

The effect of digital storytelling on EFL learners' productivity motivation

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Abstract

The current study was conducted to explore the effect of digital storytelling (DST) on EFL learners' motivation. Based on the outcomes of an Oxford Placement Test, sixty pre-intermediate EFL learners were randomly divided into two separate groups each containing 30 participants (one control and one experimental). A motivation questionnaire was utilised to assess the participants' motivation prior to and after the experiment. To analyse the data, analysis of covariance (ANCOVA) and multivariate ANCOVA were run. In terms of motivation, the findings reveal that ST participants had performed better than the control group after the treatment. The findings also emphasised the need for instruction through the implementation of DST as a dynamic and essential component of language teaching that is advised to be given a high premium in EFL educational programmes.

Keywords: Computer-assisted language learning, productivity motivation, storytelling, EFL, male students.

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1. Introduction

Modern world is best characterised by rapid technological progresses. In fact, this world is identified by numerous features namely large quantity of information access, and unexpected changes in technology tools. In modern technological world, computer-assisted language learning (CALL) is a newly recognised area worthy to be taken into account in language learning studies. 'In addition, technology can be a tool used to create a more student-led and expletory environment' (Hett, 2012, p. 3). Hence, it is vital for teachers to adopt technology in the classroom to encourage learners to promote educational skills.

Storytelling is one of the constructive functions of digital media. In fact, employing digital media to present a story is a method to share a particular story with family, work mates and friends. With the advent of new technologies, and also, regarding its role in the instructive settings, a new form of storytelling has emerged. As such, students are provided with new educational tools. 'One such tool, which is increasingly used in higher education, is digital storytelling (DST), i.e., multimedia digital narratives' (Bou-Franch, 2012, p. 82). DST is of paramount significance for teaching concepts and information. According to Meadows (2003, cited in C.-M. Hung, Hwang & Huang, 2012), digital stories are characterised as short in length, individual in number and multimedia in type.

In point of fact, DST can be measured as an instructional tool for educators to work on diverse areas of language so as to create students' awareness and response. As Michalski, Hodges and Banister (2005) mentioned, 'DST involves telling stories using multimedia technologies, providing a format for students to put their thoughts together visually, aurally and kinesthetically' (p. 2). Digital stories enable students to control the learning process which boost their learning confidence and motivation. Therefore, this study investigates the effect of using DST on EFL learners' motivation.

1.1. Statement of the problem

Technology concerns and also, how it can impact learning and achievement in the classroom have been studied for the past decades. For example, Clark (1983, cited in Campbell, 2012, p. 386) stated that 'media have no more effect on learning than a grocery truck has on the nutritional value of the product it brings to market.' He also discussed and compared media conditions to no media conditions, so as to justify their practicality. As Jacobsen (2001) discussed, 'many teachers worldwide are not able to adopt technology for teaching and learning tasks' (p. 488). Sheingold and Hadley (1990) reported a large group of teachers note that technology integration is a challenging, time consuming and resource-intensive task. Dexter and Riedel (2003) also declared that the value of technology integration into education largely depends on its potential to involve students into learning. Nevertheless, others support that using meaningful integration of technology such as DST might be valuable to assist learners to create their own meaning from thinking and raise self-awareness which can lead to strong motivation.

The current study explores the influence of DST on EFL learners' motivation. Despite the fact that DST has been employed over decades; a limited amount of research has been conducted on this subject, particularly, as it has been used in instructive settings. The effect of integrating DST on productivity motivation in Iran has not been reflected on though.

1.2. Significance of the study

This study may help educators by providing them a new-fangled perspective on the incorporation of technology into their school curriculum that may result in a modification in technology practice. It attempts to deliver a rich and vivid image of how educators put DST into practice; therefore, one can be able to motivate students.

Furthermore, the findings of the study can be benefit to syllabus designers and EFL teachers. Likewise, teacher and syllabus instructors can benefit from the findings of the study and improve a better understanding of the role of CALL software instruction. Despite Iranian educational system attempts in general educational area, growth in technological supports that assist educational advances has been slower. It can be measured as a significant point that encouraging Iranian teachers to incorporate technology into the curriculum may lead them to offer active learning circumstances in classroom.

