Mental Models: Aid in Improving Reading Comprehension of Grade 6 Struggling Readers

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Abstract

Learners who are taught and trained on developing mental models in mind are found to demonstrate much better understanding and comprehension. This study aimed to improve the reading comprehension of Grade 6 learners using Mental Models. A quasi-experimental method was used. Mean, standard and T-test were used to analyze the data. Findings reveal that both groups before the utilization of conventional and mental models have low mastery of their reading comprehension skills. The Grade 6 learners reading comprehension skills after the utilization of the mental models was classified as "Approximating Mastery." Conversely, the post-test scores in the conventional method exhibited Average Mastery. The reading comprehension skills of the Grade 6 learners before and after the conventional method was utilized marks the same performance. The Grade 6 learners have the same level of reading comprehension even with or without the utilization of the conventional method. Understanding the context is significantly impacted by poor reading comprehension. In basic education, this is one of the most prevalent issues that both students and teachers deal with. Understanding what you read set the stage for future learning and understanding in every topic. Students would struggle intellectually without this foundation, especially in reading and writing and in disciplines like math, science, social studies, and English.

Keywords: reading comprehension, learners, Mental Models

1. Main text

1.1. Introduction

Reading is a life-long process and it is a part of our daily lives. People read either for entertainment and pleasure or for acquisition of knowledge and information. In the teaching-learning process reading plays a vital role to learners. If learners do not have the reading skills, it will be difficult for them to comprehend ideas and concepts. The Department of Education has given focus on the development of reading skills among Filipino Learners through its various reading enhancement programs. Various trainings and workshops on reading have been undertaking to equip teachers with the necessary skills in teaching reading to the learners.

However, despite the efforts to improve the reading skills of the learners, recent results of the reading inventories show high percentage of non-readers and frustrated readers among the learners as revealed by the standardized tool known as Philippine Informal Reading Inventory (Phil-IRI).

Comprehension is the essence of reading and it is an active process of constructing meaning from a passage or a text (Durkin, 1993). Thus, comprehension is very significant among learners for the pursuit of knowledge. There is a relationship between reading comprehension and reading strategies. Reading strategies (Muijselaar, et al.,2015).

Kelly (2019) emphasized also that the importance of reading comprehension cannot be understated. According to Kelly (2019), effective reading strategies that would help develop the reading comprehension skills of the learners include generating questions before reading and answering it after reading process, reading aloud and monitor, annotate texts to create vocabulary list, using context clues, using graphic organizers, practicing PQ4R Method (Preview, Question, Read, Reflect, Recite, and Review), summarizing and monitoring their understanding.

Building a logical mental picture of the content in a text is necessary for reading comprehension. Three interconnected components make up reading: the reader, the text, and the action, all of which are placed within a larger sociocultural framework. Due to the intricacy of reading comprehension, numerous significant models and frameworks have been developed in an effort to explain the different processes that lead to reading comprehension, such as the integration of newly acquired information with previously stored information and the activation of past knowledge. Other models and frameworks make an effort to take into consideration the elements of language comprehension, vocabulary, and decoding that go into reading comprehension (Butterfuss et al., 2020).

Numerous well-known reading comprehension models depict lone readers interacting with lone texts. A number of newer models make an effort to take into consideration the extra difficulty involved in understanding different texts. The ability to comprehend numerous texts is accompanied by the requirement to deal with multiple information sources, or sourcing. In order to capture the processes learners go through when they need to source—for example, when they come across contradicting information—researchers have created models and frameworks (Kendeou, 2019).

The outcome demonstrates that there were variations between pupils with low understanding levels and those with high comprehension levels. High comprehension students were more interested in reading English, continued to use the language after class ended, effectively employed reading strategies, avoided repetition when reading, rarely ran out of time during reading assessments, and did not experience significant grammar-related problems. Even though they lacked all of that, low-level students made a better effort to use dictionaries when they came across unfamiliar words and were constantly exam-ready. In order to develop their skills, students in the English department would benefit greatly from the recommendation that they be required to communicate in full English on campus at least once a week (Meylana, 2019).

Numerous theories in the literature on reading comprehension have implicated typical readers, which raises the possibility that many models and frameworks may not adequately reflect readers of different skill levels. The effectiveness of comprehension processes is partly determined by individual variances in reading comprehension, which have been found to have multiple causes in the literature. Working memory, executive functioning, vocabulary, inferencing, and prior knowledge are examples of these individual variances.

Because prior information has the ability to both help and hinder comprehension processes, it is particularly significant. Therefore, when readers come across material that contradicts their past knowledge, it becomes even more crucial to overcome the disruptive influence of faulty prior knowledge (also known as knowledge revision) (McNamara, 2015).

