

The Effects of Computer Assisted Mediating Prompts on EFL Learners' Writing Ability

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ABSTRACT

This study aims to examine the EFL learners' perception and process of writing development through using a digital storytelling tool, called *Storyjumper*. To do so, 15 intermediate-level students were participants of the study. The participants' writing development was frequently assessed through a series of repeated writing tests before and after the treatment during one term of study, and the significance of change was examined by Repeated measure ANOVA (rANOVA). The researcher also used paired sample *t*-test to compare mean difference between two sets of observations. In addition, to gain an in-depth picture of fluctuations of the process of writing development, learners' views were obtained through both semi-structured interviews and self-reported reflective journals which were also recorded and analyzed. The qualitative independent variable (stories produced via *Storyjumper*) was the within-subjects factor, and the dependent quantitative variable on which each participant was measured (repeated writing tests) was the between-subjects factor. The findings of both quantitative and qualitative data analyses show that there was a significant difference between EFL learners' writing development before and after receiving the treatment. Moreover, majority of the learners admitted that their experiences in using *Storyjumper* were positive. As a result, this study is contributory in its own rights as it underscores the significance of digital storytelling as a pedagogical tool for the EFL learners' writing enhancement.

Key words: Digital Storytelling, Writing, Mediation, Computer- Assisted Prompts, *Storyjumper*

INTRODUCTION

Writing has always been considered a challenging task in learning English, especially by those students who are, most often, bored with the outdated conventional teaching approaches. It is also considered a frustrating task even by the most proficient learners. In other words, writing proves to be the skill which most students tend to master much later than the other skills such as speaking listening and reading (Chitravelu et al., 2005). This lack of interest and competence in writing shall not be ignored, especially because in all major examinations, writing has a determining role in rating one's language proficiency. Therefore, the issue of finding ways to facilitate the development of this skill has been the topic of many research works in second language acquisition.

A recent development in assisting writing instruction, i.e. ready access to the latest technological resources and tools, has created the expectation that computer-assisted mediating prompts may facilitate writing skill development for the L2 learners in 21st century (Hashim et al., 2016). In fact, as Prensky (2001) claims current students, known as "Digital Natives", have to be instructed not through conventional

approaches, but ones that fit into their interest in digital tools of different sorts. Prensky (2007), stressing the resulting change in learners' thinking patterns and perception of joyful studying methods, articulated the important of teachers' knowledge of technology use in the teaching environment. Therefore, when teachers' ICT literacy is adequate enough, they are able to teach technology use better. Besides, technological innovation, as a catalyst in learning process, has to be incorporated into the preparation of the teaching materials such as online tools, digital media and so on (Morrison et al., 2009).

Although there are several studies that proved technology develops both teaching and learning experience (Yunus et al., 2013), it should not be ignored that this is achieved only by meaningful integration of technology into classroom (Prensky, 2001, 2007). Sadik (2008) also asserted that "using technology can only affect learning positively if teachers possess the expertise to use technology in the classroom, meaningfully" (p. 487).

With the advent of the recent user friendly Web 2.0 tools, teachers found plausible the possibilities of enhancing writing through collaboration with other writers for the instruc-

tion of writing to L2 learners. It was postulated that more proficient students would better display their talents when in touch with other proficient students through virtual writing communities (Olthouse & Miller, 2012). One example of the Web 2.0 tools is the digital storytelling tool. Digital storytelling is defined by Normann (2011) as a short story in which author of the story records his voice to present the story. This definition has undergone many refinements because of the developments in technology and because of the range of use in both academic and non-academic contexts (Clarke & Adam, 2012; Normann, 2011).

Digital storytelling can make writing more interesting, especially via the user friendly software called *Storyjumper*. This online digital storytelling platform is one of the most popular digital storytelling websites which have gained millions of users for its simple and engaging environment which is why it is chosen as the computer assisted prompt of this study. It also offers ready-made high quality digital visualizations; users can also upload photos or use their own drawings to appear in the pages of their stories. *Storyjumper* allows its users to collaborate and share artistic and literacy talent across the globe.

