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Research Article

Reading Comprehension Level and Academic Performance of College Students in Their Mathematics Course

Ruby T. Galang*, Jocelyn Y. Arrozal, Angelo Regala, Anne Canlyn Manlutac

Don Honorio Ventura State University-College of Arts and Science

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*Corresponding author:

E-mail:

rtgalang@dhvsu.edu.ph

ABSTRACT

Reading is regarded as a vital skill in attaining proficiency and widening knowledge in different subjects. The research aimed to establish the relationship of reading comprehension to academic performance in Mathematics. The respondents were the freshmen students in specified Math in the Modern World course. This study employed descriptive quantitative design. A researcher-made instrument which underwent experts' validation and reliability test was used in determining the comprehension level in reading of the respondents. The results specified that positive correlation of reading comprehension and academic performance exists. Based on the results, there exists a highly significant difference between the reading comprehension level of the participants and their academic performance in their math courses. Moreover, with the generated value of .298, it can be inferred that there is a positive relationship between the variables. This means if one variable increases the other variable moderately increases.

Keywords: *Academic performance, English, Reading comprehension*

Introduction

Reading is one of the language skills being used to attain English language proficiency. It is considered to be one of the most important skills that serve as an instrument to widen our knowledge since materials for learning like textbooks, scholarly works are published. As a result, reading becomes the foundation of advanced knowledge wherein textbooks and other reading materials could be accessed even in the olden days as stated by Roe, Stoodt, & Burns (2012). According to Bano, Jabeen and

Quitoshi (2018), reading is a skill that teaches pupils how to extract ideas from text and create an understanding of that idea. This implies that reading serves as a process for pupils to acquire knowledge and information throughout the learning process (Chua&Sulaiman, 2021). In the study of Suson et.al (2020) stated that the ability to read and comprehend are essential skills for students to survive and understand how society works because most information is presented through text.

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Reading comprehension is one of the elements of the reading process, it is where the learners understand what they read. According to Lynch (2020), reading comprehension is the ability to mentally process written words and deduce what they mean, integrating this new knowledge with past knowledge. It's not just the ability to accurately read words on a page—rather, understanding the meaning of the text is the key part of reading comprehension.

According to Elleman & Oslund (2019), reading comprehension is one of the most complex behaviors in which humans engage. Reading theorists have grappled with how to comprehensively and meaningfully portray reading comprehension and many different theoretical models have been proposed in recent decades (McNamara & Magliano, 2009; Perfetti & Stafura, 2014). Across studies, vocabulary, inference-making, and background knowledge all influence, both directly and indirectly, reading comprehension from adolescent to young adult readers (Elleman & Oslund, 2019).

Reading comprehension is always linked to academic performance. The understanding of what is read is a clear indicator that learning takes place. According to Madrazo (2019), her study on reading habits, reading comprehension, and academic performance yielded a result that the students' reading comprehension was highly correlated with their academic performance.

There are several factors that can be attributed in the study on reading comprehension. One of which is the vocabulary level of students. As emphasized in the study of Ma and Lin (2014), as words are integral part in the study of language, vocabulary language has been widely considered as one of the most significant contributors of reading comprehension and predictors of text difficulty. Furthermore, results proved that vocabulary size, word association knowledge, collocation knowledge, and morphological knowledge are significantly related to the reading comprehension levels of the respondents.

Similarly, in his study, Nergis (2013) explored the role of vocabulary knowledge, metacognitive awareness, and syntactic awareness in academic reading comprehension in L2. Overall, discussion of the results exhibited that

the initial multiple-correlation analysis showed that L2 reading performance was highly correlated with metacognitive and syntactic awareness, but moderately correlated with depth of vocabulary knowledge.

