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THE IMPACT OF INFOGRAPHICS IN AN ONLINE JIGSAW SETTING TOWARDS INDONESIAN EFL LEARNERS' READING COMPREHENSION

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui dampak infografis dalam Jigsaw online terhadap pemahaman membaca siswa SMA EFL Indonesia. Penelitian ini merupakan penelitian pra eksperimental dengan rancangan *one group pretest-posttest*. Sampel yang digunakan adalah satu kelas kelompok utuh dari kelas sepuluh yang ditentukan secara acak oleh guru bahasa Inggris di SMA Negeri 1 Singaraja. Pengumpulan data menggunakan pre-test-posttest dan dianalisis secara deskriptif dan inferensial melalui IBM SPSS Statistics 23. Instrumen penelitian menggunakan tes pemahaman membaca sesuai Taksonomi Barret. Hasil penelitian menunjukkan bahwa (1) mean posttest siswa adalah 88,38 lebih tinggi dari pretest yaitu 65,00; dan (2) ada perbedaan yang signifikan antara rerata postest dan rerata pretest Sig. (two-tailed) adalah 0,000 < 0,05. Dengan demikian, dapat disimpulkan bahwa infografik dalam Jigsaw online berpengaruh positif dan signifikan terhadap pemahaman bacaan siswa EFL di Indonesia.

ABSTRACT

This study aimed to investigate the impact of infographics in online Jigsaw setting towards Indonesian EFL senior high school students' reading comprehension. The research was a pre-experimental study with one group pretest-posttest design. The sample was one class of intact groups from tenth graders which was randomly assigned by English teacher in SMA Negeri 1 Singaraja. The data collection employed pre-test-posttest and were analyzed descriptively and inferentially through IBM SPSS Statistics 23. The instrument was used reading comprehension test based on Barret Taxonomy. The results show that (1) the students' posttest mean was 88.38 which was higher than the pretest that was 65.00; and (2) there was a significant difference between the posttest mean and that pretest mean Sig. (two-tailed) was 0.000, which was < 0.05. Therefore, it could be concluded that infographics in an online Jigsaw setting had a positive and significant impact towards Indonesian EFL's reading comprehension.

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1. Introduction

Reading comprehension is a basic competence in developing students' reading skill. Reading comprehension is a process of constructing the meaning of written communication between readers and text (Broek & Espin, 2012; Ertem, 2010). It seem essential to acquire reading comprehension because students will be successful in both school courses or life through attaining reading comprehension (Papatga & Ersoy, 2016). In achieving a good reading comprehension, there are several reading strategies, which can be implemented in the classroom. According to McEwan (2007) and Shanahan, et al (2010) reading strategies divided into questioning, making inferences, making connections, visualizing and summarizing.

Visualization becomes another essential component of reading comprehension as the construction of a mental image of a text. In line with this statement, Ozdal and Ozdamli (2017) and Yildrim (2016) mentioned several advantages of visualization i.e. helps students to grasp the information, attract students' attention, motivate students, facilitate complex and summarize ideas to be learned effectively, give interactive learning environments and help to recall information.

In the 21st century, a lot of teaching media can be used to deliver and visualize information or ideas including infographics. Infographics become more popular in education field since it help students to encourage students reading comprehension (Davis & Quinn, 2014). Davis and Quinn (2014) has stated that an infographic is a modern written artifact of collected information that is visually presented in the form of a modern design. Infographics is a learning medium which provide several benefits. The benefits are infographic can facilitate teachers to teach basic knowledge of the lesson; ease students in understanding; help to obtain information briefly, and provide more constructive materials rather than textual materials.

In the context of the digital era, the utilization of infographics is appropriate to be integrated into the teaching and learning activities. Today's students are known as digital natives who usually interact with technology in their lives. It is in line with Ozdal and Ozdamli's (2017) statement that the development of new technology has brought a new path of learning style, which allows different styles and structures in transferring teaching materials. Therefore, the use of infographics as a learning media seems to fit these students' characteristics since infographic emphasizes on the use of technology.