1.3. Objective of the study

This study pursues the following objective:

- i. Comparing established types of language instruction and DST instruction in enriching Iranian male EFL learners' motivation.

1.4. Research question and hypothesis

The following research question generates the current study based on its key drives:

Q. Does DST enhance the motivation of pre-intermediate EFL learners?

Regarding the aforementioned research question, the following null hypothesis has been formulated:

H₀. DST does not enhance the motivation of pre-intermediate male EFL learners.

2. Review of literature

As technology has been introduced, the superiority of teaching along with learning came to importance respectively. In their works, Joe Lambert and Dana Atchley at the Center for Digital Storytelling at UC Berkley in 1993 presented DST (Robin, 2008). Therefore, DST appeared as an influential storytelling instrument. As said by Liu, Tong Zhou, Lu and Sun (2014), storytelling is a teaching method which is based on a carefully chosen story to show and explain the things that teachers expect students to know. Additionally, this teaching method aids learners to reflect profoundly about notions, characters, feelings and event.

A limited number of studies indicate the impact of DST instruction on learners' motivation. In a study, for example, which was conducted in New Zealand by McKinnon, Nolan and Sinclair (2000), they explored student interests and attitudes toward computer use and motivation. Their data were gathered through an attitude survey, a motivational questionnaire and interviews. The results confirmed an inclusive improvement of student motivations that embrace the whole story.

In another study which was conducted by Yang and Wu (2012), they assessed the effect of DST on academic attainment for English language learning, critical thinking and learning motivation and stated constructive consequences on all variables. It is found that DST has been treated as an effective approach to promoting motivation in classrooms; however, the effects of integrating DST on promoting these skills in Iran have not been explored yet.

3. Methodology

3.1. Participants

The participants of the study were randomly chosen from the population of pre-intermediate level learners studying at the language Center of Tehran institute of Technology in Guilan province. The selection of the institute was done based on convenience sampling. The participating students whose age ranged from 18 to 24 years old were selected. This age was selected as it is the time when most Iranian young individuals begin to acquire a language.

Upon the administration of Oxford Placement Test; 60 learners, at random, were assigned to either control or experimental groups. Hence, the resulting sample comprised of 30 students for the control group and 30 students for the experimental group. While the experimental group was instructed based on DST as its treatment, the control group received the regular kind of training.

3.2. Instruments and materials

The following instruments were used based on the purpose of the study:

- i. Motivated Strategies for Learning Questionnaire (MLSQ): A motivation questionnaire was run to assess learning experience of the students in the experimental and control groups and their perspectives on DST and conventional instruction, respectively. The students were required to answer the 43 multiple-choice items in 43 minutes.
- ii. DST software: This software which belongs to 'Up and a Way' new series was employed in this study as DST software. These series include six levels of stories which are developed by Oxford University Press in 2004. There are four stories in this software. The third level was the one used for the purpose of this study, as the level of students was pre-intermediate. Each part of this software consists of some new words which are related to the stories and some post-listening fill-in-the-blanks questions which are related to the stories played digitally in the classroom. Through playing one of these stories in class, the images of the story are shown via PowerPoint on the board digitally. The accents of stories are in American and British accents. The third level was the one used for the purpose of this study, as the level of students was pre-intermediate. It is intended for students who need further practice in understanding simple stories. This software has some advantages such as high-interest topics that involve and motivate students. Furthermore, it has natural-sounding recordings that reproduce everyday situations, and convenient, task-based activities.

3.3. Procedure

To confirm that the instruments are authentic and also reliable, their reliability was first examined. The values of Cronbach alpha for two versions of listening test and motivation questionnaire were 0.74, 71 and 0.83, respectively, which were all higher than the minimum required (i.e., 0.70). To perform the experiment, first, the Oxford Quick Placement Test was administered to 120 EFL learners studying English at the language Center of Tehran institute of Technology in Guilan to ascertain their homogeneity in terms of their language proficiency. The placement test contains 60 items and the participants were required to answer them in 60 minutes. According to the results of placement test, 60 participants at pre-intermediate level were selected. Then, they were randomly assigned into control and experimental groups, each consisting of 30 students.

