Fluency (ORF). Through Curriculum-Based Measurement (CBM), the researchers can measure

the student's reading automaticity(rate/speed). This assessment involves marking and rating the oral reading miscues, calculating the score for each passage, and keeping track of the speed of students' oral reading performance through recording. The Curriculum-Based Measurement (CBM/Oral Reading Fluency (ORF) only takes sixty (60) seconds to accomplish it.

The last assessment tool used to assess the prosody in reading is the Multidimensional Fluency Scale by Zutell and Rasinski (1991). It is used to measure the student's prosodic fluency or how well they express themselves or speak in terms of loudness, phrasing, smoothness, and tempo. It assesses how students interpret and comprehend the implied message of the text by utilizing the different prosodic featurespresent in the selection.

Data Gathering Procedure and Analysis

To administer the reading test and gather data, the researchers send a transmittal letter to the school head and adviser/ teacher of the participants to ask permission to conduct the study. After the school granted the request, the researchers administered the reading test to gather the necessary data for the study. To obtain the data for reading accuracy, the researchers conducted a one-on-one reading session with every student. The researcher let the students read a graded passage for grade 7 from the Phil-IRI and record the task. Then, the researchers note and mark the errors and miscues committed by the students using the Phil- IRI Form 3B: Grade LevelPassage Rating Sheet.

To get the student's automaticity in reading, once again, the researchers conducted a one-on-one reading session with the students. Using a reading selectionfrom the grade 7 book, which is provided by the Department of Education (DepEd),the researchers let the students read the text within 60 seconds. The researchers record every reading performance of all the students, mark the error during the task, and count the total number of words read correctly to compute the reading rate usingthe Curriculum-Based Measurement (Stanley, 1993).

To acquire the data for prosody in reading, the researchers conducted the same procedure where students read a selection from the grade 7 book individually and separately. The researchers record the reading performances of the students. However,this time the researchers assess the expressive reading skills of the students using an assessment rubric called the Multidimensional Fluency Scale of Zutell and Rasinski (1991). The scale rates the reader fluency on the dimensions of expression and volume, phrasing, smoothness, and pace. Scores range from 4 to 16. Meanwhile, to assess the student's reading comprehension levels, the researchers use the graded passages from the Phil-IRI, where each comprehension question is labeled according to their levels. After all the students answer the comprehension test, the researchers collect the material to check and compute the scores.

The researchers used the Pearson Correlation Analysis to analyze the data and determine the relationship between students' reading fluency and comprehension skills.Pearson correlation was used to measure the linear relationship between the two variables used in the study.

Findings

The Phil- IRI, Curriculum-Based Measurement (CBM/ORF) (Deno, 1985), andMultidimensional Fluency Scale (Zutell & Rasinski, 1991) are used to determine the student's level of reading fluency (accuracy, automaticity, and prosody) and comprehension.

Table 1 Student's Reading Accuracy Level

	Independent Level	Instructional Level	Frustration Level
Reading Accuracy	0%	24%	76%

Table 1 shows that out of thirty-three (33) participants, no one belongs to the independent level in terms of their accuracy level. On the other hand, 24% of the participants demonstrate remarkable ability in word recognition which placesthem at the instructional level. Students exhibit familiarity with the words used in the textand recognize 90 - 96% of words accurately (Johnson et al., 1987; Pikulski, 1990). In addition, more than three-fourths of the total participants (76%) belonged to the frustration level. Students find the words used in the passage too challenging for them to read. Students who display behaviors that indicate frustration and achieve less than 89% in word recognition belong to this level (Johnson et al., 1987; Pikulski, 1990). The result reveals that the majority of the participants find the reading text challenging, and some even need the help of the teacher to assist them.

Table 2 Student's Scores in Reading Automaticity

	Below the ORF Target Rate Norms	Within the ORF Target Rate Norms	Above the ORF Target Rate Norms
Reading Automaticity	67%	33%	0%

In terms of the students' reading automaticity, Table 2 shows that 33 % of theparticipants can read the expected 110-150 words for the first quarter within 60 seconds, which is within the ORF Target Norms (Hasbrouck & Tindal, 1992). Furthermore, the remaining 67% of the participants performed lower than they ought to.They failed to reach the target number of words and scored below the ORF target rate norms. Most participants display an inadequate ability to recognize and decode words automatically, which may put students' development in reading fluency at risk.

Table 3 Student's Scores in Reading Prosody

	Score Range (4-8)	Score Range (8-16)
Reading Prosody	76%	24%

The data presented in 3 shows that 76% of the participants obtainedscores between 4-8 in prosody out of sixteen (16) points, demonstrating difficulty in applying the appropriate loudness, phasing, smoothness, tempo, and expression in reading, which means that students read the text mindlessly and expressionlessly. Moreover, 24% of the participants performed better and demonstrated knowledge inintegrating the different prosodic features in expressive reading, which earned themscores within the range of 8-16 points.

