

The Effect of the Digital Storytelling Method on Pre-Service Teachers' Creative Writing Skills

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ABSTRACT The purpose of the current paper is to investigate the effect of the digital storytelling method on students' creative writing skills. In this paper, experimental and control groups were randomly assigned and a pretest-posttest control group design was used. The paper's research group consisted of second-year students from the Classroom Teacher Education Department of Mugla Sitki Kocman University in the 2013-2014 academic year. As a result of the analyses conducted between the posttest scores of the experimental and control groups, a significant difference favoring the experimental group was found. In the present paper, it was found that the digital storytelling method improved the students' creative writing skills. At the same time, the digital storytelling method contributed to students developing original ideas in their writings, thinking fluently and flexibly, using words accurately, developing their sentence structures, providing organization, and using styles and grammar correctly.

INTRODUCTION

The necessity of utilizing new digital technology was brought about by modern life and resulted in the wide use of new methods and techniques in education that enhance the efficiency of learning activities. One of the new methods capitalized upon world wide is digital storytelling. Recently, digital storytelling has turned out to be an important method, used in pre-school education to adult education to link the digital world with education. Digital storytelling is generally defined as a method of telling tales or relaying tales to the audience by the narrator through multimedia tools. In other words, the basis of digital storytelling is telling tales. Digital storytelling is the preparation and presentation of traditional tales in digital media with the support of visual aids. Mello (2001) stated that storytelling is one of the oldest methods used to narrate thoughts and images. Condry et al. (2012) argue that storytelling has been used for teaching and learning throughout history, and tales help people learn. Digital storytelling encompasses two of the oldest learning-teaching methods:

storytelling and the opportunities offered by the digital world.

Jakes (2006) states that digital storytelling includes almost all of the skills expected from 21st century students. Karakoyun (2014) indicated that as a result of his paper, learners and teachers stated that the digital storytelling method improved their 21st century abilities. Research shows that digital storytelling is an effective method that enhances students' problem solving skills, critical thinking skills, academic achievements, and their use of learning strategies and learning motivation (Demirer 2013; Hung et al. 2012; Yang and Wu 2012). Digital storytelling is the result of a meaningful synthesis of subject area knowledge, pedagogic knowledge and technological knowledge. Thus, the use of this method helps us to acquire today's required qualifications. In addition to this, when a student prepares digital storytelling, the goal of the student is to thoroughly express himself or herself during the fictionalizing and presentation stages of the storytelling. The student can display his or her personal expression of style in the digital storytelling, thus emerging as a product (Arslan 2013). Therefore, it would be useful to examine this method with pre-service teachers so they maybe able to exploit it in their future careers.

Foley (2013) contends that digital storytelling can be used as an effective method to determine students' perception of writing, enhance students' writing skills, create an author identity in students, improve academic writing and in-

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volve students in the writing process. Some other papers explored the effect of digital storytelling and found that digital storytelling is a method that can foster writing skills (Xu et al. 2011; Kulla-Abbott 2006; Green 2011).

Kaya (2013) stated that the story is one of the suitable storytelling genres through which students can explain themselves creatively. Digital storytelling is a method that enables students to write and present stories by using their creative thinking skills. In addition to this, digital storytelling can be viewed as a method that helps students improve their creative writing skills. Creative writing is an expression of all the information gained from observations of the outer world in a manner that is different from other people. It is the written exhibition of creative thoughts by means of stories, poems, folktales, cartoons etc. (Kaya 2013). Creative writing means going beyond the ordinary without compelling normal values, displaying thoughts that are different from others' by drawing on imagination, catching originality, writing fluently and with fun, taking pleasure from writing and going beyond the standards (Kucuk 2007).

Research shows that genres such as music, cartoons and stories might contribute to the development of creative writing skills (Kaya 2013). In the digital storytelling method, visual and audio elements can be freely used; hence, this method can be used to enhance students' writing skills. Based on these assumptions, the problem statement of the present paper was formed.

The purpose of the present paper is to investigate the effect of the digital storytelling method on students' creative writing skills. For this connection, the stories written by the pre-service teachers were evaluated through the data collection instrument in relation to creative writing skills and its eight sub-dimensions: originality of the ideas, fluency of the thoughts, flexibility of the thoughts, richness of vocabulary, sentence structure, organization, genre and style, and correct use of grammar. For this purpose, answers to the following questions were sought:

1. Is there a significant difference between the experimental group students' pretest creative writing total score and sub-dimension scores (originality of the ideas, fluency of the thoughts, flexibility of the thoughts, richness of vocabulary, sentence structure, organization, genre and style, and correct use of grammar) and their posttest creative writing total score and sub-dimension scores?

2. Is there is a significant difference between the pretest creative writing total score and sub-dimension scores of the students instructed through the PowerPoint-assisted presentation and their posttest scores?

3. Is there a significant difference between the creative writing posttest scores of the students by means of PowerPoint presentation-based instruction and those of the students instructed through the digital storytelling method?

METHODOLOGY

Research Design

For this paper, experimental and control groups were randomly assigned and a pretest-posttest control group experimental design was used. In the pretest-posttest control group model—one of the real experimental methods—there are two groups, called experimental and control, which are determined through unbiased assignment. The experiments with the highest scientific value are the experiments conducted with real experimental methods (Karasar 2009). In the present paper, the experimental group students were subjected to digital storytelling-based instruction and the control group students were exposed to PowerPoint-assisted presentation instruction.

