

The Use of Infographics to Enhance the English Writing Skill of Mathayomsuksa 3 Students in a Private School Context

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Abstract

This study aimed to investigate the effects of the use of infographics on students' English writing skills, and to explore students' opinions toward the use of infographics. The sample group of 50 students, obtained through cluster random sampling, was drawn from a population of 288 Mathayomsuksa 3 students at a private school in Chiang Mai, Thailand. The research instruments included lesson plans, a writing test, the pre-test and post-test, and a set of questionnaires. Statistics for data analysis included mean, percentage, standard deviation, and t-test.

The results revealed that the use of infographics enhanced student's writing skills. The post-test scores were higher than the pre-test scores at the significance level of 0.05. The students had positive opinions towards the use of this media. They found writing classes utilizing infographics enjoyable, and they opined that the use of infographics raised their awareness on generating, connecting, and organizing ideas.

Keywords: Infographics, Writing Skill

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1. Introduction

Writing is one of the most significant English skills necessary for various purposes of communication, such as business, politics, and education. For second language learners, students with good command of writing can convey their message well. In most English classes, writing is considered as the most difficult skill to acquire (Negari, 201) and one of the most complicated tasks to maintain attention (Ahmed, 2010). In addition, writing allows people to share ideas, opinions and emotions (White & Arndt, 1991). Additionally, writing is an effective practice that enables students to learn more accurately and to enhance their understanding of what they have been taught (Voon Foo, 2007). Mohamed and Zouaoui (2014) also assert that writing is a necessary skill; the improvement of learners' English writing skills and confidence may lead to professional opportunities in the future as well as empowering learners to take on new roles as citizens within the community. Many researchers agree that writing in the ESL/EFL context is a complex, difficult and demanding task (Al-Khairy, 2013). Thus, students identify the skill of writing as more difficult than other skills, at least in a required level of competence, so that a teacher needs to be aware of the challenges and give opportunity for students to improve their writing skill.

To help improve students' writing skills, educational institutions offer them writing courses or training. However, one of the most significant elements of the teaching and learning process that can ensure the learning accomplishment is the teaching method. An effective teaching method with effective teaching media to improve students' writing ability is used to equip them with skills they need to generate appropriate and effective written communication. Therefore, teachers need to use effective teaching methods which incorporate appropriate strategies and techniques to help students develop their writing competence (Alsmari, 2019). Also teachers have to try new teaching methods to achieve learning goals (Adas & Bakir, 2013). Accordingly, several learning methods have been developed and implemented. These teaching methods include the audio-lingual method, community language learning, Silent Way, and Suggestopedia (Freeman, 1990) which are the methods used in general classes. For writing classes, several methods, techniques and activities are employed, such as peer response, scaffolding, self and peer correction, mobile learning, and infographics (Torwong, 2003; Kamal, 2015; Grabe & Kaplan, 1996)

Infographics are representations of information in a designed graphic format. This uses data visualization to convey complex information to the reader for easier and faster comprehension (Nikolay, 2018). Nowadays, infographics are used for many purposes, such as business, health, and education. Some teachers see the infographic as a potential visual media that can be used in the teaching process for various subjects, such as grammar, vocabulary, and writing (Saadah, 2019). Additionally, the use of infographics is an alternative way to improve students' writing skills. Davis and Quinn (2014) state that apart from reading skill, infographics enhance writing skills. There are some previous research supporting the use of infographics to develop English writing skills, for example Saadah (2019) using infographics media in teaching and learning activities to improve students' writing skills. Furthermore, Ridaillah (2018) claims that infographics have significant effect in students' writing summary skill. Infographics, previously known as graphic organizers, help the students in generating, connecting ideas, and organizing information which is then used for developing written text (Grabe & Kaplan, 1996). Teachers see infographics as a potential visual media that can be used in the teaching process, and they find infographics useful in attracting the students' attention (Ridaillah, 2018; Saadah, 2019). For Alrwele (2017) and Cifci (2016), using infographics has a positive impact on students' writing skill development, academic achievement, and

creative thinking. Although there are advantages to the use of infographics as a writing learning aid, there are few writing classes that incorporate the use of this tool to improve students' writing skills.

In the EFL context, several studies have been undertaken by using graphic organizers, mind mapping techniques, and pictures. Studies which use infographics in teaching English writing have been performed by several researchers such as Mahdah (2018), Saadah (2019), and Mubarok and Asri (2020), but in the context of this study, there are only a small number, despite the recognition of the effectiveness of the use of infographics according to the previous studies found in other contexts.