However, despite the vast literature on the effects of various digital storytelling tools on EFL/ESL learners (Conrad, 2013; Robin, 2008; Sadik, 2008, Sukovic, 2014), there has been few studies on the development of writing using *Storyjumper* (Menezes, 2012; Wertz, 2014) and almost none on the students' perspective towards using *Storyjumper* as the computer-assisted mediating prompts in the instruction of writing in English.

Moreover, over the past few decades, a significant amount of research examined using video editing software to create videos for a digital story in order to assess the level of student engagement using such software products. However, in this study, the researcher puts more emphasis on learners' perception and ideas during writing process and the mediation the learners are most responsive to during task completion. The purpose of this study is to examine the effects of digital storytelling on writing efficacy and the most effective way to mediate learners in the process of writing, achieved through the use of a digital storytelling website called *Storyjumper*.

LITERATURE REVIEW

Research on the use of digital tools in both EFL and ESL writing classrooms has shown that these tools make the learning environment very encouraging for the EFL learners to improve their writing skills both qualitatively and quantitatively (Bialo & Sivin-Kachala, 1996; Fidaoui, Bahous & Bacha, 2010; Goldberg, Russell & Cook, 2003; Lam & Pennington, 1995). Although there were many references in the research literature concerning the integration of technology into the learning environment, few studies had specifically tried to meaningfully bring technological advances in the classrooms. And many of those that tried to do so, were mostly in a teacher-centered, meaningless way which had very few differences with the traditional teaching methods. In the previous research works, tools were often used in a very general term and none of the identified studies related

their outcomes to a conceptual framework to exactly allow the nature of learner perception to be identified. In this study, the technological tools are integrated meaningfully in the class curriculum and learners' perception was conceived by using different measures. For example in a recent study Shateri (2016) conducted research on the role of information and communications technology (ICT) in academic achievement of elementary students. The results showed that, the average of ICT trained students (in every round of the study) was more than the average of students trained in the traditional way. Also, the results of research conducted by Rahimi and Yadollahi (2011) showed that ICT use was greatly related to teachers' ability to use technological tools; but the use of ICT was not related to attitude and gender of the teachers. But in the present research, the author uses meaningful integration of technological tools in classroom aiming to explore the effects of digital storytelling as a computer-assisted mediating prompt, on student writing and perception. The research further tries to discover the potential of digital storytelling as a recent concept in teaching and learning environment.

Many researchers have stated different pedagogical benefits of digital storytelling in an educational environment. As an example, Kadjer and Swenson (2004) have studied the effects of digital storytelling on literary skills of students. They intended to do this by trying to actively engage students in their given tasks. The results showed that within two weeks' time of the study, the learners were highly motivated and the previously passive learners tend to be active and participate in the collaborative community. In another study conducted by Banaszewski (2005), digital storytelling was used to engage reluctant learners to put more effort in the writing task. He highlighted the difficulties teachers' had to go through in order to use digital tools in their classrooms for writing tasks such as narrative writing. The reports of the study showed that when holding a positive attitude the learners could communicate way ahead of the present time.

In a seminar, Tendero (2006) presented the use of digital storytelling with an emphasis on assisting teachers to better implement ICT tools to enhance learners' deep learning. In this study, the participants were asked to write a digital story about their experience as a teacher. They were able to use digital storytelling to share and collaborate on different tasks given to them. The teachers later reported that they used digital storytelling in their classrooms in order to enhance learner engagement. This in turn improved the teachers' ICT literacy and helped teachers become a more skilled mentor through the complex process of teaching (Tendero, 2006). Through digital stories learners can write about their different cultural backgrounds, whether they are from the same or different countries and/or regions. Hull and Katz (2006) conducted a three-year-and-six-month research in a classroom where students came from more than one single culture. The qualitative data which belonged to young adults and adolescents were collected and analyzed thoroughly. The results showed that no matter in what age the students were, all of them went through the same process of improvements and developments through using digital storytelling (Hull & Katz, 2006).