Besides the use of technology, 21st-century learning is also demanded to promote and foster 21st-century skills, one of which is collaboration (Trilling & Fadel, 2009). Jigsaw is one of cooperative learning strategy which employ collaboration. According to Aronson (2002), Jigsaw is a specific type of group learning experience, where each student must cooperate and participate with his/her group's members to achieve the group's learning objectives. In addition, Kagan and Kagan (2009) has mentioned that Jigsaw's steps are flexible to be modified into several variations. One of the modifications is that teachers can integrated media to summarize and synthesize information from a reading text. Márquez, Llinas and Marcias (2017) in Spain have been investigated the effect mind map integration in the last step of the Jigsaw technique on pre-university secondary students' physics concepts. It means that Jigsaw with can be combined with a summarization or visualization media specifically in the eight step of Jigsaw.

However, the researcher do not have research knowledge on the same topic which has been done in the context of English language teaching. Therefore, the current study is intended to fill this gap by investigating the impact of the integration of infographics in

an online Jigsaw setting towards Indonesia EFL learners' reading comprehension. The study is important to be conducted because the researcher want to investigate Kagan and Kagan's theory related to one of the modifications of Jigsaw with summarizing or visualization media. Since the Jigsaw and infographics were fully done through online learning, this study was conducted in SMA Negeri 1 Singaraja because this school has adequate facilities to do online learning.

2. Method

The study was a pre-experimental study with one group pretest-posttest design. One group pretest-posttest design is a pre experimental study which employ one group and given a pretest and posttest after the treatment (Gay, Mills & Airasian, 2012). The population was tenth graders students in SMA Negeri 1 Singaraja, Buleleng Regency, Bali Province, Indonesia. Meanwhile the sample was 32 tenth graders students of a single class. This group was one class of intact groups which was randomly assigned by English teacher in that school. The research design can be seen clearly in Table 1.

Table 1. Research Design

Group experimental	Treatment	Post-test
O	X	O

After selecting one group as a sample of this research, the pre test was conducted. The group was administered a pre-test which consisted of 25 multiple choice questions related to reading comprehension and following this, the treatment was given. The treatment were done four times during online learning in a synchronous environment. This single group was given a treatment under online Jigsaw setting with infographics in the eight step. After the treatment, the group was given a post-test which involved of 35 reading comprehension questions. The reading comprehension was designed based on Barret Taxonomy. The questions involved five levels of Barret Taxonomy from the lowest (LOTS) until the highest level (HOTS) i.e. literal comprehension, reorganization, inferential comprehension, evaluation and appreciation.

Before post-test was administered, the content validity and reliability of the instrument should be confirmed as valid and reliable. The content validity was measured through two expert judges and tabulated in the table using Gregory formula. Meanwhile, the reliability test was measured through ANATES application. Based on the result of Gregory formula, it was showed that the validity score was 0.97 while the reliability value of the instrument was 0.95. It indicated that the instrument was valid and reliable.

When the treatment using the integration of online Jigsaw with infographics, the students were given post-test. The results of post-test were analyzed through IBM SPSS Statistics 23. However, before conducting dependent t-test (paired simple test) to measure the effect of treatment, the data should be normally distributed. Thus, it is essential to do normality test. The normality was used Kolmogorov-Smirnov aided with IBM SPSS Statistics 23. The sample was classified as normally distributed if the significant level ≥ 0.05. After the normality has fulfilled the requirement, the paired sample test was conducted. The data collected were analyzed through descriptive and inferential statistics aided with IBM SPSS statistics 23.

3. Finding and Discussion

The pretest and posttest results were analyzed descriptively and inferentially through IBM SPSS Statistics 23. The results of descriptive statistics can be seen in the Table 2.

Table 2. The results of descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
pretest	32	40.00	92.00	65.00	14.828
posttest	32	80.00	100.00	88.38	6.116
Valid N (listwise)	32				

As indicated in Table 2, the mean of pretest was 65.00 which was lower than the mean of posttest of 88.38. Meanwhile the standard deviation of pretest was 14.828 which was higher than the standard deviation of posttest of 6.116. It indicates that there was significance different of mean between students' reading comprehension before the treatment and after the treatment.