Consequently, this research aims to study whether the use of infographics could enhance students' English writing skills. The results of this study would be beneficial to teaching and learning of English writing classes in the EFL/ESL context.

2. Objectives

1. To investigate the effects of the use of infographics on students' English writing skills
2. To explore students' opinions toward the use of infographics

3. Literature Review

Writing

Writing has been defined in many ways. According to Harmer (1998), writing has been recognized as one of the fundamental skills for language learning. Writing is a process that begins with the production and arrangement of ideas, followed by the production, revising, editing, and improving of the first draft to the final edition (Martinez, 2019). In addition, writing is a process of formulating and organizing ideas in suitable words to deliver the aim and present them on a piece of paper. According to Nunan (2003), writing is a physical as well as a mental activity. Writers express their own ideas and writing requires generations of ideas, expression, and organization into easy to understand sentences and paragraph. Since writing needs to be effective by having accuracy of grammar, structure, vocabulary, and organization of the ideas (Alfaki, 2015), Javed (2013) states that writing skills demands that the ideas be presented in a well-organized structure.

Visual media

Visual media is defined as a thing that can only be seen and devoid of sound (Burhanudin, 2009) such as pictures, charts, diagrams, maps, and graphic organizers. In order to generate information, connecting ideas, finding ways to organize information, and using information to develop effective written texts, semantic mapping and graphic organizers are well-known techniques for use in the classroom (Grabe & Kaplan, 1996). There are many kinds of graphic organizers, included flow charts, hierarchical tree structures, classification arrays, charts, tables, figures, histogram, diagram, maps, and outlines (Armbruster, 1991; Mohan, 1986; Tierney, Readance & Disshner, 1990 as cited in Grabe & Kaplan, 1996) These materials can be created by both teachers and students and used as guides or outlines during pre or post writing activities. Currently, the term "graphic organizer" was replaced by the word "infographic". According to Routine (2014), infographics are method of expressing information in a visual form. Infographics increase the level of the learning process and provide more effective, attractive, and diverse information.

Infographic

Infographics are one of the many visual materials that are used to support learning and teaching. They have been utilized for hundreds of years. In the past, a form of infographic were maps that combined words and pictures to transfer information and messages (Tompson, 2016). The term infographic derives from the words “information graphic”, which refers to a category of visual multimedia tools to describe information and convey ideas (Polman & Gebre, 2015). Moreover, infographics are often referred to as information illustrations (Glasgow, 1994). In infographics, a mark, a symbol or visual element typically stand for quantitative information, data or knowledge while color, size, and shape usually provide the qualitative aspect. Infographics use text as labels and for short explanations to make the data useful (Ridaillah, 2018). Previously, infographics were mostly designed and created in applications such as Adobe InDesign, Adobe Photoshop, and CorelDRAW (Mubarok & Asri, 2020). Today, tools to build infographics are available in various free, low-priced, and easy-to-use programs. Several researchers suggest certain websites in creating infographics, namely Canva, Piktochart, Infogr.am, Easi.ly, and Visua.ly (Parkinson, 2016; Davis & Quinn, 2014; Guevara & Moore, 2013). Each website has unique, features and specific characteristics for the users in visualizing information. Maryani (2017) explains that the infographic media to be created is in the context of a visual digital native generation that appears to prefer visual artifacts instead of writing. According to Matrix and Hodson (2014), the uses of infographics in the education process inspire students and develops a different learning style that promotes acquiring knowledge and performing communication and information. The use of Infographic is interesting, effective, and attractive visually that is easy to understand and enables more enthusiasm in writing (Saadah, 2019).

In conclusion, infographics are visual displays which combine graphic design along with information to deliver messages. Moreover, it shows complicated information briefly and clearly. In this study, infographics were created by students in the pre-writing stage when they generated and scoped their ideas to write descriptive paragraphs.

Teaching and Learning of Writing through the Use of Infographics

In English language classroom, teaching materials has been used to help students to learn. "Infographic" originated from the words "information graphic" which refer to illustrations that combine graphic design with data to deliver messages instead of writing to the target audiences in a short period of time and to establish good communication with them (Krauss, 2012; Maryani, 2017; Smiciklas, 2012). The use of infographic is an alternative way to improve students' writing skills. Davis & Quinn (2014) state that infographics enhance writing skills. Infographics have emerged as a popular visual approach to deliver abstract, complex, and dense messages (Smiciklas, 2012; Vanichvasin, 2013). In addition, using infographics enables teachers to make ready various learning activities in order to persuade students with the contents and provide more chances for interaction (Vanichvasin, 2013).