Snow and Sweet (2003) demonstrated the three dimensions that delineates the sociocultural context phenomenon in reading comprehension. The reader corresponds to the idea that some students come to the task of comprehension much prepared than the others. They are considered as better in comprehension with wide range of capacities and abilities such as cognitive, motivational, and linguistic capacities. It is in this matter that researchers wish to prove if there exists a relationship between reading comprehension skills and academic performance in Mathematics and why is that most of high reading performance abilities of students does not guarantee a high academic performance in mathematics.

Objectives

Some researchers have proven that there is a positive correlation between reading comprehension and academic performance, but will that findings correlate with all the mathematics course in tertiary education? In this light, researchers would like to find out if there exists a relationship between reading comprehension and academic performance in Math course (Mathematics in Modern World) particularly in worded problems taken at the tertiary level.

Specifically, the study aimed to answer the following questions.

- 1. How may the reading comprehension level of the respondents be described?
- 2. How may the academic performance level of the respondents in their Mathematics courses be described?
- 3. Is there a significant relationship between the reading comprehension level of the participants and academic performance?

Methods

Research Design

This study utilized a quantitative descriptive design. As stated in SAGE Publication

Quantitative Research (2016), the purpose of descriptive studies is to describe, and interpret, the current situation of individuals, settings, conditions, or events (Metler, 2014). It simply studied the phenomenon of interest as it exists naturally, no attempt is made to manipulate the individuals, conditions, or event.

Respondents of the Study

The respondents of this study were selected BS Math and BS Stat 1st year college students of the College of Arts and Sciences department in Math in the Modern World (MMW) course. The respondents were drawn out using Slovin's Formula using the random sampling technique for the best selection of data sources. The respondents' general average on their final term will be gathered covering all the English subjects such Math and Science courses in the locale of DHVSU's main campus. This data determined the impact of reading comprehension in their academic performance.

Research Instrument

The instrument utilized in the study, is an adapted researchers-made reading assessment guide for reading comprehension was constructed. The reading comprehension assessment tool was modified meeting the required comprehension target. The tool undergone testing or reliability among experts before it was administered. The general average of the respondents in their Mathematics courses was be used to establish the relationship of the two variables. Permission to use these data on the students' general average of all the mathematics courses was sought in adherence of the data privacy act.

Validity

Since the instrument was researcher-made, it passed through necessary procedures to establish its validity. The research instrument was presented to three competent evaluators who are considered experts in the field of education. The researcher employed Gooda and Scates checklist for validating the instrument.

Data Gathering

In the conduct of the study, permission from the dean of the department for the administration of the research instrument was sought. After permission was granted, the researcher gathered the general average of the college students in all Math course. The researchers-made reading comprehension assessment was administered using the google form which was sent to the respondents. The completed data gathered was subjected for statistical treatment.

Ethical Considerations

The complete method must have to keep in mind the standards of ethics and ought to be a key attention. Consent must be acquired from the scholars both verbally, thru era or in writing (Bhandari, 2021). In order to abide with this, the researchers distributed the reading comprehension assessment tool while following and taking note of the proper guidelines. They gave consent letters to the respondents to know if they are willing to fully participate on the study. The researchers also stated the purpose of the reading comprehension assessment tool and their reason why they are conducting the study. Lastly, the researchers made it very clear to the respondents that all of the data gathered was treated with utmost confidentiality and anonymity. The researchers ensured the respondents that the data obtained from the respondents was used for academic purposes and was shared among the researchers only.

Data Analysis

A careful analysis of the completed assessment tool was done to ensure that the collected data are accurate and consistent with other information gathered. Pre-processing of collected data was done through editing to detect errors and omissions and make corrections where necessary. After completion of coding, the data was classified based on common characteristics and attributes. The data was then compiled and tabulated in form of statistical tables to allow for further analysis.