Table 4 Students' Scores for Reading Accuracy, Automaticity, Prosody, and ReadingComprehension

	Reading Accuracy	Reading Rate	Prosody	Reading Comprehension
Mean	0.78	94.09	7.27	1.06
Standard Deviation	0.11	34.99	2.35	0.83

The results of the gathered data as shown in Table 4 on the student's scores in reading accuracy, automaticity, and prosody demonstrate poor reading fluency skills, with mean scores of 0.78 (SD = 0.11) for accuracy, 94. 09 (SD = 34.99) for automaticity, and 7.27 (SD = 2.35) for prosody. The students' mean scores in the three components of fluency showed thatstudents perform poorly in accuracy and prosody and better in reading automaticity.

Table 5 Student's Reading Comprehension Level

	Literal Level	Inferential Level	Critical Level
Reading Comprehension	97%	3%	0%

Table 5 revealed similar findings with reading fluency wherein students also perform poorly in comprehending what they read. Out of the thirty-three (33) participants, only 3% of the participants can read at the inferential level, which means students can comprehend and interpret the intended message of the text. At this level, students need to use more cognitive resources to combine pieces of information, draw conclusions, make inferences, and understand the implied meaning of the reading material. Meanwhile, 97% of the participants perform inadequately in comprehending the text, which positions them at the literal level. At this level, students are simply reading the text without grasping the profound message of the text. None of

the participants can reach the critical level of comprehension. The students acquire a meanscore of 1.06 (SD = 0.83) in reading comprehension, which is considered extremely low,provided the total score is 5.

Moreover, the Pearson Correlation Coefficient (r) was calculated and used as the basis todetermine the relationship between the students' scores obtained in the administered reading test within the three components of reading fluency, particularly accuracy, automaticity (reading rate), and prosody (expressive reading), and reading comprehension.

Table 6 Correlation Between Reading Accuracy and Reading Comprehension

	Coefficient (r)	n	T Statistics	DF	*p-value*
Reading Accuracy & Reading Comprehension	0.24	33	1.36	31	0.18

***** *Correlation is not significant at the significance level of 0.05 (2-tailed).*

In table 6, the Pearson correlation coefficient *(r)* of the variables' accuracy and comprehension is *0. 24 (p value= 0.18), n= 33,* p>0. 05, which means that the correlation is *not statistically significant (refer to Table 3.1).* There is no significant correlation between students' reading accuracy and comprehension. The data alsoreveals that the strength of the linear relationship between accuracy and comprehension is weak. In addition, the slope of its line leans toward the positive direction.

Table 7 Correlation Between Reading Automaticity and Reading Comprehension

	Coefficient (r)	n	T Statistics	DF	*p-value*
Reading Automaticity & Reading Comprehension	0.35	33	2.08	31	0.045 or 0.05

***** *Correlation is significant at the significance level of 0.05 (2-tailed).*

The data in Table 7 shows that the student's scores in automaticity and comprehension attain the Pearson correlation coefficient *(r) of* 0. 35 (p value= 0.05), n=33, p ≤0. 05, which means that the correlation between these two variables is statistically significant. The data also indicates a moderate, positive linear relationship between automaticity and comprehension.

Table 8 Correlation Between Reading Prosody and Reading Comprehension

	Coefficient (r)	n	T Statistics	DF	*p-value*
Reading Prosody & Reading Comprehension	0.28	33	1.63	31	0.11

***** *Correlation is not significant at the significance level of 0.05 (2-tailed)*

The student's scores in prosody and comprehension garnered a Pearson correlation coefficient (r) of 0. 28 (p value= 0.11), n=33, p>0. 05, which means that thereis no significant correlation between the students' prosody and comprehension as reflected in table 8. Hence, it manifests a weak, positive linear relationship between these variables.

Table 9 Correlation Between Reading Accuracy, Automaticity, Prosody, and Reading Comprehension

	Reading Comprehension
Accuracy	*(r)* = 0.24
	p > 0. 05
Automaticity	*(r)*= 0.35
	p ≤ 0. 05
Prosody	*(r)* = 0. 28
	p > 0. 05

Table 9 revealed that the overall outcomes based on the gathered data imply that two components of reading fluency, particularly accuracy, and prosody, exhibit an insignificant correlation with reading comprehension. Both variables obtain *(r)* and *p* values higher than the significance level of 0.05 (refer to Table 3.4). On the contrary, the result of students' reading automaticity and comprehension reveals a statistically significant correlation. Asa result, automaticity is the only component of fluency to establish a significant relationship with reading comprehension. Thus, it has not yet been determined whether automaticity impacts the students' reading comprehension skills or the latter.