The students were assigned to fill out the motivation questionnaire. Owing to the fact that the participants were at pre-intermediate level of language proficiency, the motivation questionnaire was translated into Persian and the students filled in the Persian version of the questionnaire. Furthermore, in order to make sure that the validity of translation was ensured, the Persian version of the motivation was also translated into English by four EFL instructors.

Moreover, the motivation questionnaire (MSLQ) was administered after treatment, so as to check the participants' level of motivation after the treatment sessions were over. Eventually, after collecting the data, the results of pre-tests and post-tests were analysed to determine whether or not the integration of DST instruction would help to enhance the participating learners' level of motivation.

4. Results

To use covariance analysis, a number of assumptions must be considered. Kolmogorov–Smirnov test was run to check the normality assumption of the scores obtained through motivation questionnaire scores. Table 1 presents the information concerning normal distribution of these variables.

Table 1. Kolmogorov–Smirnov test

		Post motivation
	N	60
Normal parameters	Mean	170.23
	S.D	19.913
Most extreme differences	Absolute	0.111
	Positive	0.111
	Negative	-0.100
Test statistics		0.111
Asymp. sig. (2-tailed)		0.200

As it could be concluded, the level of significance for the dependent variables of the study is larger than alpha level (0.05) and consequently, the scores related to the dependent variables of the study are normally distributed. Consequently, the first assumption to use covariance analysis was met.

The following table displays the descriptive statistics regarding the motivation scores prior to and after the administration of the treatment for both experimental and control groups.

Table 2. Descriptive statistics (pre- and post-treatment for both groups)

Group		N	Min	Max	Mean	Std. deviation
Control	Pre-motivation	30	135	171	151.93	11.158
	Post-motivation	30	140	172	155.33	10.445
Experimental	Pre-motivation	30	121	192	166.67	18.117
	Post-motivation	30	150	205	185.13	15.380

As the Table 2 indicates, the performance of control group on motivation pre-test, the mean score was (M = 151.93) with a standard deviation of (SD = 11.158). Furthermore, the mean of experimental group on motivation pre-test and the standard deviation were (M = 166.67, SD = 18.117). Accordingly, the mean of control group on the post-test motivation was (M = 155.33) with a standard deviation of (SD = 10.455). Moreover, the mean of experimental group on motivation post-test was (M = 185.13) with a standard deviation of (SD = 15.380). Hence, it can be determined that the mean of experimental group on the post-test motivation increased more than that of the control group.

According to the results of Kolmogorov–Smirnov Test, the Pearson correlation was used to investigate the relationship among the dependent variables in order to check the multicollinearity assumption.

The following table (Table 3) displays the correlation between the dependent variables of the study.

Table 3. Results of Pearson correlation

		Post-motivation
Post motivation	Pearson correlation	0.521**
	Sig. (2-tailed)	1
	N	0.003
		30
		30

**Correlation is significant at the 0.01 level (2-tailed).

One of the assumptions for using the variance analysis is the lack of existence of multicollinearity between the dependent variables. To investigate the lack of multicollinearity, the correlation between

each pair of dependent variables should not exceed 0.75 following a more strict suggestion. As it could be noticed from Table 4.3, the correlation coefficient between all pairs of variables is less than 0.75, and therefore, the aforementioned assumption has been observed. Another assumption regarding using covariance analysis is the homogeneity of the matrix of the dependent variables covariances. This assumption is typically investigated through employing Box's test. Table 4 shows the related results:

Table 4. Box's test of equality of covariance matrices

Box's M	16.36
F	2.41
df	1 6
df2	5680.30
Sig.	0.13

As it could be perceived, the level of significance resulted in this test equals 0.13 which exceeds 0.05, and therefore, with a 95% degree of probability, the above-mentioned assumption has been met.

