

Improving Grade 8 Struggling Readers' Reading Comprehension Skills through Game-based Learning and Teacher-directed Instruction

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Abstract

The ability to comprehend written material is critical for individuals as it empowers them to accurately interpret and evaluate it, so it is important to facilitate the development of this skill among the learners. The purpose of this research was to determine the effectiveness of Game-Based Learning and Teacher-Directed Instruction in improving the reading comprehension skills of the eighth-grader Struggling readers in a public school in Kinoguitan, Misamis Oriental, Philippines. This study utilized the quasi-experimental design with the use of the teacher-made questionnaire to evaluate the reading comprehension levels of both groups prior to and subsequent to the interventions. Descriptive statistics were used to present results, T-test for paired samples was used to determine significant differences in the two groups, and the T-test for independent samples was used to determine significant differences in the two groups' reading comprehension increments. The findings demonstrate that Game-Based Learning is more effective than Teacher-Directed Instruction. In order to effectively enhance reading comprehension, the research suggests that instructional approaches incorporate interactive and engaging activities as well as structured and explicit approaches as this foster active cognitive involvement and reinforce fundamental comprehension strategies.

Keywords: teacher-directed instruction, game-based learning, reading comprehension skill, struggling readers

Introduction

Reading comprehension skill empowers learners to understand complex problems and questions across various learning areas. It is an essential ability that allows humans to effectively comprehend and analyze written material that requires the capacity to interpret, examine, and assess written content to derive meaning.

Reading alone is not vital. As Yurko and Protsenko (2020) suggested, the interaction between written text and outside information creates reading comprehension. Students need this to decipher, evaluate, and communicate written material. According to Gilakjani and Sabouri (2016), students must develop text comprehension and abilities to become proficient readers. Hence, students should understand textual content, especially for their teachers' academic tasks. Arivuchelvan

and Lakahmi (2017) added that the inability to grasp may inhibit students from learning, retaining, and graduating, which could significantly affect their future endeavors. Elleman (2019) added that reading comprehension is important for school success and everyday relationships.

Disturbingly, the Programme for International Student Assessment (PISA) (2018) results showed that Filipino learners have reading comprehension difficulties. Another study through the report by the United Nations Children's Fund (UNICEF) with United Nations Educational, Scientific, and Cultural Organization (UNESCO) and World Bank (2021) revealed that Filipino learners are challenged in terms of their reading competence due to the effects caused by the pandemic. These findings among the Filipino students are also evidently present in the locale of the study.

The challenges in improving reading competence among students reveal that teaching reading methods is a crucial duty of language teachers since it helps students' comprehension abilities. These techniques can aid students in developing self-directed learning skills and improving progress monitoring. As reading is essential for academic success, it is crucial to make sure that the strategies utilized to teach reading are successful for the best results (Loopoo & Balfour, 2021; Okkinga, 2018; Sa'adah et al., 2018).

With that in mind, this study sought to evaluate the effectiveness of direct instruction and game-based learning approaches in enhancing reading comprehension abilities. The purpose of the study was to assess the effectiveness of these pedagogical methods in improving students' comprehension of written content.

On one hand, Game-based learning (GBL) is recognized for enhancing students' interest, emotional engagement, and knowledge application by balancing subject matter, interactivity, and user retention (Hartt et al., 2020; Molin, 2017; Papadakis, 2018;). GBL makes reading comprehension, language acquisition, and vocabulary improvement fun and interactive (Chang et al., 2018; Dixon, 2022; Hartt, 2020; Hung et al., 2018; Molin, 2017; Papadakis, 2018; Purgina, 2019). However, game plot complexity hinders educational goals, digital GBL development is expensive, and its effects on language proficiency and academic performance are mixed (Dimitra et al., 2020; Ebrahimzadeh & Alavi, 2017; Fotaris et al., 2017; Pinto & Ferreira, 2017; Ronimus et al., 2014; Shi et al., 2019; Zammit, 2022; Zhang et al., 2018).

On the other hand, Direct Instruction (DI), a teacher-centered method, was seen as effective for teaching reading comprehension, especially when combined with cognitive approaches and instructional media (Frampton et al., 2021; Nuraeni & Aisyah, 2022; Yaghmour & Obaidat, 2022). However, concerns were raised about the long-term impact and potential limitations of relying solely on scripted DI programs, with suggestions that its effectiveness may vary among student populations, particularly those with different levels of expertise (Eppley & Dudley-Marling, 2019; Nuraeni & Aisyah, 2022). With the conflicting results of these related readings, the study sought to determine which method is more effective in addressing the reading comprehension challenges faced by students in the research locale.