In another study, Maier and Fisher (2006) focused on the impact of digital storytelling in a middle school health education class where students got to enhance their learning experience in an authentic and dynamic learning environment via authentic tools, where they actually learned rather than “blind” memorization. The outcomes showed that underperformers who find it difficult to catch up with others on productive class projects found out a chance to express their experiences, display their talents and visualize their imagination (Maier & Fisher, 2006). Robin (2006) stated creating a digital storytelling helped learners develop communicational skills and critical thinking. The students also could recognize their audience and write more purposefully.

Objectives and Research Questions

This study aims at investigating the role of the computer-assisted mediating prompts, namely *Storyjumper*, as an example of Web 2.0 Digital storytelling tool, in the process of teaching writing to discover the developmental process of students’ writing skills and their responsiveness to the tool first, and then to assess the role of such mediation in an EFL context. Moreover, the study seeks to find learners’ perceived attitude toward technology use in the process of teaching. Therefore, the outcomes of this research need to enable us to answer the following questions:

1. Does *Storyjumper*, as an online computer assisted mediating prompt, promote development in EFL learners’ writing ability?
2. What kinds of mediation are learners responsive to during task completion?
3. What is learners’ perception of using *Storyjumper* in writing?

METHOD

Participants

In the present study the purposive sampling method was utilized in order to explore students’ experience in using *Storyjumper* in writing narrative text. After taking a proficiency test, 15 students of intermediate proficiency level took part in the study. The participants were in the age range of 15 to 17 including only female learners. These learners were chosen as subjects because regarding their level, they can be considered as writing proficient in English, so the language factor would not be an issue. They were chosen from the researcher’s class groups for a number of reasons, most notably due to the mutual good relationship between the teacher and the learners which enabled the researcher to constantly observe the participants’ progress and elicit more honest comments in their refractive journals. Furthermore, since this study seeks to describe the impact of digital storytelling on student learning, the researcher deployed an in-depth and process-based use of digital storytelling by a limited number of carefully selected participants who are on the right developmental level of proficiency in English.

Instruments

The evaluation instruments below were used to assess the quality of students’ stories, student perception of the assigned learning tasks and the type of mediation learners were responsive to.

Writing Evaluation Rubric

This evaluation tool was used to evaluate student performance when using digital storytelling. The writing evaluation rubric assessed the extent to which students gained skills while learning through authentic digital tools. As the literature suggests authentic evaluation tools serve as an appropriate tool to assess learning tasks based on ICT in which there are individual and group presentation projects. The researcher used Narrative Writing Analytic Evaluation Rubric written by Glencoe/McGraw-Hill Inc. in order to evaluate learners’ writings.

Digital storytelling Website: Storyjumper

In order to use a platform for learners to create digital stories on, the researcher chose *Storyjumper* web 2.0 tool. The main reason the researcher utilized this website was that *Storyjumper* gives teachers, students, parents, and authors a diverse set of tools in order to create and illustrate stories and that it also is straightforward, user-friendly and easy to use.

Procedure

This experiment was conducted in three months which is the duration of an English class in a foreign language institute. The class term is divided into half (two nine sessions): in the first half, the participants of the study were asked to write stories on paper in a traditional way. But in the second half, they were asked to join the website *Storyjumper* and continue with digital storytelling.

In the first session of the class term, after administering the proficiency test, the teacher explained the writing evaluation rubrics asking the participants to consider the rubrics and write a story as the pretest of the study. The students were required to write a story for each session of the class. They were also asked to keep a daily journal in order to keep track of their progress and write how they perceive story writing in a traditional way. They were handed a Self-Assessment Guide written by the Glencoe/McGraw-Hill, in order to enable them to evaluate their own writing by completing the sentences in the self-assessment guide.

