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Uses of Online Integrated Learning in Developing Grade 9 Students' Reading Comprehension

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Abstract

The purposes of the study were to investigate the effectiveness of an online integrated learning management plan on grade 9 students' reading comprehension and to study the students' satisfaction with the online integrated learning management plan. The study was conducted in a one-group experimental design. The participants were 33 grade 9 students in a public school in Thailand. The instruments were a learning management plan designed using the integration of online learning, a reading comprehension test, and a satisfaction questionnaire. The statistics of percentage, mean score, standard deviation, a paired samples t-test, and the effectiveness index with the determining criteria of 75/75 were used to analyze the effectiveness of the treatment. The results indicate the effectiveness of learning management in a reading classroom. Moreover, the online environment also brought about a satisfying learning experience for the participants. The results contribute to the investigation

of online integrated learning on reading development as they provide a piece of evidence to support the instructional method in the reading classroom with learners of a certain context.

Keywords: Online integrated learning, Reading comprehension, Language teaching

1. Introduction

Reading is an important skill for students of all ages. It involves several stages of learning such as comparing spoken and textual language, comprehending texts, analyzing authors' attention, and making a reflection on texts. Language learners need to develop their linguistic knowledge such as grammar and vocabulary to comprehend the text. At the same time, they need world knowledge to interpret authors' determining meaning. This is because reading is a self-exploration stage where readers are expected to break down text components and identify how they are connected to form meaning (Heller et al., 2002). These processes also involve the complexity of the texts because what is accurate for one reading level could be inaccurate for higher or lower levels. These complex processes of learning to read are worth the time and effort as an effective reading ability is a gate to information, especially with the advanced technology in the 21st century (OCED, 2021).

It is important to note that the goal of reading is to comprehend the text. Reading comprehension has, therefore, become one of the main discussions in language studies. According to Jiang et al. (2000), reading comprehension is defined as success in the interpretation of the written text using processes of text decoding such as reading strategies, text-knowledge relation, context clues, etc. Harris and Hodges (1995) urged that reading comprehension is a reciprocal, holistic exchange of ideas between the interpreter and the message. Meaning exists in interpreters' purposeful problem-solving, and thinking processes, and their prior knowledge and experience affect how they interpret text meaning. Grabe and Stoller (2002) provided two processes of lower-level and higher-level reading to define reading comprehension. The former involves word recognition, and the latter includes semantic analysis. Therefore, to grasp what is read, learners are expected to know text structure and topic, reading methods, how to employ them, and word recognition.

Moreover, reading comprehension could be achieved through various methods (Davoudi & Moghadam, 2015). Goodman (1967) presented reading as a top-down process and a psycholinguistic guessing game where learners' expectations and background information affect orthographic, phonological, and word recognition skills. According to the author, texts are not as important as learners' background knowledge of the matters which is the information stored in the learners' long-term memories as propositional, meta-textual, and conceptual representations. In top-down processing, readers get information from the text and compare it to what they already know about the world to process and comprehend the input. These processes are described as a psycholinguistic guessing game where readers pass through the stages of textual processing, anticipating the content, verifying the true predictions, correcting the wrong predictions, and terminating these processes.

On the other hand, the bottom-up process was also presented to describe the process of reading comprehension. According to Stanovich (1986), the process highlights the

importance of lower-level recognition skills. In the bottom-up process, reading is a continuous process where readers are expected to hierarchically process different levels of written input such as phonemes, words, clauses, sentences, and discourse (Rieben & Perfetti, 1991). The reader does not skip over any parts of the text, and a significant portion of reading is the product of unconscious processes that come out of the text. Because the process is founded on empirical evidence and recognizes the significance of processing orthographic, semantic, syntactic, and phonological information, the critical process of teaching reading is to strengthen students' ability to recognize the components.

Rumelhart (1977) also introduced the interactive model of reading claiming that comprehension is the result of how the reader interprets the information in the text. In the process, the visual data are delivered to the pattern synthesizer. In working memory, semantic, syntactic, and pragmatic information is taken from long-term memory to recognize patterns. At this point, the structure of texts and readers' background knowledge are interacted to interpret the meaning. Therefore, readers need to blend the two sources into a coherent discourse and interpret the text.

Moreover, the Interactive-Compensatory Model (Stanovich, 1980) was presented to distinguish between experienced and unskilled readers. The authors proposed that when readers have issues in one degree of processing, their proficiency in other dimensions can compensate. In other words, a reading deficit causes a higher reliance on other knowledge sources, regardless of their hierarchy. For example, top-down processing may compensate for a reader with limited word recognition but good text understanding. Meanwhile, readers with more resourceful linguistics knowledge might benefit more from bottom-up processing.