This study was conducted due to the report of the Programme for International Student Assessment (PISA) (2018) and the United Nations Children's Fund (UNICEF) with United Nations Educational, Scientific, and Cultural Organization (UNESCO) and World Bank (2021), as well as the Phil-IRI result of the locale of the study for the current school year which showed that there is indeed a reading problem that affected the learners.

In a nutshell, this research hoped to contribute to the existing literature on interventions aimed at improving reading comprehension and offer information on productive teaching methods for Filipino students by providing not only insights into the effectiveness of Game-Based Learning and Teacher-Directed Instruction, but also shed light on their applicability and suitability within the local educational setting.

Research Objectives

The purpose of this research was to determine the effectiveness of the Game-Based Learning and Teacher-Directed Instruction in improving the *Struggling* readers' reading comprehension skills: determining the meaning of words or expressions through context clues, differentiating facts from opinions, interpreting visual-verbal relationship, comparing and contrasting opinions with those presented in familiar texts, and recognizing positive and negative messages, among eighth graders in one of the public high schools in Kinoguitan, Misamis Oriental, Philippines.

Methodology

This research employed a quantitative approach, utilizing a quasi-experimental design. The study utilized a pretest and posttest with non-equivalent groups, designating one group as the experimental group and the other as the control group. The experimental group, which had 39 students, 19 males and 20 females, used Game-Based Learning as an intervention that involved interactive and group activities. In contrast, the control group applied Direct Instruction with 40 students, 23 males and 17 females, with the use of independent and explicit instruction. Out of the total participant pool, the researcher specifically directed attention toward *Struggling* readers, defined as students scoring 58% and below in their reading comprehension assessments. The primary focus was to assess how much each group's reading comprehension had improved as a consequence of the focused treatments that were implemented. In the conduct of the study, the researcher first sought the approval of the Lourdes College Ethics Committee. After the issuance of the certification from the committee, the research started with a pretest to assess the initial reading abilities of both groups, followed by a posttest after implementing the respective interventions to evaluate their reading comprehension performance. The study utilized descriptive statistics, as well as T-Test for paired samples and T-test for independent samples to evaluate the impact of interventions in enhancing reading comprehension skills.

Results and Discussion

Problem 1. What is the participants' reading comprehension level before and after the interventions?

Table 1

Summary Table of Participants' Reading Comprehension Level

	DIRECT INSTRUCTION						GAME-BASED LEARNING					
	Pretest			Post test			Pretest			Post test		
	M	In t	SD	M	In t	SD	M	In t	SD	M	In t	SD
Context Clues	2.52	Fr	0.78	2.79	Fr	1.35	2.25	Fr	0.93	3.00	Fr	1.12
Fact or Opinion	2.07	Fr	0.96	2.93	Fr	1.41	1.89	Fr	1.10	3.89	Fr	1.87
Visual-Verbal Illustration	2.41	Fr	1.05	3.17	Fr	1.34	2.39	Fr	1.17	3.46	Fr	1.48
Comparison & Contrast	2.17	Fr	0.80	2.97	Fr	1.12	1.68	Fr	0.82	2.96	Fr	1.10
Positive & Negative Message	2.14	Fr	0.92	2.41	Fr	1.18	2.07	Fr	1.15	3.50	Fr	1.53
OVERALL	2.26	F	0.54	2.85	F	1.18	2.06	F	0.51	3.36	F	0.84

Legend: Fr-Frustration Level

The study's findings reveal that both Teacher-Directed Instruction and Game-Based Learning groups are likely helpful in improving students' various comprehension domains. Moreover, Game-Based Learning consistently yields higher mean scores on posttest reading comprehension assessments compared to Teacher-Directed Instruction, except on comparison and contrast where Teacher-Directed Instruction has a slightly higher mean score than Game-Based Learning. Although both methodologies resulted in improvements, Game-Based Learning facilitated a more substantial increase in the reading comprehension levels of the participants. Conversely, Teacher-Directed Instruction's effectiveness in improving reading performance among those readers who were under the *Frustration* level can be attributed to its focused and explicit guidance, providing a structured learning environment that directly addresses individual challenges. The Teacher-Directed Instruction approach offered clear explanations, targeted interventions, and personalized support, fostering a more tailored learning experience that contributed to enhanced reading comprehension skills among the participants.