At the beginning of the second half of the class term, the teacher started experimenting narrative writing with *Storyjumper*. In this session *Storyjumper* was introduced to the students. They were each given a username and password to join the virtual class previously created by the teacher and to start writing stories. The “How To” video of the website had been previously downloaded and played in the classroom so that learners wouldn’t be confused on how to use the tools. As the stories were written at home in order to make sure the digital stories were in fact created by the students them-

selves, the researcher administered in-class story writing quizzes in random sessions. Their daily reflective journals were also collected each session.

The students' stories were observed and corrected; their journals were also collected every session and analyzed. At the end of the semester, after gaining learner consent, the teacher recorded an interview to gain more in-depth information about how the learners perceived their writing development and their experience of using *Storyjumper*. However, it is notable that the participants were asked to write the journals in their mother tongue (Persian) in order to maximize their ability to explain how they perceive their new learning experience; the interviews were also conducted in Persian and then translated to be administered to the participants.

Data Analysis

This present study has been designed to use both quantitative and qualitative data analysis methods aiming to explore the effects of digital storytelling on students' writing ability; therefore, it focuses on the mediation and the student perception using digital storytelling in their learning environment instead of the old conventional methods. In order to achieve a complete understanding of the process, both quantitative and qualitative methods have been used. The pre- and post-tests have been analyzed using both paired sample *t*-test and repeated measure ANOVA, and a thematic analysis has been used to analyze the qualitative data. The researcher emphasized the frequently mentioned themes derived from learners' interviews and reflective journals.

Repeated Pre and Post Tests

Pre and post tests were used to assess the student's narrative writing ability. The pre-tests were the stories the students wrote in the first half of the study. The post tests were similarly administered including the stories students wrote after *Storyjumper* was introduced.

Semi structured interviews

In order to gain in-depth information on learners' perception of using *Storyjumper* in writing, the teacher recorded group interviews; these served as the qualitative data which were collected through semi structured interviews with a set of previously written set of open questions. Later, the data were analyzed in order to evaluate learner perception and attitude toward using *Storyjumper* in their classrooms.

Student reflective journals

During the project, the students were asked to keep journals enabling them to assess their writing process as individuals. Due to the fact that the student reflective journals were an important item to the research, they were asked to write the journals at home. This lowers the risk of any pressurized comments and they would have sufficient time to reflect on their opinions which they otherwise may not have expressed in the classroom or in the interviews. In order to analyze learners' perceptions and the type of mediation they were most responsive to, a content thematic analysis (Hassaskhah, 2016) was used by the researcher.

Table 1. Pretests multivariate tests^a

Effect	Value	F	Hypothesis difference	Error difference	Sig.
Factor1					
Pillai's trace	0.646	2.732 ^b	6.000	9.000	0.085
Wilks' lambda	0.354	2.732 ^b	6.000	9.000	0.085
Hotelling's trace	1.821	2.732 ^b	6.000	9.000	0.085
Roy's largest root	1.821	2.732 ^b	6.000	9.000	0.085

Table 2. Posttest multivariate tests^a

Effect	Value	F	Hypothesis difference	Error difference	Sig.
Factor1					
Pillai's trace	0.468	1.320 ^b	6.000	9.000	0.339
Wilks' lambda	0.532	1.320 ^b	6.000	9.000	0.339
Hotelling's trace	0.880	1.320 ^b	6.000	9.000	0.339
Roy's largest root	0.880	1.320 ^b	6.000	9.000	0.339

a. Design: Intercept within subjects design: Factor1 b. Exact statistic

Table 3. Paired samples statistics

	Mean	N	Standard deviation	Standard error mean
Pair 1				
Scores in post test	46.5190	15	1.30442	0.33680
Scores in pre test	38.9619	15	1.19366	0.30820

a. Design: Intercept within subjects design: Factor1 b. Exact statistic

Table 4. Paired samples test

	Paired differences						t	df	Sig. (2-tailed)
	Mean	Standard deviation	Standard error mean	95% confidence interval of the difference		8.38784			
				Lower	Upper				
Pair 1	Post- and pretest scores Pair 1.	7.55714	1.50005	0.38731	6.72644	8.38784	19.512	14	0.000