With the seven strategies that may contribute to a successful reading comprehension, visualizing is considered as one. Visualizing which may be in the form of images, pictures, drawings, videos or models. Thus, the use of mental models such as pictures can greatly contribute to the reading comprehension of learners. Mental models are visual representation consisting of both structure and process (a flow chart of sorts) that helps a student comprehend content knowledge. Learners who are taught and trained on developing mental models in mind are found to demonstrate much better understanding and comprehension.

In Ala Central School SY 2022-2023, the Phil-IRI test result of Grade 6 class showed that only 6 out of 35 pupils or 17% scored 14 and above in the Group Screening Test in English; which means that only 6 are independent readers while 7 out of 35 or 25% is at instructional level and 22 out of 35 pupils or 63% are at frustration level.

The result is alarming considering that they are already in Grade 6 and are not yet reading at their grade level. Nevertheless, if the problem is not given due and immediate action, the problem would affect pupils' learning and level of achievement in other subject areas due to their very limited lack of reading comprehension skills. They are having difficulty in learning the lessons of the different learning areas since comprehension skill is needed in all subjects.

These circumstances can be narrowed down to the lack of comprehension among the learners in the frustration level. Though learners can read fluently, they are finding the difficulties in grasping ideas and concepts about what they are reading. And these problems need immediate action for these greatly affect the transfer of learning. Reading and comprehension are very significant to one another.

It is in this point that the proponent will conduct this action research study entitled "Mental Models: Aid in improving Reading Comprehension of Grade 6 Struggling Readers".

1.2. Innovation, Intervention and Strategy

As an intervention to the emerging problem on the alarming number of learners in frustration level, this study will utilize Mental Models like pictures and videos as aid on reading comprehension. The participants of the study will study will be subjected to daily class session utilizing reading materials with picture-counterpart or video-counterpart for one hour during schooldays to be facilitated by the teacher-researcher for 3 months. There will be weekly reading assessments to be conducted using Phil-IRI tools in order to measure the progress of the learners. The weekly progress of the readers in frustration level will be recorded using the Tracking of Weekly Progress Template.

1.3. Statement of the Problem

This study aimed to improve the reading comprehension of Grade 6 learners using Mental Models at Ala Central School, School Year 2022-2023. Specifically, it sought to answer the following questions:

1. What is the reading comprehension level of the two groups of respondents during the pre-test assessment using the mental models and conventional strategy?

2. What is the reading comprehension level of the two groups of respondents during the post-test assessment   using the mental models and conventional strategy?

3. Is there a significant difference in the pre-test and post-test scores both in the control and experimental group?

1.4. Research Methodology

This study utilized quasi-experimental design to determine the effect of the intervention which is the use of mental models in teaching reading, the Phil-IRI tool was used before, during and after the duration. The results were tabulated and graphed to further convey the effect.

1.5. Data Instrument and Procedure

The twenty-two Grade 6 pupils of Ala Central School whose reading abilities are at frustration level are the subjects of this study. Their reading levels is determined after the conduct of individual reading inventory pre-test using the standardized Phil –IRI tools. Each pupil's word recognition level, reading speed and comprehension skills are tested and measured. All of them were able to recognize the words well having word reading scores of 90% - 100% and able to read the passages at varying speed. However, they failed in the comprehension test which made their reading levels fall under frustration level garnering comprehension scores of 58% and below.

1.6. Data Analysis

The recorded raw scores using the Phil-IRI tools before, during and after the intervention were tabulated, graphed and analyzed quantitative by the researcher. This served as the main measure of the effectiveness of the use of mental models in reducing the number of the identified struggling readers in the class.

Moreover, mean and standard deviation were used to determine the level of reading comprehension skills before and after the utilization of mental models and conventional method in teaching reading. T-test was used to determine the significant difference on the pre-test and posttest scores of conventional method and post-test scores of both control and experimental groups.

Mean Percentage Score (MPS)	Descriptive Rating
96 – 100	Mastered
86 – 95	Closely Approximating Mastery
66 – 85	Moving Towards Mastery
35 – 65	Average Mastery
15 – 34	Low Mastery
5 – 14	Very Low Mastery
0 – 4	Absolutely No Master

1.7. Results and Discussion

Mental Models and Conventional Strategy

The first research problem deals the reading comprehension during the pre-test assessment using mental models and conventional strategy.

Table 1. Level of Reading Comprehension during the Pre-test Assessment Using Mental Models and Conventional Strategy

Group	Mean	Standard Deviation	MPS	Description
Mental Models	10.60	5.89	34.16	Low Mastery
Conventional Strategy	10.59	7.70	33.56	Low Mastery

As indicated in the table 1, the pre-test scores of Grade 6 learners in reading comprehension skills before the utilization of the mental models has a mean of 10.62 and an MPS of 34.16, classified as "*Low Mastery*." Conversely, the pre-test scores in the conventional method exhibited a mean of 10.59 and an MPS of 33.56, described as "*Low Mastery*." These findings indicate that both groups before the utilization of conventional and mental models have low mastery of their reading comprehension skills. The grade 6 learners possess lack of reading comprehension skills and intervention program and effective reading strategies are important to improve the reading comprehension skills of learners.