Result and Discussion

Table 1: Reading Comprehension Level of the Respondents

Reading Comprehension		N	%	Mean	Std. Dev	Verbal Description
(11-15)	Independent	0	0	4.78	1.255	Frustration
(6-10)	Instructional	17.00	41.46			
(0-5)	Frustration	24.00	58.54			
Total		41	100.00			

Table 1 shows that out of 41 students, **0%** were rated independent, **41.46%** were assessed as instructional, and **58.54%** were rated as frustration based on Phil-IRI descriptive interpretation of reading level. "The Phil-IRI used as a classroom-based assessment tool aims to measure and describe the learners' reading performance in both English and Filipino languages in oral reading, silent reading

and listening comprehension. These three types of assessment aim to determine the learner's independent, instructional and frustration levels" (Briones, 2018). An average mean of **4.78** with **1.255** standard deviation were obtained from the respondents' scores. The mean and standard deviation results were described as frustration for reading level interpretation.

Table 2. Academic Performance Level of the Respondents in their Mathematics course

Academic Performance		N	%	Mean	Std. Dev	Verbal Description
(1)	Excellent	0	0.00	1.69	0.40	Very Good
(1-1.5)	Superior	17	41.46			
(1.6-2.0)	Very Good	16	39.02			
(2.1-2.5)	Good	8	19.51			
(2.6-3.00)	Fail or Passing	0	0			
(3.1-4.0)	Conditional Failure	0	0			
(4.1-5.0)	Failure	0	0			
Total		41	100.00			

Table 2 presents the academic performance level of the respondents in their Mathematics courses that shows that out of 41 respondents **0%** obtained an excellent performance, **41.46%** obtained a superior performance, **39.02%** obtained a very performance, whereas **19.51%** got a grade with good descriptive

interpretation. Whereas, **0%** were obtained for Fail, Conditional and Failure. The average results also shows that an average mean of **1.69** and a standard deviation of **0.40** with verbal description of Very Good were obtained from the results.

Table 3. Significant Relationship between the Reading Comprehension Level of the Respondents and Academic Performance in Math

Variables		R	Sig.
Reading Comprehension	Academic Performance in Math	.298	.059

Table 3 presents the significant relationship between the reading comprehension level of the participants and academic performance in Math. The results show that there is a significant relationship between reading comprehension level (RCL) and academic performance

in Math (APM) with a p-value of **.000** and Pearson coefficient of **.059** Further with an r value of **.298**. it can be said that there is a positive relationship between the variables. This means if one variable increases the other variable moderately increases.

Conclusions

This study has yielded a positive correlation of reading comprehension and academic performance. Reading comprehension is always connected in the academic performance of students. Based on the results, there exists a significant relationship between the reading comprehension level of the participants and academic performance in Math courses. Similarly, with the r value of .298, can be said that there is a positive relationship between the variables. This means if one variable increases the other variable increases. According to Simbulas (2015), there exists a significance between reading comprehension skills and problem-solving skills, this implies that students need to understand the problem before they can solve it, moreover they also stated that the best predictor in problem-solving skills of students was vocabulary. Another study proved that there is a correlation between reading comprehension results and students' success in math or in science (Akbasli, et.al, 2016). It is in this regard that the problem of math difficulty in worded problems can be addressed with the increase in reading comprehension of the students. Students that show better performance in their reading comprehension would likely to have better performance in mathematics.

Recommendations

This study has proven the positive correlation between reading comprehension and mathematics courses, hence reading comprehension can serve as a tool to improve the academic performance in math, which is somehow a problem in our educational system. The result of this study could help educators to further improve our students' reading comprehension to improve our mathematical skills. With the aim of achieving better performance, the researchers would like to recommend the following that would help increase the academic performance in math and reading comprehension;

1. A carefully planned intervention that will meet all the targeted competencies in mathematics and develop higher reading comprehension level.

2. Secondly, more supplemental learning materials that will serve as worksheets to every student to enrich lessons discussed in both mathematics and reading comprehension.
3. Lastly, remedial teaching from respective instructors for identified least learned skills. In this way, students having difficulty in reading comprehension and math skills will enhance their academic performance in both.

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