So far the three main assumptions for using covariance analysis were observed in the study. To investigate the impact of DST on motivation using covariate covariance, it is chief to nullify the effect of pre-test scores on the post-test results. To do so, the obtained scores of the pre-tests were inserted into the covariate variable model. The output of the multivariate tests conducted is presented in the following table.

Table 5. Multivariate test

Effect.	Value	F	Hypothesis df	Error df	Sig
Pillai's trace	0.778	26.83	3.0	23.0	0.00
Wilks' lambda	0.222	26.83	3.0	23.0	0.00
Hotelling's trace	3.50	26.83	3.0	23.0	0.00
Roy's largest root	3.50	26.83	3.0	23.0	0.00

As Table 5 shows, the results obtained through the covariance multivariate analysis show that the *F* amount in all the above-mentioned tests is statistically significant ($p = 0.0$). Therefore, it could be determined that between the scores of control and experimental groups, a noteworthy difference exists as a minimum in one of the dependent variables. To investigate this difference further, in what follows, the univariate covariance is employed.

The central assumption underlying univariate covariance analysis is the homogeneity of the dependent variances in the experimental and control groups. To confirm the homogeneity and launching the assumption, Levene' Test was run.

Table 6. Levene's test of equality of error variance

	F	df1	df2	Sig.
Post-motivation	0.013	1	28	0.910

According to the results of Table 6, the above-mentioned assumption is witnessed as the homogeneity of the dependent variances in the experimental and control groups can be established (Sig. > 0.05).

5. Discussion

This present study investigated the impact of DST on motivation of male EFL learners at pre-intermediate level. To this end, a randomly designated sample of 60 EFL male learners was taken from the whole population of pre-intermediate-level learners studying at language Center of Tehran institute of Technology in Guilan province. Upon administering the pre-test, in the form of listening and an oral

speaking test, the participants were found to be at pre-intermediate level. A questionnaire regarding language learning motivation was also administered both at the beginning and at the end of the course, the outcomes of which was used to determine the effect of DST on the motivation of the participants as well.

The findings provide evidence for Dorner' (2002) claim. He stated that compared to conventional storytelling, DST audiences are viewed not only as listeners but also as active learners who can interact and shape the story. The constructive effects of DST in the foreign language classroom are abundant. For instance, Freidus and Hlubinka (2002) examined the use of DST in a work environment. Their study exposed that the practice endorsed participants to express tenacity by disinfecting meaning to a wider audience. The results of the study by Standley (2003) also showed that within the last 10 years, digital cameras, editing software, authoring tools and electronic media outlets such as DST have encouraged teachers to utilise many more approaches and tools than ever before to aid learners to construct their own knowledge and idea to present and share them more commendably. Furthermore, the findings of this study are in line with that of Cangelosi and Whitt (2006) who stated that storytelling in an online learning environment is an effective and efficient educational approach, which have advantages that students learn through involvement, reflection and interpretation of stories. Also, Hibbing and Rankin Erickson (2003) stated that the use of multimedia in instruction aids students to maintain new information as and encourage them to realise problematic materials.

The results accredited that DST instruction had constructively positive impact on EFL learners' motivation at pre-intermediate level. A few numbers of studies have found the impact of DST instruction on learners' motivation. The results are in line with the finding of Dogan and Robin (2008, cited in Robin & Mcneil, 2012). In this study, they remarked that the teacher interviews during which teachers stated the increased technical and presentation skills of the students along with their better engagement and increased learning motivation. Moreover, in a qualitative exploratory case study, Dumova (2008) found an increase in motivation and self-esteem as students established ownership over the digital videos they created and the same results were gained through the same research project through reviewing students' replies to a motivation questionnaire.

The outcomes are, similarly, in line with the result of the study conducted in New Zealand by McKinnon et al. (2000), who explored students' perspective toward computer use and motivation. Their data included an attitude survey, a motivational questionnaire and interviews. The findings confirmed an overall improvement of student motivation. Additionally, results of the study by Solverg (2003) revealed that students delighted in using computers and digital software and he found it to be a constructive motivation for students and a pointer of students' accomplishment, conduct and their learning. As specified, more than a few studies have presented that technology can influence academic performance at every grade level and improve students' motivation, awareness and their tendency. There are numerous ways through which motivation can lead students toward being more effective and successful.