Table 5. Frequently mentioned themes

Positive Perceptions	Negative Perceptions
Idea generation	Internet related difficulties
Personalized learning	Lack of ICT literacy
Sense of authority	

FINDINGS

Repeated Pre and Posttests

Repeated pre and posttests were administered to determine whether the participants' writing skill had improved participating in the course, and also to answer the first research question. The semi-structured interview and the reflective journals helped the researcher answer the second and third questions outlining the impressions that emerged as far as use of *Storyjumper* was concerned.

In order to assess the inter-rater reliability, the researcher asked two other English teachers to correct the students' writing papers. Inter-rater reliability is defined by Wang (2009) as whether or not two examiners, without being under influence of each other, would give the same scores to the same set of written texts.

Regarding the fact that in this research repeated pretests are administered, repeated measure ANOVA had been used to compare the mean scores in 7 stages of the pretest. Also the researcher used paired sample t-test to determine whether the mean difference between two sets of observations is zero. Table 1 shows the multivariate test results.

In Tables 1 and 2 above, the impact indicators of independent variables (tests) are presented. The three Pillai, Hotelling, and Roy's values are positive in both pre and posttests. The more positive these indicators are, the greater the impact of the relevant variables will be. But the Wilk's value has a negative effect, in other words, the smaller the Wilk's value, the more impact it has. Finally, according to the probability value of the test in the last column of the result, there is no significant difference between the 7 test steps in the pre and posttest phase.

In order to evaluate the effect of treatment, the results of the pretest of the learners should be compared with the posttest results. Parametric test using paired sample t test has been used for this purpose due to the normal distribution of mean data. Table 3 shows the descriptive statistics, which demonstrates the mean score of the pretests and posttests.

Table 4 shows the paired t-test results. In this test, the zero hypothesis states that the mean scores of the pretests and posttests are not significantly different. Regarding the

test probability in the final column of the Table 4, this hypothesis is rejected, and therefore 7.5 score difference between pre and posttests shows that there is a significant difference. Therefore, the treatment has been effective.

Semi-Structured Interviews and Student Journals

To gain in-depth information about learner perception regarding *Storyjumper* and to answer the second and third research questions the researcher asked the learners to keep a daily journal and write how they perceived the new writing experiment with *Storyjumper*. They were handed a Self-Assessment Guide written by the Glencoe/McGraw-Hill, in order to evaluate their own writing by completing the sentences in the self-assessment guide. The researcher also conducted a semi-structured interview at the end of the course; the students' answers were recorded and later transcribed. In order to safeguard the anonymity of the participants, they were coded as P1, P2 up to P15. Data analysis of these qualitative data included a thorough read-through of all of the interview transcripts and reflective journals by identifying frequently mentioned themes. These themes are broken down in Table 5.

The most frequently mentioned theme of the participants was the ease of idea generation when using *Storyjumper*. When comparing traditional story writing, the participants felt it was a lot easier to generate ideas using *Storyjumper*. P11 found it difficult to generate ideas within the appropriate time. Most of the other participants supported this notion by following the statements below. To overcome this challenge, participants looked through the ready-made images on the website, they also had access to the website's Library where there are numerous digital stories written by other students, which they used as the pre-writing technique.

- "I found the picture of a witch and I decided to write a story about witches. I have seen many movies about them and I can make up a good story" (P11)
- "It was really difficult to find what to write about. Then my sister told me to look through the pictures of the website and write stories about them." (P1)
- "I had the picture of my music class, when I saw other stories about musical instruments and the other students had uploaded their own pictures, I decided to use my own pictures and write a true story about me." (P15)
- "It is really easy to think of a story when you have so many books to read." (P6)

Using the ready-made graphics and images, *Storyjumper* attracts students' interest in writing. In this regard, learners tend to employ affective strategies as they became interested

in their narrative text. This notion was voiced out by P14: *"I chose one picture and plotted the storyline then another picture rang for a new storyline, I added them together and made a whole new story which I like better."*

The learners also mentioned the benefits of digital storytelling for their personalized learning. The definition given by the United States National Education Technology Plan (2017) defines personalized learning as instructions given to students which meet the needs of each individual student in the learning process and the chosen teaching approach. In addition, learners find activities meaningful and relevant to themselves which are mostly based on their interests, and are often self-initiated.