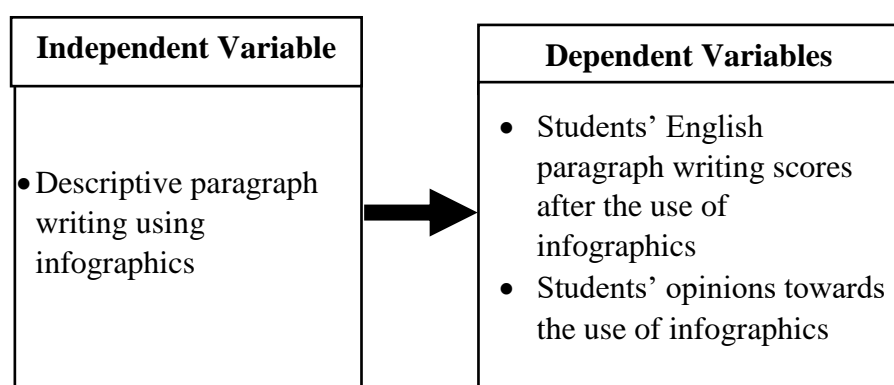
Infographics as a tool for facilitating learning can be used through the learning process presented by teachers (MohdAmin, 2014). In education, infographics are used to help the teacher in delivering the subject matter to students and some teachers see the infographic as a potential visual media that can be used in the teaching process (Saadah, 2019). There are many infographic for education purpose, especially for learning English, that can be found or created easily on the internet. English teachers can use infographics for teaching grammar, writing, vocabulary and other English skills. According to Alrwele (2017), infographics can be implemented as an instrument to make students understand the information and create easier and accessible instruction. With infographics, teachers

can combine visuals with words in the classroom. Teacher can use infographics to engage students and stimulate learning.

Several other studies have ascertained the benefits of using infographics as a media. Using infographics has a positive impact on students' intellectual, life skills, and effective development (Alrwele, 2017). In addition, infographics has a positive impact on the academic success. Moreover, the use of infographics in education had influenced the retention levels of the students' achieved knowledge positively (Ozdal & Ozdamli, 2017). Furthermore, infographics increase academic achievement and attitude levels of the students and can also contribute to visual and verbal learning levels (Cifci, 2016). By requiring students to make infographics, they employ their organization, creative, and analytical ability (Smiciklas, 2012).

Therefore, infographics are tools that play a significant role in helping students and teachers to create instruction and lead to the written text. Moreover, infographics have an advantage in developing students' writing skills. This study aims to investigate the use of infographics to enhance students' English writing skill.

4. Conceptual Framework



5. Research Methodology

The design of this experimental research was the single group pre-test and post-test.

Population

The population of this study was 288 Mathayomsuksa 3 students who enrolled in a supplementary English subject in a summer semester of the academic year 2020 at a private school in Chiang Mai, Thailand. There were six classes in Mathayomsuksa 3. Each class consisted of students with the different levels of English ability.

Sample

The sample group consisted of 50 students obtained by using the cluster sampling method. To select the sample group, the researcher used cluster random sampling to select one class out of the six classes of the population.

Research instrument

In this study, there were two kinds of research tools, included tools for the experiment and tools for the data collection. The tools for the experiment consisted of eight lesson plans, and the pre-test, the post-test and a set of questionnaires.

1) Lesson plans

The lesson plans were created based on the school curriculum (Supplementary English) and Thai National Education Curriculum. The lesson plans covered eight hours during April-May 2021.

2) Writing test

A writing test was used as the pre-test and the post-test to assess students' writing skills. The test was conducted based on the school curriculum and the topic taught and learned. The sample group took the writing test before and after the intervention on the same topic to describe an interesting place (The Place You Should Not Miss). Based on the school curriculum, students were given 50 minutes to write a descriptive paragraph.

3) Questionnaire

The questionnaire was the 5 points Likerts' scale. It consisted of two parts. The first part was students' personal information and the second part was the students' opinions toward the use of infographics to enhance their writing skills.

To increase validity, after the lesson plans, the writing test, and the questionnaire were established, three language experts evaluated them in responding to the objective of the instrument construction using Index of Item–Objective Congruence (IOC) form. The IOC value obtained was 0.93, which was acceptable according to George and Mallery (2003).

Procedure of the experiment

Pre-Experiment

1) The researcher explored related theories and previous studies in which infographics were used to improve students' English writing skills.

2) The researcher developed the research instruments which included infographics, lesson plans and a set of questionnaires. All the instruments were evaluated by the three experienced experts to ensure the content validity by using the Index of Item–Objective Congruence (IOC) form and piloted with the sample group of 50 students.