Discussion

Pearson correlation analysis was used to compute and analyze the gathered data to determine the relationship between the students' reading fluency and reading comprehension. The results yield an insignificant correlation between the two components of fluency, namely accuracy, and prosody with reading comprehension. Both variables obtain Pearson correlation coefficient *(r)* and *p* values higher than

the significance level of 0.05 (refer to Table 3.4). The reading accuracy obtained the coefficient (r) of 0.24 (p value = 0.18), n=33, p > 0. 05, and prosody earn the coefficient (r) of 0.28 (p value = 0. 11), n = 33, p > 0. 05. These results indicate that accuracy and prosody do not share a significant relationship with reading comprehension, and it does not impact the student's reading comprehension skills.

A significant correlation between students' reading automaticity and reading comprehension was observed in the result with the coefficient (r) of 0.35 (p value= 0.05), n=33, p ≤ 0. 05. Students demonstrate good progress in their automaticity, which allows them to use more cognitive resources to comprehend and understand what theyread and the other way around (LaBerge & Samuels, 1974). The study's findings show that pupils who can rapidly and effectively recognize and decode words have more time to focus on the text and understand its message. (Kuhn et al., 2010).

Additionally, the study findings revealed that among the three components of reading fluency, accuracy and prosody illustrate an inconsequential relationship with reading comprehension. Neither of the two components significantly impacts the student's reading comprehension skills and vice versa. However, reading automaticity isthe only component of reading fluency that shows and establishes a significant relationship with reading comprehension. It was observed that students obtained better scores and performed better in performing the reading task concerning automaticity andcomprehension. The study does not propose that reading automaticity is a valid basis for assessing students' reading comprehension skills. Thus, it has not yet been determined whether automaticity impacts the students' reading comprehension skills or the latter. Furthermore, the insignificant relationship between reading accuracy, prosody, and comprehension implies that reading fluency and reading comprehension must be considered separately or at least disassociated from one another. The results of this study further imply to consider evidence-based targeted interventions to help students address specific gaps in reading automaticity as this assist in students’ reading comprehension.

Furthermore, these findings are consistent with previous research that has shown a strong relationship between reading automaticity and reading comprehension (LaBerge & Samuels, 1974; Kuhn et al., 2010). According to LaBerge and Samuels (1974), reading automaticity refers to the ability to recognize and decode words accurately and quickly, which frees up cognitive resources for comprehension. Kuhn et al. (2010) suggest that students who have developed reading automaticity can focus more attention on comprehension and are more likely to understand what they are reading. The findings are also consistent with LaBerge and Samuels' (1974) automaticity theory and Kuhn et al. 's (2010) definition of fluency, which stress the importance of accurate and quick recognition of words for comprehension. Moreover, while accuracy and prosody are important components of reading fluency, they are not sufficient for comprehension. Comprehension also requires knowledge of vocabulary, background knowledge, and an understanding of text structure (National Reading Panel, 2000). It is also worth noting that the language used as the medium may have contributed to these difficulties in reading fluency and comprehension. As a result, English teachers must recalibrate their teaching practices and develop a balanced approach to English Language Teaching that meets the needs and context of their students (Alda & Bacus, 2022).

The findings of this study have implications for educators and reading instruction. Teachers should focus on developing students' reading automaticity as it is a critical component of reading comprehension. This can be achieved through the regular practice of reading decodable texts, sight words, and phonemic awareness exercises (Kuhn et al., 2010). Additionally, teachers should also incorporate instruction on vocabulary and text structure to enhance comprehension (National Reading Panel, 2000).

Conclusion and Recommendations

In conclusion, this study found that reading automaticity had a significant positive correlation with reading comprehension while reading accuracy and prosody did not share a significant relationship with comprehension. These findings suggest that educators should prioritize the development of reading automaticity among students to enhance their comprehension skills. Additionally, the study's results align with previous research that emphasizes the importance of accurate and quick word recognition for comprehension. However, the study had limitations, including a small sample size and a lack of control for prior knowledge. Future research should investigate the impact of prior knowledge on the relationship between reading fluency and comprehension. Overall, this study provides valuable insights into the relationship between reading fluency and comprehension and offers important implications for educators and reading instruction. On the other hand, accuracy and prosody show an inconsequential relationship with reading comprehension. Thus, additional research is needed on the possible interventions that could help students to improve their reading accuracy and prosody skills.

References

Alda, R., & Bacus, R. (2022). Teachers' storied accounts on 'World Englishes'. *The New English Teacher*, 16(1), 59-79.