Consistent with prior research and literature, these results underscore the importance of implementing strategies that encourage self-directed learning and proficient progress monitoring. The usefulness of reading instruction strategies is critical, given the significant impact that reading has on scholastic performance (Loopoo & Balfour, 2021; Okkinga, 2018; Sa'adah et al., 2018). The results demonstrate the potential of both Teacher-Directed Instruction and Game-Based Learning in improving the reading comprehension of the *Struggling* readers. Teacher-Directed Instruction provides targeted instruction to address specific obstacles in an organized manner, leading to improved comprehension. Likewise, the efficacy of Game-Based Learning in promoting enhanced understanding corresponds with existing research, emphasizing the significance of interactive approaches for achieving the best learning results. The findings underscore the necessity of employing a comprehensive strategy that combines organized instruction and interactive components to address the varying requirements of learners in improving their reading abilities.

The compelling findings of this study highlight the relevance of using proficient tactics to boost reading comprehension. In addition, the significance of this study is highlighted below. It is commonly known that in order to improve comprehension, a diverse approach that incorporates a variety of tactics is required. The perceived efficacy of game-based learning corresponds perfectly with this widely acknowledged consensus (Abame et al., 2017; Dwiningtiyas et al., 2020; Gilakjani & Sabouri, 2016). Furthermore, Nanda and Azmy (2020) emphasized the relevance of fixing these reading comprehension difficulties in order to prevent inhibiting the opportunities students will have in the future for education and work.

Problem 2. Do the two groups of participants' reading comprehension levels differ significantly before and after the interventions?

Ho1. The two groups of participants' reading comprehension levels do not differ significantly before and after the interventions.

The results of a test comparing the participants' reading comprehension skills before and after two interventions, Direct Instruction and Game-Based Learning, are shown in Table 2. The null hypothesis (Ho1) posits that there is no significant difference in the reading comprehension level of the two groups before and after the interventions. Nevertheless, the null hypothesis is rejected for both groups, as indicated by the results. The overall p-values in both Direct Instruction and Game-Based Learning are statistically significant at the 0.01 level. The findings indicate that both teaching approaches can improve the reading comprehension abilities of the participants.

Table 2

Result of the Test of Difference in the Participants' Reading Comprehension Levels Before and After the Interventions

Reading Comprehension	DIRECT INSTRUCTION							GAME-BASED LEARNING						
	Pretest		Posttest		T	P	Effect Size	Pretest		Posttest		t	P	Effect Size
	M	SD	M	SD				M	SD	M	SD			
Context Clues	2.52	0.79	2.79	1.35	1.55	.133	-.284	2.21	0.94	3.03	1.12	4.16**	.000	-.762
Fact or Opinion	2.07	0.96	2.93	1.41	3.91*	.001	-.717	1.93	1.10	3.93	1.85	5.88**	.000	-1.077
Visual-Verbal Illustration	2.41	1.05	3.17	1.34	4.68*	.000	-.858	2.41	1.15	3.48	1.46	5.09**	.000	-.932
Comparison & Contrast	2.17	0.81	2.97	1.12	3.95**	.000	-.723	1.69	0.81	3.0	1.10	5.75**	.000	-1.053
Positive & Negative Message	2.14	0.92	2.41	1.18	1.35	.187	-.248	2.17	1.26	3.62	1.64	5.56**	.000	-1.018
OVERALL	2.26	0.54	2.86	0.68	7.17**	.000	-1.313	2.08	0.52	3.41	0.86	10.22**	.000	-1.872

Legend: ** significant at 0.01 level

For the group subjected to Teacher-Directed Instruction, the pretest to posttest comparison reveals improvements in various comprehension categories, including Fact or Opinion, Visual-Verbal, and Comparison and Contrast. However, the data shows that Teacher-Directed Instruction is not significant in two comprehension skills such as, Context Clues and Comparison and Contrast. The overall reading comprehension also exhibited a substantial increase ($t = 7.17$, $p = .000$). Despite a lack of statistical significance in Context Clues and Positive & Negative Message, the overall pattern suggests that Teacher-Directed Instruction had a positive impact on enhancing participants' reading comprehension. The result highlights the significant positive impact of this instructional approach on improving the reading abilities of struggling readers. An effect size of -1.313 indicates a large and practically significant difference in improving the reading comprehension skills of struggling readers through Teacher-Directed Instruction.