According to Al-Zoubi (2009), technological devices are mostly used to try to facilitate personalized learning environments. This notion is supported by Pogorskiy (2015) who believes ICT technology allows learners to have access to research and information gathering, serving a mechanism for communication, discussion, and recording learning goals so it can act as a very powerful tool for personalized learning.

Therefore, digital storytelling helped learners find their interest and plot their stories according to their likings. This notion is voiced by some of the learners:

- *"I love that I can write about whatever I like and choose the pictures I like."* (p8)
- *"My drawing has always been bad, so when we had class projects which included drawings I always had problems. Now with Storyjumper's props and scenes I have no problem creating story books."* (p5)
- *"I can write about my family in the books."* (p9)

Writing through online tools awakes a sense of authority towards the written stories in the students, which allows them to feel that their voice is heard not only by the teacher but by the responsive audience all around the world. This is supported when learners wrote in their journals that:

- *"I can share stories with my friends in Storyjumper"* (P9)
- *"Writing online with Storyjumper makes me try to write wisely because I feel everyone can see my writing"* (P15).
- *"My mother shared the link of my story to my cousin. I feel she was proud because she sees me as an author now."* (P8)
- *"This makes me happy to have a book in my name. This is too bad I cannot purchase a hardcover version of my book"* (P7)

The students reflected the difficulties they faced using digital storytelling as well. These were mostly related to poor internet connection and lack of ICT literacy among the learners or their parents:

"I had to ask my mother every time I tried to log in to my account" (P1)

"I lost the internet connection three times in the middle of the story writing. I forgot to hit the Save button so I had to start over". (P3)

"We didn't have internet connection at first so I had to go to the cyber café for the first two pages of my story." (P12)

According to students' pre and posttest results, their re-

flexive journals and their answers to the interview questions, it is obvious that the use of *Storyjumper* attracts learners' interest in writing in a different ways, knowing that they can write and express themselves using this digital storytelling tool. Although the learners encountered internet connection difficulties and some of them had lack of ICT literacy, the experiment seemed to have great impact on their engagement and interest in writing narrative texts. The findings of this research support the notion by Garrard (2011) whereby the participants found online tools and pictures very effective when they faced difficulties to create a story as they struggled to generate and elaborate ideas. They also believed they were able to write about their preferred subjects and find the respective pictures easily. They also generated a sense of authority and took authorship and responsibility over their texts which were reflected many times in their journals and interviews. Therefore, *Storyjumper* is an effective tool in enabling students' to generate more creative ideas to write their stories.

DISCUSSION

This paper explored students' writing ability, their responsiveness to digital prompts and their perception of using *Storyjumper* in writing EFL narrative text. As the students' held positive attitudes towards the use of *Storyjumper* in order to write narrative stories, authorities need to consider utilizing various features offered by *Storyjumper* in order to improve the complex skill of writing among the younger learners who, with a little help, can become skilled at using technology. As the major findings of both qualitative and quantitative data suggest, the digital storytelling tool used in this study, *Storyjumper*, is a great tool that enables the learners improve their writing skills.