The same findings were stated by Dogan (2007, cited in Robin & Mcneil, 2012) who claimed the impact of DST on learner's motivation. He pointed out that the teachers who used DST in their classrooms reported that DST practice had encouraging effects on students' motivation and involvement levels. Another significant point to mention is that the findings also ascertain Yang and Wu's (2012) claim. In fact, they assessed the effect of DST on academic achievement for English language learning, critical thinking and learning motivation and reported positive outcomes on all variables.

6. Conclusions and implications

The data were collected and analysed to achieve research objective and answer the related research question. The research question was proposed to investigate the impact of DST instruction on pre-intermediate EFL male learners' motivation. The results showed that DST instruction had a statistically

significant impact on the participants' motivation. The findings exposed that the majority of participants had positive views towards DST instruction. As already stated in the Discussion section, these findings advocate the results of other studies in which most of the participants had agreement on the positive effect of DST instruction on their language learning. Hence, the null hypothesis of this study was rejected.

The experimental group's responses to motivation questionnaire endorse the advantage of instructing DST over the conventional type of classroom. With regard to the importance of developing curricula for students, curriculum designers integrate varied learning standards and instructional objectives into the curriculum. This study and its findings stressed the need for instruction through which learners receive due exposure to digital instruction. Thereby, the implementation of digital software is requisite and can be taken into consideration in Iranian EFL curriculum.

Educational institutions including schools, either private or public, and higher education institutions should pay more consideration to digital learning of materials in classrooms and consider the focal role of technology in general and DST in particular. The educational institutions should direct their attention to the educational philosophy which is learner-centred; that is, the suitable methodology and practices should be adopted based on the interests and needs analysis of the learners at every level of education. Moreover, the principles and methods underlying the existing curriculum need to be critically reviewed. In addition, instructors can aid students to improve their fluency in digital type of classroom by conducting practical tutorials and using different kinds of exercises. They can improve multimodal environment that are apt for our multi-media age nonetheless within the realities of their schools' resources and students' development.

Furthermore, the skilled development of teachers ought to offer continuous opportunities for teachers to align technology with the curriculum and collaborate and learn from peers who integrate technology into the teaching of alternative subjects. Consistent with the integrated curriculum approach, the skilled development of teachers will benefit from DST to assist teachers to build the connection between the subject they teach and alternative subjects to produce a lot of meaningful context for learning. Moreover, DST may inspire teachers to organise their own stories.

7. Suggestion for further research

More detailed issues can be put forward as recommendations for future research studies.

The present study just measured the level of motivation through DST instruction. Measuring motivation level through DST instruction remains a fertile ground for further research. This study suggests that other studies be conducted in the future to explore the probable impacts that DST instruction can have on language skills such as reading, speaking, listening and writing.

Since the present study was conducted on only EFL male learners, the same study, similarly, can be conducted on EFL female ones to observe the latent effect of DST instruction on motivation. The number of sample of the study could be larger in future studies. Only 60 participants were selected for pre-test, treatment sessions and the related post-tests. Additionally, as the present study was conducted in an academic context and with pre-intermediate level EFL learners, further research is needed to be done in other learning contexts considering advanced level.

As stated above, the provision of storytelling has not been regarded as an essential part of the pedagogy. This was previously done through more conventional types of storytelling and the associated literature bristles with copious studies attempting to clarify the strengths and weaknesses of such ways of supplying response. In recent years, nevertheless, there has been a vivid shift in this area towards more unconventional ways of providing students with more modern and technologically accompanied ways of practicing language skills and this seems to be transforming, at least to some extent, the oral/aural pedagogy.

The present study intended to cast light on the efficacy of one of these alternative storytelling types, that is, DST. The related literature regarding background and the correlation of DST with motivation, nonetheless, seems to be small and far from convincing. Interested researchers could, thus, further delve into the effectiveness of DST on the achievements of writing, and even vocabulary learning of EFL learners. Consequently, the current study recommends more studies on this issue with different levels of proficiency, different age groups and wider context.

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