Turning to the group exposed to game-based learning, the results are even more robust. Significant improvements are observed across all comprehension categories, including Context Clues, Fact or Opinion, Visual-Verbal Illustration, Comparison & Contrast, and Positive & Negative Message. The overall reading comprehension improvement with game-based learning is substantial ($t = 10.22$, $p = .000$). The result, demonstrated by an effect size of -1.872 , which signifies a substantial and practically significant distinction in enhancing the reading comprehension abilities of struggling readers via game-based learning, underscores the formidable and influential character of this intervention. It implies that in comparison to alternative approaches, this one has a more pronounced and favorable impact on students' reading capabilities. These findings indicate that game-based learning has a more significantly improved Struggling readers' reading comprehension across various categories compared to Teacher-Directed Instruction.

The findings of the research comparing levels of reading comprehension before and after interventions indicate discernible trends in the two pedagogical approaches. Although Teacher-Directed Instruction yielded substantial gains in various comprehension domains, game-based learning exhibited superior performance across all measures. The findings of the research comparing levels of reading comprehension prior to and subsequent to interventions indicate discernible trends in the two pedagogical approaches. Although Teacher-Directed Instruction yielded substantial gains in various comprehension domains, game-based learning exhibited superior performance across all skills. Despite the increase of the overall performance of the participants, it is noteworthy that most of the participants fell under the *Frustration* level which highlights the necessity for focused interventions and customized assistance to tackle specific difficulties and guarantee comprehensive skill advancement. The implications indicate that both approaches contribute to the improvement of reading comprehension, with Teacher-Directed Instruction showing effectiveness in certain areas. Nevertheless, the notable results noted in the game-based learning group suggest its potential as a more comprehensive and impactful method for improving overall reading comprehension levels among participants.

The data shows that Teacher-Directed Instruction improved the reading performance of the participants. Multiple studies repeatedly highlight the importance of explicit teaching in improving reading comprehension abilities. Yaghmour and Obaidat (2022) emphasized the crucial function of independent comprehension development through the instruction of multiple abilities, particularly by fostering connections. Nuraeni and Aisyah (2022) also argued that combining Teacher-Directed Instruction with the integration of media improves proficiency in this particular skill. The combined results emphasize the significant impact of instructional approaches, specifically Teacher-Directed Instruction, on the development of reading comprehension abilities, thereby showing its effectiveness for students.

Moreover, worldwide research substantiates the effectiveness of Teacher-Directed Instruction in improving learning results. According to Witt (2018), who references Jones-Carey (2013), the decision to stop formal direct reading instruction resulted in a decrease in students' proficiency. Teacher-Directed Instruction is also seen as effective to students of various ages and status and has perceived significance on specific training in reading strategies for more advanced topics. Structured content reading instruction and Teacher-Directed Instruction demonstrate equivalent effectiveness in fostering critical thinking and teaching college algebra (Butler, 2020; Dugasa, 2022; Gatcho and Hajan, 2019; Head et al., 2018; Maandig et al., 2017). Overall, these researches collectively emphasize the widespread efficacy of Teacher-Directed Instruction in improving reading comprehension skills in many situations.

The study also revealed that Game-Based Learning is effective in improving the Struggling readers' reading comprehension skills. As Marsa et al. (2021) emphasized, games helped improve on students' level of involvement, drive, and favorable disposition toward understanding written material. This study confirmed that games significantly improve reading comprehension skills. Moreover, the research conducted by Williyam et al. (2016) supports these findings by highlighting the beneficial effects of utilizing games for the purpose of enhancing reading skills. These studies highlight the potential of games as effective instruments for language acquisition, underlining the importance of creating engaging classroom settings that cultivate a passion for reading among the learners.

Similarly, the research conducted by Bondaug (2021) investigated the impact of game-based learning on students' reading comprehension levels in the Philippines. The study found notable improvements in students' reading comprehension abilities. Both teachers and students expressed favorable feedback, highlighting that the use of games in delivering knowledge was captivating and stimulating, thereby improving the reading lesson. The alignment between the results of this study and the favorable outcomes reported in the Game-Based Learning group strengthens the idea that game-based learning is a promising approach for enhancing reading comprehension and fostering students' excitement for learning. These studies together confirm that game-based learning is effective in improving students' reading comprehension skills and promoting their active participation and enthusiasm in the learning process.

Problem 3. Do the increments of the two groups of participants' reading comprehension differ significantly?

Ho2. The increments of the two groups of participants' reading comprehension do not differ significantly.