Therefore, reading comprehension involves both linguistic components such as morphological and syntactical knowledge, and schemata components like world knowledge and readers' experience. Moreover, strategic components are also important. These demanding qualifications challenge reading instruction in both instructional and learning aspects (Gündoğmuş, 2018). A common problem found in reading classes is the limited vocabulary knowledge of learners. Şen and Kuleli (2015) found that vocabulary knowledge affects the ability to recognize words in the texts. Learners with insufficient vocabulary size are unlikely to comprehend the texts. Moreover, learners might fail to make a connection between word and their background knowledge (Mohammed & Rashid, 2017). Therefore, they might misinterpret the meaning of the word in the context they are reading. In addition, some learners could not use reading strategies effectively, and it fails word recognition, background knowledge connection, and reading comprehension (Rungswang & Kosashunhanan, 2021).

Consequently, teaching students to read comprehensively needs instructional methods that are effective in developing their vocabulary size, reading experiences, and reading strategies. The current situation of global education empowers online technology in language classrooms (McCarty et al., 2006). The use of network technology is beneficial in letting learners gain reading experience which should also improve the vocabulary they know and allow them to practice using reading strategies. This could be evidenced by a meta-analysis (Moran et al.,

2008) showing that technology can increase reading comprehension in middle school students. In detail, technology could be applied in reading class by digital reading devices such as computers, smartphones, laptops, e-books, and tablets that can improve traditional reading comprehension and learning skills.

Moreover, empirical studies have been conducted to support the use of online technology in reading classrooms (*e.g.*, Nizamuddin et al., 2020; Bolukbas et al., 2011; Constantinescu, 2007; Huang & Hong, 2016; Kim et al., 2020; Murphy, 2007; Stearns, 2012). In detail, since early 2007, technologies such as e-books and the internet were found to benefit the reading classroom as they supported traditional text teaching (Constantinescu, 2007; Murphy, 2007). In the 2010s, Stearns (2012) reported two basic areas of technology integration in reading developing and reading comprehension—tutoring tools and technologies that engage students in learning. Meanwhile, Bolukbas et al. (2011) also found that technology integration in collaborative reading was beneficial in developing learners' reading. Huang and Hong (2016) created a flipped learning classroom using online technology as a medium of communication and developed learners' reading comprehension. Recently, technologies such as digital annotation tools (Azmuddin et al., 2020) and Student Mental Model Analyzer for Research and Teaching (SMART) (Kim et al., 2020) were also found to benefit reading classrooms. Therefore, the current study integrated an online learning environment into a reading comprehension classroom and presented two purposes: 1) to investigate the effectiveness of an online integrated learning management plan on grade 9 students' reading comprehension and 2) to study the students' satisfaction with the online integrated learning management plan.

2. Methodology

2.1 Research Design

The study was conducted in a one-group experimental design. The effects of the learning management plan were justified by students' scores during learning in the plan and the comparison between students' performances before and after the treatment. The null hypothesis was employed.

2.2 Participants

Selected by cluster random sampling, the participants were 33 grade 9 students in a public school in Thailand. None of the participants had experiences abroad or in an international setting. The participants had passed through a basic curriculum for Thai students and taken more than 10 English courses since the beginning of grade 1. They were treated considering ethical issues in human research during the data collection.

2.3 Instruments

The instruments were a learning management plan designed using the integration of online learning, a reading comprehension test, and a satisfaction questionnaire. The plan consisted of 5 topics of reading comprehension for grade 9 students. The test was used as a pre-post-test in the data collection. It consisted of 30 multiple-choice question items. The

questionnaire consisted of 15 positive statements related to learning reading through the learning management plan. The statements were categorized into 5 aspects including content, learning activities, learning material, instruction, assessment, and benefit. The questionnaire was tested before being implemented in the data collection with an IOC of .67-1.0, discrimination of 0.41-0.82, and reliability of .90.

2.4 Data Analysis

The study was conducted with a quantitative approach. The statistics of percentage, mean score, standard deviation, a paired samples t-test, and the effectiveness index with the determining criteria of 75/75 were used to analyze the effectiveness of the treatment.

3. Results

Table 1. The effectiveness of the online integrated learning management plan on the participants' reading comprehension

Effectiveness	Full mark	$\bar{x}$	S.D.	%
Process effectiveness (E_1)	50	39.82	4.05	79.64
Outcome effectiveness (E_2)	30	23.09	2.89	76.97
Effectiveness Index (E_1/E_2) = 79.64/76.97				

The results of the study show signify the effectiveness of the online integrated learning management plan on the participants' reading comprehension. In detail, students' average score after learning in each lesson plan was 39.82 (S.D. = 4.05) which accounts for 79.64% of the maximum point of 50. Meanwhile, students' average score in the post-test was 23.09 covering 76.97% of the maximum point. Therefore, the effectiveness index (E_1/E_2) of the learning management plan was 79.64/76.97 reaching the determining criteria of 75/75. It could be interpreted that the online integrated learning management plan was effective in improving students' reading comprehension at an expected point of learning outcome.

Table 2. The comparison between students' pre and post-tests

Test	N	$\bar{x}$	S. D	df	t	Sig.
Pre-test	33	18.79	2.60	32	11.69	0.00*
Post-test	33	23.09	2.89			

Note. p > .05*.