Allington, R. L. (2006). Fluency: Still waiting after all these years. In S. J. Samuels & A. E. Farstrup (Eds.), *What research has to say about fluency instruction* (pp. 94–105). International Reading Association.

Bigozzi, L., Tarchi, C., Vagnoli, L., Valente, E., & Pinto, G. (2017). Reading fluency as a predictor of school outcomes across grades 4–9. *Frontiers in Psychology*, 8, http://dx.doi.org/10.3389/fpsyg.2017.00200

Cain, K., & Oakhill, J. (2011). Matthew effects in young readers: Reading comprehension and reading experience aid vocabulary development. *Journal of Learning Disabilities*, 44(5). https://doi.org/10.1177/0022219411410042

Department of Education (DepEd) Memorandum Order No. 173, s. 2019. *Hamon: Bawat Bata Bumasa (3Bs Initiative).* https://www.deped.gov.ph/wp-content/uploads/2019/11/DM_s2019_173-1.pdf

Gamse, B., Jacob, R. T., Horst, M., Boulay, B., & Unlu, F. (2008). *Reading first impact study: Final report.* Retrieved from https://files.eric.ed.gov/fulltext/ED503344.pdf

Hasbrouck, J., & Tindal, G. (1992). Curriculum-based oral reading fluency norms for students in grades 2 through 5. *Teaching Exceptional Children*, 24(3). https://doi.org/10.1177/004005999202400310

Kim, Y. S. G., Quinn, J. M., & Petscher, Y. (2021). What is text reading fluency and is it a predictor or an outcome of reading comprehension? A longitudinal investigation. *Developmental Psychology*, 57(5), 718–732. https://doi.org/10.1037/dev0001167

Kuhn, M., & Stahl, S. (2003). Fluency: A review of developmental and remedial practices. *Journal of Educational Psychology*, 95, 3-21, http://dx.doi.org/10.1037/0022-0663.95.1.3

Kuhn, M. R., Schwanenflugel, P. J., Meisinger, E. B., Levy, B. A., & Rasinski, T. V. (2010). Aligning theory and assessment of reading fluency: Automaticity, prosody, and definitions of fluency. *Reading Research Quarterly*, 45(2), 230–251. https://doi.org/10.1598/RRQ.45.2.4

LaBerge, D., & Samuels, S. J. (1974). Toward a theory of automatic information processing in reading. *Cognitive Psychology*, 6(2), 293–323. https://doi.org/10.1016/0010-0285(74)90015-2

Leipzig, D. H. (2001). What is reading? WETA. Retrieved from https://www.readingrockets.org/article/what-reading

Department of Education. (2020). Philippine Informal Reading Inventory: Assessment manual. Retrieved from https://www.deped.gov.ph/wp-content/uploads/2020/10/Phil-IRI-Assessment-Manual-2020.pdf

National Reading Panel. (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction.* Retrieved from https://www.nichd.nih.gov/sites/default/files/publications/pubs/nrp/Documents/report.pdf

Pikulski, J. J. (1990). The role of tests in a literacy assessment program. *Reading Teacher*, 43(9), 686-688. https://doi.org/10.1598/RT.43.9.5

Pikulski, J., & Chard, D. (2005). Fluency: Bridge between decoding and reading comprehension. *The Reading Teacher* 58(6), 510-519. http://dx.doi.org/10.1598/RT.58.6.2

Rasinski, T. V., & Padak, N. D. (2008). Evidence-based instruction in reading: A professional development guide to comprehension. Boston: Pearson Education.

Rasinski, T., Paige, D., & Nageldinger, J. (2015). Reading fluency: Neglected, misunderstood, but still critical for proficient reading. In P. Pearson, & E. H. Hiebert, *Research-Based Practices for Teaching Common Core Literacy* (pp. 143-156). Columbia University: Teachers College Press.

Schatschneider, C., Fletcher, J., Francis, D., Carlson, C., & Foorman, B., (2004). Kindergarten prediction of reading skills: A longitudinal comparative analysis. *Journal of Educational Psychology*, 96(2), 265-282. http://dx.doi.org/10.1037/0022-0663.96.2.265

Schleicher, A. (2019). *Programme for International Student Assessment (PISA) 2018: Insights and interpretations.* The Organization for Economic Cooperation and Development.

Stanley, D. L. (1993). Curriculum-based measurement. In *Curriculum-Based Measurement* (pp. 2-4). University of Nebraska: Buros-Nebraska Series on Measurement and Testing.

Zutell, J., & Rasinski, T. V. (1991). Training teachers to attend to their students' oral reading fluency. *Theory Into Practice*, 30, 211-217. https://doi.org/10.1080/004058491095435