3) The researcher administered the pre-test to the students. Students had a direct descriptive paragraph writing test. Time allocated was 50 minutes.

During the experiment

4) The teacher as a researcher taught the students the process and structure of paragraph writing and used infographics as teaching and learning tools.

5) The teacher assigned the students to create an infographic and to write a descriptive paragraph each week for four weeks. The students produced the first draft and revised it after getting feedback from two English language teachers.

6) Students submitted the final drafts to the teachers for grading. They graded students' writing based on the school's formative assessment criterion (70%).

Post-experiment

7) The researcher administered the post-test and a set of questionnaires to the students.

8) The researcher analyzed the data using Statistical Packages for the Social Sciences (SPSS).

9) The researcher presented the findings, recommendations, and suggestions.

Data analysis

The data analysis focused on the effects of the use of infographics on students' paragraph writing skill and to explore their opinions towards the use of infographics. The data was analyzed by using Statistical Packages for the Social Sciences (SPSS). Mean (\bar{x}), percentage (%), standard deviation (S.D.), and t-test were employed to compare the writing test scores of the students in the sample group before and after learning through the use of infographics.

6. Results of the research

1. Difference between the students' English writing skill before and after the use of infographics.

The results of the pre-test and post-test score analysis which indicated the students' writing skill before and after the experiment were shown in the following table.

Table 1 Comparison of the pre-test and post-test mean score

Tests	N	Mean	Std. Deviation	Mean Difference	t	Sig.
Pre-test	50	11.32	4.53	3.70	17.65	.00*
Post-test	50	15.02	3.65		29.09	

* $p < 0.05$

Table 1 presents the results of the statistical data from the pre-test and post-test scores. It can be seen that there was a statistically difference between the pre-test and post-test scores of the students at the significance level of 0.05. The mean score of the pre-test and post-test were 11.32 (S.D.=4.53) and 15.02 (S.D.=3.65), respectively.

Table 2 Formative assessment scores (%) of the students compared to the criterion score (70%)

Topic	Average Score (%)	Number of students obtaining scores \geq 70%	Percentage
Week 1: Animals	53.20	19	38.00
Week 2: A Famous Person	60.00	22	44.00
Week 3: Favorite Pictures	63.60	27	54.00
Week 4: Future Education	75.20	37	74.00

$n=50$

Table 2 presents the formative assessment scores (%) of the students compared to the criterion score (70%). It can be seen that more number of students achieved the criterion scores when they were taught and learned with the use of infographics. Only 19 students (38%) achieved the criterion scores and the average score was 53.20%. However, many of them achieved the criterion score (70%)—in the second week, 22 students (44%) achieved the criterion scores and the average score was 60.00%, in the third week, 27 students (54%), and the last week 37 students (74%), with the average scores of 63.60% and 75.20% respectively.

2. The students' opinions towards the use of infographics

After the experiment, the students responded to the questionnaire which focused on their opinions towards the use of infographics. The results of the data analysis were shown in the following table.

Table 3 Students' opinions towards the use of infographics

Items	\bar{x}	S.D.	Interpretation
1. Creating infographics allowed me to brainstorm and explore new ideas.	4.22	0.81	Agree
2. The use of infographics helped me create clear scope of the ideas before writing a paragraph.	4.14	0.88	Agree
3. The use of infographics helped me organize ideas better in my paragraph writing.	4.24	0.84	Agree
4. The use of infographics motivated me to write more.	3.98	0.76	Agree
5. The use of infographics helped me to write a coherent descriptive paragraph.	4.12	0.82	Agree
6. The use of infographics helped me to write a cohesive descriptive paragraph.	4.10	0.83	Agree
7. Learning with the use of infographics took less time.	4.16	0.81	Agree
8. The use of infographics allowed me to generate ideas relevant to the topic I write.	4.26	0.89	Strongly Agree
9. The use of infographics promoted the collaborative skill.	4.06	0.86	Agree
10. I enjoyed the writing class when the teacher used infographics to teach in class.	4.44	0.67	Strongly Agree
Overall Scores	4.17	0.12	