Similarly, the comparison between the participants' performances before and after learning in the online integrated learning management plan indicates an improvement in their reading

comprehension. The result of the study rejected a null hypothesis as there was a significant difference between the average score in the pre-test ($\bar{x}$ = 18.79, S.D. = 2.60) and in the post-test ($\bar{x}$ = 23.09, S.D. = 2.89), t = 11.69, p = 0.00. It could be interpreted that the online integrated learning management plan positively affected the participant's reading comprehension considering their superior performances after the treatment.

Table 3. Students'satisfaction with the online integrated learning management plan

No.	Items	$\bar{x}$	S.D.
Content		4.80	0.20
1	The content of the course was appropriate for my English Knowledge level.	4.79	0.42
2	The content was interesting and learnable.	4.82	0.39
Learning activities		4.64	0.21
3	Learning reading in an online integrated environment made me more interested in class content.	4.70	0.47
4	Learning activities in learning management made me more interested in developing my reading skills.	4.39	0.61
Learning material		4.87	0.08
5	The learning material was appealing.	4.88	0.33
6	The learning material supported practical learning.	4.91	0.29
7	The learning material helped in the retention of the content.	4.76	0.44
Instruction		4.93	0.05
8	The instructional techniques made the class learnable.	4.94	0.24
9	The class content was clearly explained.	4.88	0.33
10	The instructional method supported a meaningful learning environment.	4.97	0.17
Assessment		4.80	0.20
11	I was informed about the assessment method.	4.79	0.42
12	Assessment methods were related to the class content.	4.82	0.39
Benefit		4.85	0. 30
13	I understood the principles of reading comprehension.	4.88	0.33
14	I could read texts more comprehensively.	4.82	0.39
15	I could apply what I learned in class in daily life.	4.85	0.36
	Overall	**4.81**	**0.10**

The results of the study indicate participants' positive attitudes toward the online integrated learning management plan as an instruction medium in developing their reading comprehension. The average satisfaction level was found at a very high level ($\bar{x}$ = 4.81, S.D. = 0.10). The aspects of content ($\bar{x}$ = 4.80, S.D. = 0.20), learning activities ($\bar{x}$ = 4.64, S.D. = 0.21), instruction ($\bar{x}$ = 4.93, S.D. = 0.05), assessment ($\bar{x}$ = 4.80, S.D. = 0.20), and benefit ($\bar{x}$ = 4.85, S.D. = 0.30) were all found to be at a very high level. It could be interpreted that students were satisfied with the online integrated learning management plan.

4. Discussions

The result of the study could lead to a discussion related to the use of online technology in the reading classroom. It adds more evidence to support previous studies (*e.g.*, Nizamuddin et al., 2020; Bolukbas et al., 2011; Constantinescu, 2007; Huang & Hong, 2016; Kim et al., 2020; Murphy, 2007; Stearns, 2012) that also suggested the improvement of language learners' reading comprehension after using online integrated teaching method. The empirical evidence signifies the possibility for the learners to expose to reading sources in online experiences, online steaming lessons, e-books, etc. This helps them gain experience in reading and develop their vocabulary size.

Moreover, online integrated instruction in reading comprehension increases resources in text processing for students. From the interactive processing point of view, learners would allocate resources such as vocabulary knowledge and background knowledge of the topic to comprehend the texts (Stanovich, 1986). These resources could be used in both top-down processing (Goodman, 1967) and bottom-up processing (Stanovich, 1980), and they resulted in the participants' expected performances in learning with the online integrated learning management and improved reading comprehension after the treatment in the current study.

Lastly, it could be seen that the participants were satisfied with the online integrated learning environment in developing their reading comprehension. The result confirms the influence of online technology in language classrooms. In the new context of reading instruction, it could not be denied that online sources play an important role in learner development (Moran et al., 2008). Especially for learners of the new generation who have grown with the advance in network technology, using the online resources that they are familiar with contributes to satisfaction in language learning.

Consequently, the direction of further studies in reading comprehension development in high schools should be on encouraging learners to use online technology in developing their reading habits and competency. Moreover, further studies are encouraged to integrate other instructional techniques (*e.g.*, SQ4R, gamification, collaborative learning, etc.) with an online learning environment to develop students' reading comprehension.

5. Conclusion

In this study, we applied online integrated learning as a principle in designing a learning management plan which was employed in improving grade 9 students' reading comprehension. The results of the one-group experimental study on 33 students in Thailand indicate the effectiveness of learning management in a reading classroom. Moreover, the

online environment also brought about a satisfying learning experience for the participants. The results contribute to the investigation of online integrated learning on reading development. The study provides a piece of evidence to support the instructional method in the reading classroom with learners of a certain context. It also proves the appropriateness of using network technology in teaching new-generation learners.

The results of the study could be implicated in language teaching as stakeholders in learning management should consider online integrated learning as the center of their teaching. Especially in high school where learners are familiar with network technologies, the method is recommended. Moreover, teachers should make sure that online technology is used to form reading habits. Otherwise, it would be an obstacle rather than a supportive learning tool. Online technology is an influence in the world today, and scholars need to figure out a way to effectively use it for the sake of their learners.

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