Table 3. The result of Normality Test

	Kolmogorov-Smirnov[a]		
	Statistic	df	Sig.
pretest	.150	32	.064
posttest	.151	32	.061

Based on Table 3, both of pretest and posttest data were normally distributed. It can be seen the significance value of pretest was .064 and the significance value of posttest was 0.61, which were higher than .05. It can be concluded that both of pretest and posttest data were normally distributed.

Since normality test has been fulfilled the criteria of paired sample test, paired sample test can be conducted. The result of paired sample test can be seen in Table 4.

Table 4. The results of Paired Sample Test

		Paired Differences							
					95% Confidence Interval of the Difference				
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	pretest - posttest	-23.375	17.538	3.100	-29.698	-17.052	-7.539	31	.000

It explicitly proves in Table 4 that the significance value of sig. (two-tailed) was 0.000 which was lower than significance level of 0.05. It indicates that there was a significant difference between students before the treatment and after the treatment under online Jigsaw integrated with infographics. Besides, the mean of pretest and posttest was -23.375. It can be implied that students' reading comprehension before treatment have been increased after the treatment.

The results of the data analysis were in agreement with the statement of Davis and Quinn (2014), who has revealed that infographics support and ease students in developing their reading comprehension. It is because integrating infographics in the reading activity could develop students' comprehension of a topic or idea as well as

strengthening their critical thinking and synthesizing skills. Additionally, the results of the study confirmed Kagan and Kagan (2009) and Mengduo and Xiaoling's (2010) theories which have stated that a learning media to summarize ideas could be inserted in the eighth-step of Jigsaw implementation. It clearly proved that infographics as a learning media can be added in the step of Jigsaw.

The significant difference of mean between pretest and posttest might be contributed by the effectiveness of information that was presented in their informational infographics. Besides, it might be attributed by the effectiveness of infographics in conceptualizing main ideas and supporting details. This statement was in line with Cupita and Franco (2019), who stated that infographics are beneficial in developing students' reading comprehension skills. They mentioned several positive impacts of infographics, namely: a) infographics can transfer the information effectively and b) infographics help students to understand the reading topic easily.

The results of the findings in line with the study were conducted by (Márquez et al., 2017; Mengduo & Xiaoling, 2010) who revealed that the integrated of summarizing or visualizing media had a positive and significance effect on students' learning performance. This statement was also in line with Kongwat and Sukavatee (2019), who showed that collaborative reading instruction with infographics allows students to conceptualize the main ideas and supporting details of the text and exercises their summarizing skills.

Since the significance value of sig. (two-tailed) was 0.000 which was lower than significance level of 0.05, it indicated that the null hypothesis "there is no significant impact of Infographics in an online Jigsaw setting towards Indonesian EFL learners' reading comprehension" was rejected. It means that there is significance impact of Infographics in an online Jigsaw setting towards Indonesian EFL learners' reading comprehension. This result was also proved by the result of descriptive statisctics which indicated that the mean of post-test was higher than the mean of pre-test. It showed that students' reading comprehension was better after the treatment under infographics in online Jigsaw. Therefore, the result of this study confirmed that infographics in an online Jigsaw have a positive and significant impact on EFL students' reading comprehension.

4. Conclusion

Based on the data analysis in finding and discussion, it can be concluded that the experimental group' reading comprehension has increased after the treatment by infographics in an online Jigsaw setting. It was proven by descriptive statistics that the posttest mean was 88.38 which was higher than the pretest mean about 65.00, and the standard deviation in the posttest was lower than the pretest. It means that there is significance difference between the group before treatment and after the treatment.

In addition, the paired sample test shows that the null hypothesis was rejected since there is a significance difference in online Jigsaw towards EFL learners' reading comprehension. It can be seen from the significance value of Sig. (two-tailed) was 0.000 ≤ 0.05. Therefore, it can be concluded that infographics in an online Jigsaw had a positive and significant impact towards Indonesian EFL students' reading comprehension. The researcher intends to suggest that teachers' candidate implement this strategy in teaching reading comprehension and other researchers should investigate the strategy at the other education level and in a different setting or sample to find meaningful results.

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