$n=50$

Table 3 presents students' opinions towards the use of infographics. Students strongly agreed that the use of infographics allowed them to generate ideas relevant to the topic they wrote ($\bar{x} = 4.26$, S.D. = 0.89), and they enjoyed the writing class when the teacher used infographics to teach in class ($\bar{x} = 4.44$, S.D. = 0.67). A great number of students thought that the use of infographics helped them organize ideas better in their paragraph writing ($\bar{x} = 4.24$, S.D. = 0.84). Most students agreed that creating infographics allowed them to brainstorm and explore new ideas ($\bar{x} = 4.22$, S.D. = 0.81). It can be notice that many students agreed that learning with the use of infographics took less time ($\bar{x} = 4.16$, S.D. = 0.81). Moreover, the majority of the students agreed that the use of infographics helped them create clear scope of the ideas before writing a paragraph ($\bar{x} = 4.14$, S.D. = 0.88). There was a large number of students considering that the use of infographics helped them to write a coherent descriptive paragraph ($\bar{x} = 4.12$, S.D. = 0.82) as well as a cohesive descriptive paragraph ($\bar{x} = 4.10$, S.D. = 0.83). Furthermore, it can be noticed that a large number of students showed a very positive opinion that the use of infographics promoted the collaborative skill ($\bar{x} = 4.06$, S.D. = 0.86). Over half of the students agreed that the use of infographics motivated them to write more ($\bar{x} = 3.98$, S.D. = 0.76).

7. Conclusion and Discussion

The results from the comparison between the pre-test and the post-test scores showed that there was a significant difference between the students' English writing skills

before and after the use of infographics. The post-test mean scores (15.02) were significantly higher than the pre-test mean scores (11.32) at a significant level of 0.05. The results of this carefully undertaken study confirmed that the use of infographics certainly improved the students' writing skills. This finding agreed with Saadah's (2019), Mahdah's (2018), Davis and Quinn's (2014), and Mubarak and Asri's (2020) in that by using infographics as one of the teaching and learning media, students' writing skills were better. In this study, it was also observed that after the students used infographics, they could generate, connect, and scope their ideas better. According to Grabe and Kaplan (1996) generally, utilizing infographics is a well-known technique for generating information, connecting ideas, searching ways to organize the information, and using information to develop effective writing. In addition, infographics can also enhance students' creativity and understanding ideas by implementing the graphic and text into a single picture. During the process of implementing infographics in this study, it was also found that the students enjoyed creating infographics, sharing and giving feedback to others, and took less time to study. Similarly, Bicen and Beheshti (2017) also found that students enjoyed learning and creating infographics. Using infographics motivated students to communicate with others and assisted them to learn faster. From the classroom observation, it was also found that students were happy during learning with infographics. They were allowed to work individually and with peers. In addition, they had enthusiastically worked with creative and systematic thinking. It can be concluded that the use of infographics helped the students to write effective written texts.

Regarding classroom activity, infographics as teaching and learning materials facilitate teachers in monitoring students' work. In this study, it was found that the use of infographic enabled the teacher to monitor and manage in the students learning process more conveniently. This finding agreed with Vanichvasin (2013) that using infographics enables teachers to make ready learning activities in order to persuade students with the contents and provide more chances for interaction. With the implementation of infographics, the teacher is able to give feedback on students' writing. Furthermore, the teacher and the students can check, edit and share pieces of writing and infographics. With infographics, students can write descriptive paragraphs which have cohesion and coherence. They can also scope relevant ideas before writing a paragraph. As reported in a study by Alrwele (2017), infographics could be implemented as an instrument to make students understand the information and create easier and accessible instruction. Overall, Mahdah (2018) states that infographics will be a new contribution to English teachers who want to adopt this media as an alternative or supplementary strategies in teaching writing. In conclusion, the use of infographics is beneficial for teaching and learning writing in terms of increasing students' motivation, helping students generate and organize ideas, and assisting the teachers to conveniently manage classroom activity.

In terms of the students' opinions, it was found that the students had positive views toward the use of infographics. They found that it helped raise their awareness in generating, connecting, and organizing ideas. These positive opinions were a reflection of students' satisfaction according to Alrwele (2017), Cifci (2016), and Ozdal and Ozdamli (2017). Interestingly, the students showed a high level of satisfaction on the use of infographics for generating and organizing ideas in their paragraph writing. According to Grabe and Kaplan (1996), infographics are used for generating information, connecting ideas, searching ways to organize the information, and using the information to develop an effective written text. In conclusion, the students thought that the use of infographics was beneficial in motivating students to write and in raising their awareness in generating, connecting, and organizing ideas.

8. Suggestions

The suggestion for this research was that the teacher should monitor the class closely during the time students create their infographics. Some students spent more time with creating and organizing ideas. Therefore, the teacher should provide students enough training on computer technology relevant to the use of infographics in their writing. For further study, it was suggested that more number of the students should be involved in order to discover whether the use of infographics yields similar or different results regarding effects on students' writing skill.

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