The table presents the results of a test of difference in reading comprehension test score increments between two groups of participants: one group received Direct Instruction, and the other group received Game-Based Learning. The null hypothesis (Ho2) posits that the increments in reading comprehension do not differ significantly between the two groups. However, based on the results, it is evident that the null hypothesis is rejected, as the p-values for most of the individual reading comprehension categories are statistically significant at the 0.05 level or lower.

Table 3*Result of the Test of Difference in the Comprehension Test Scores Increments*

Reading Comprehension	DIRECT INSTRUCTION		GAME-BASED LEARNING		T	p	Effect Size
	M	SD	M	SD			
Context Clues	0.28	.96	0.83	1.07	2.07*	.044	1.017
Fact or Opinion	0.86	1.19	2.00	1.83	2.81**	.007	1.544
Visual-Verbal Illustration	0.76	0.87	1.07	1.13	1.17	.247	1.010
Comparison and Contrast	0.79	1.08	1.31	1.23	1.70	.094	1.157
Positive and Negative Message	0.28	1.10	1.45	1.40	3.54*	.001	1.260
OVERALL	2.97	2.23	6.66	3.51	4.78*	.000	2.938

**significant at 0.01 level

Significant differences were noted in the following components: Positive and Negative Messages; Fact or Opinion; and Context Clues. However, no significant differences in the mean increments of the two groups on Visual Verbal illustration and Comparison and Contrast.

The overall increment score exhibited exceedingly significant overall increases in reading comprehension ($t = 4.78$, $p = .000$) suggesting that these gains were substantial and all-encompassing. The findings of this study indicate that game-based learning produces more substantive improvements in reading comprehension than Teacher-Directed Instruction. The table also shows the effect size of 2.938 which indicates a large and statistically significant difference in the comprehension test score increments of students who participated in a game-based learning intervention versus those who received Teacher-Directed Instruction, implying that game-based learning is a more effective approach for improving students' reading comprehension skills. This underscores the capacity of interactive and engaging learning approaches to facilitate considerable advancements in comprehension abilities. When comparing the findings of the two groups, it is evident that Game-Based Learning consistently achieves higher reading comprehension improvements than Teacher-Directed Instruction across most areas.

The findings show that Teacher-Directed Instruction improved the struggling readers' reading comprehension skills. This underscores the effectiveness of Teacher-Directed Instruction in improving reading comprehension skills across diverse student populations, including at-risk students and third-grade pupils. These findings suggest that direct, teacher-centered education is a valuable approach with positive outcomes for enhancing critical thinking abilities, understanding mathematical concepts, and managing reading comprehension questions that require higher-level thinking (Butler, 2020; Dugasa, 2022; Gatcho & Hajan, 2019; Head et al., 2018; Maandig et al., 2017; Yaghmour & Obaidat, 2022)

Moreover, the results are consistent with the current body of research on Game-Based Learning, which underscores the advantages of interactive, captivating, and stimulating learning settings. Research has demonstrated that GBL can augment students' curiosity, emotional involvement, and eagerness for acquiring knowledge, while also offering a well-rounded method for instructing academic content (Hartt et al., 2020; Molin, 2017; Papadakis, 2018). Moreover, research has demonstrated that educational games can increase student engagement and motivation (Hertati & Asrowi, 2022) and foster a favorable learning environment that encourages students to develop a passion for reading (Williyam et al., 2016). On the other hand, Teacher-Directed Instruction, although it offers personalized learning, may not encourage students to actively engage in conversations, which could account for the observed variations in reading comprehension improvements.

These findings are consistent with the relevant scholarly works. Several studies highlighted the capacity of game-based learning to generate interactive settings that inspire students through guided exploration (Hartt et al., 2020; Molin, 2017; Papadakis, 2018). Hertati and Asrowi (2022) observed that students who utilize educational games demonstrate enhanced learning results and heightened engagement. Furthermore, the research conducted by Williyam et al. (2016) further supported the idea that games can establish stimulating educational settings that foster a passion for reading. The findings not only validate the effectiveness of Game-Based Learning but also underscore its capacity to augment reading comprehension and foster students' excitement for learning.

Recommendations

Based on the study's findings and conclusions, the following recommendations are offered, that:

1. language teachers employ dynamic and engaging methodologies such as game-based learning, and structured teaching approaches to augment students' reading comprehension and cultivate their enthusiasm.
2. school administrators allocate resources for the purpose of enhancing reading comprehension through the integration of technology and educational activities into the curriculum.
3. future researchers conduct an inquiry into the enduring consequences of Game-Based Learning and Direct Instruction on reading comprehension in order to furnish an all-encompassing assessment of their influence.

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