The first sets of findings indicate that students' writing ability with regard to the test probability, there was a 7.5 score difference between the students' overall pre and posttest. This shows that there is a significant difference between the learners' pretest and posttest scores. Therefore, the treatment in this research has been effective. Harris (2011) reported similar results. In his research, it was found that the use of technological advances had numerous positive effects on learners' writing skill and it also proved to engage the students more than the traditional paper and pen writing. Another research conducted by Lacina and Griffith (2012) also confirms the above findings. Their research showed that students' writing is better improved through the use of technological advances such as blogging and digital storytelling. This, in turn, strengthens their self-confidence and sense of achievement which leads to higher student engagement in the classroom tasks. The results of data analysis also shows high levels of motivation which were considered in the literature as the products of meaningful integration of technological tools in the learning environment (Leahy, 2007). The participants seemed to benefit from the constructivist nature of the digital storytelling and they also claimed that writing their own digital stories helped them generate ideas more easily and take authority in their writings.

The results of the present study is also in line with the findings of a study conducted by Banaszewski (2005) on displaying writing skills among the learners who have a negative attitude towards writing tasks. The results suggested that developing a positive attitude towards various storytelling skills was plausible through using digital storytelling tools. This finding is also supported in another study conducted by Goldberg et al. (2003) who also highlight the importance of multimedia tools on learners' writing skills. Garrard (2011) also conducted a research regarding the effects of digital storytelling on narrative text writing, the findings were in line with the obtained results of the present study, as he found out digital storytelling positively affects writing narrative texts.

The present study revealed "sense of authority" as one of the areas in which learners felt progress using *Storyjumper*. Similar to this, Zakaria et al. (2016) found out that with the use of online Digital Storytelling website called Storybird, learner's sense of authority and creativity, as well as their writing skills were enhanced and developed. In this study the learners supported one another's statements about the ease of generating ideas when using *Storyjumper*. These students have previously faced difficulties when trying to generate ideas arising from lack of pre-writing skills such as brainstorming. Nonetheless, they overcame this obstacle in writing once they got a chance to glance at the titles of other users' stories and chose the images offered in the *Storyjumper*. They also stressed the importance of being able to share their stories to the world and recognizing themselves as a member of a larger community which in turn increased their effort to write more wisely, this finding is also supported by Zakaria et al. (2016). Another important issue reflected in both reflective journals and student interviews was the ability to have a wide choice of graphics and images in order to write their stories, which in turn led to learner engagement. This is supported by Joseph (2006), who found that digital storytelling tools that visually attractive content not only increases student interest in the subject matter but also helps students increase their engagement level in the given tasks.

CONCLUSION

The present study examines the EFL learners' perception and process of writing development through using a digital storytelling tool called *Storyjumper*. To do so, 15 intermediate-level students' writing development was assessed through a series of repeated writing tests before and after the treatment during one term of study, and the significance of change was examined by Repeated measure ANOVA (rANOVA). The researcher used paired sample *t*-test to determine whether the mean difference between two sets of observations is zero. In addition, to gain an in-depth picture of the process of writing development, learners' experiences and views were obtained through both semi-structured interviews and self-reported reflective journals which were also recorded and analyzed. The findings of both quantitative and qualitative data analyses showed that there was a significant difference between EFL learners' writing development before and after receiving the treatment. Moreover, majority of the learners admitted that their experiences in using *Sto-*

ryjumper were positive. As the results suggest, digital storytelling serves as a powerful tool in order to enhance learner engagement and develops learners' writing skill. Therefore, teachers need to meaningfully integrate into the learning environment. Undeniably, the teachers and their teaching method determine whether and ICT tool would have successful results in the learning environment (Shah & Empungan, 2015). According to Yunus et al. (2012) it is crucial to integrate technology into a learning environment in a more student-centered approach.

Regardless of the limitations of this study, it has several important implications for future research, particularly with digital storytelling and writing. As the findings of this study suggest, the integration of digital storytelling and writing in EFL classroom can be helpful for maximizing learners' writing abilities and their classroom engagement. The findings also suggest teachers and students improve their ICT literacy to benefit from the full potential of the technological devices. Future researchers can further the results of this study by expanding upon writing strategies by conducting longitudinal and more comprehensive research to see the true potential of digital storytelling on long-term growth and development in students as narrative writers.

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