Understanding the context is significantly impacted by poor reading comprehension. In basic education, this is one of the most prevalent issues that both students and teachers deal with. Understanding what you read set the stage for future learning and understanding in every topic. Students would struggle intellectually without this foundation, especially in reading and writing and in disciplines like math, science, social studies, and English.

Reading Comprehension during the Post-test Assessment Using Mental Models and Conventional Strategy

The second research problem deals on the reading comprehension during the post-test assessment using mental models and conventional strategy.

Table 2. Level of Reading Comprehension during the Post-test Assessment Using Mental Models and Conventional Strategy

Group	Mean	Standard Deviation	MPS	Description
Mental Models	86.11	1.22	87.19	Approximating Mastery
Conventional Strategy	54.08	5.78	53.44	Average Mastery

As indicated in the table 2, the post-test scores of Grade 6 learners reading comprehension skills after the utilization of the mental models has a mean of 86.111 and an MPS of 87.19, classified as

"*Approximating Mastery.*" Conversely, the post-test scores in the conventional method exhibited a mean of 54.08 and an MPS of 53.44, described as "*Average Mastery.*" These findings indicate that using mental models has increase or improve the reading comprehension skills of Grade 6 learners witch is nearly mastered in the performance. This implies that majority of the Grade 6 learners are able to comprehend to the story being read because mental models is effective strategy in developing the reading comprehension skills of learners.

In light of this, they briefly discuss four components of reading comprehension: inference, knowledge, vocabulary, and comprehension monitoring. These components are essential for understanding texts, have a significant impact on reading comprehension theories, and may be flexible learning targets. While acknowledging the essential significance of proficient in reading comprehension, this review also places an emphasis on higher-order comprehension skills.

Giving learners thorough instructions on a variety of reading strategies greatly improves their reading comprehension. Since every approach has its own benefits and uses, teachers must employ appropriate reading techniques that are tailored to the "perceived learning styles" of their students in order to help them enhance their comprehension and enjoy reading.

Significant Difference in the Pre-Test and Post-Test Scores of Reading Comprehension Skills in the Control Group

The third research problem deals on the significant deference on the pre-test and post-test scores of reading comprehension skills in the control group. Table 3 show the findings of the study.

Table 3. Significant Difference in the Pre-Test and Post-Test Scores in   the Control Group

Test	n	Mean	SD	t	df	*p*	Interpretation
Pre Test Assessment	24	12.56	3.99				
				1.17	47	0.568	Not significant
Post Test Assessment	24	54.08	3.87				

*.05 level of significance

As shown, the computation of the pretest and post test scores of the reading comprehension using the conventional method shows no significant difference *(t-1.17, p-0.578>0.05)*. The result indicates that the reading comprehension skills of the Grade 6 learners before and after the conventional method was utilized marks the same performance. This means that Grade 6 learners have the same level of reading comprehension even with or without the utilization of the conventional method.

The result implies that conventional method could change the reading comprehension skills of learner, however it does not guarantee of maximum effectiveness to improve the reading comprehension skills of the majority of the Grade 6 learners.

Significant Difference in the Pre-Test and Post-Test Scores of Reading Comprehension Skills in the Experimental Group

Table presents the significant difference in the pre-test and post-test scores of reading comprehension skills in the experimental group.

Table 4. Significant Difference in the Post-Test Scores in the control and Experimental Groups

Group	n	Mean	SD	t	df	*p*	Interpretation
Control Group	24	86.11	1.22				
				18.56	48	0.016	Significant
Experimental Group	25	54.08	5.78				

*.05 level of significance

As manifested, the computation of the pretest and post test scores of the reading comprehension using the mental models shows significant difference (t-18.56, p-0.016<0.05). The result indicates that there is a big disparities on the reading comprehension skills of Grade 6 learners after the mental models was utilized. The reading comprehension skills of Grade 6 learners has excessively increase nearing mastery level because mental models is considered effective.

1.8. Conclusion

The utilization of mental models improve the reading comprehension skills of Grade 6 learners. Majority of the Grade 6 learners are able to comprehend to the story being read because mental models is effective strategy in developing the reading comprehension skills of learners.

Understanding the context is significantly impacted by poor reading comprehension. In basic education, this is one of the most prevalent issues that both students and teachers deal with. Understanding what you read set the stage for future learning and understanding in every topic. Students would struggle intellectually without this foundation, especially in reading and writing and in disciplines like math, science, social studies, and English.

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1.9. Recommendation

1. The school may implement a Learning Action Cell to discuss to the teachers the effectiveness of using Mental Models in teaching the reading comprehension skills to the learners.

2. The teachers may adapt the use of mental models to help their learners' improve the reading comprehension skills.

3. This study recommends that the school may implement the no read to move policy to ensure that learners could read and understand before promoting to the next grade level.

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