Participants

The group studied in this paper consists of second-year students from the Classroom Teacher Education Department of Mugla Sıtkı Kocman University in the 2013-2014 academic year. In order to determine whether the experimental and control groups are equal, the students were told to write stories that would be evaluated through the creative writing rubric, and then their pretest scores were calculated. The researchers evaluated the stories written by the students and no significant difference was found as a result of an independent samples t-test. Pretest mean scores of the experimental and control groups and t-test results concerning these scores are presented in Table 1.

The experimental group and the control group were randomly determined. There were a total of 76 students participating in the paper; 38 of them were assigned to the experimental group and 38 were assigned to the control group.

Table 1: t-test results related to creative writing pretest total scores and sub-dimension scores of the experimental and control group students

	<i>N</i>	$\bar{X}$	<i>Ss</i>	<i>t</i>	<i>p</i>
<i>Originality of the Ideas</i>					
Experimental	38	2.18	.65	-0.650	.520
Control	38	2.26	.50		
<i>Fluency of the Thoughts</i>					
Experimental	38	1.92	.48	.240	.812
Control	38	1.89	.45		
<i>Flexibility of the Thoughts</i>					
Experimental	38	1.92	.49	-1.743	.090
Control	38	2.10	.45		
<i>Richness of Vocabulary</i>					
Experimental	38	2.23	.59	.961	.343
Control	38	2.10	.56		
<i>Sentence Structure</i>					
Experimental	38	2.24	.59	.404	.689
Control	38	2.18	.56		
<i>Organization</i>					
Experimental	38	2.26	.60	1.954	.058
Control	38	2.05	.52		
<i>Genre</i>					
Experimental	38	2.11	.51	.298	.767
Control	38	2.08	.59		
<i>Style and Correct Use of Grammar</i>					
Experimental	38	2.24	.59	1.044	.303
Control	38	2.11	.51		
<i>Creative Writing Total</i>					
Experimental	38	17.10	3.63	.478	.636
Control	38	16.78	2.76		

$p < 0.05$

Data Collection Instrument and Procedure

In order to evaluate the creative writing skills of the students in this paper, the “Creative Writing Skills Rubric” developed by Ozturk (2007) was used. The rubric consists of eight sub-dimensions. These are originality of the ideas, fluency of the thoughts, flexibility of the thoughts, richness of vocabulary, sentence structure, organization, genre and style, and correct use of grammar. For each sub-dimension in this rubric, a score ranging from 1 to 5 can be taken; the lowest score to be taken from the rubric is 8 and the highest score is 40.

Validity and Reliability Works

In order to establish the validity of the Creative Writing Skills Rubric used in the present paper, expert opinions were sought. In order to establish the reliability of the rubric, the texts written by the pre-service teachers were scored independently. Then, using inter-rater cohesion percentage and Cohen’s kappa coefficient, the reliability of the scale was established. The in-

ter-rater cohesion percentage was found to be 77.5. As this value is over 70 percent, the scale can be argued to be reliable (Sencan 2005). The weighted kappa coefficient was calculated to be 0.698. These values show that the cohesion among the raters is above medium.

Experimental Process

The application was conducted for four class hours per week in the course of Teaching Technologies and Materials Design. The content of the course was delivered to the experimental group through the digital storytelling method and to the control group through PowerPoint presentation-based instruction. First, in order to determine the equality of the groups, both of the groups were told to write a story, and then their texts were analyzed and evaluated with the data collection instrument. After the determination of the equality of the groups, the experimental group and the control group were randomly determined. Before the application, the experimental group students were informed about the digital storytelling method. The stages of storytelling prepa-

ration were explained to them, as well as how to design a storyboard and how to construct a digital story. They were introduced to the Photo Story 3 program, which is used to design digital storytelling; a sample application was demonstrated. During the experimental process, the experimental group students prepared a digital story for the unit to be studied each week, and these stories were presented and discussed in class. In the control group, on the other hand, the students prepared PowerPoint presentations and presented them in class. The application lasted for seven weeks for four class hours each week.

Data Analysis

In the present paper, pretest and posttest scores of the experimental and control group students taken from the Creative Writing Skills Rubric were calculated. The collected data were analyzed by using the SPSS 17 program package. In the analysis of the data, an independent samples t-test was run to determine the difference between the pretest and posttest scores of the experimental group and the control group.

Buyuköztürk (2012) stated that this statistic analysis is suitable when two groups are randomly assigned to an experimental group and a control group, and when these groups are instructed on the same content through two different teaching methods; at the end of the application, efficiency of the methods are to be evaluated. In within-groups comparisons of the pretest and posttest scores, a dependent samples t-test was used. The statistical significance level was set to be 0.05.

FINDINGS

Findings Related to the First Sub-problem

An independent samples t-test was run to test whether there is a significant difference between the experimental group students' pretest creative writing total score and sub-dimension scores (originality of the ideas, fluency of the thoughts, flexibility of the thoughts, richness of vocabulary, sentence structure, organization, genre and style, and correct use of grammar) and their posttest creative writing total score and sub-dimension scores. The obtained data are presented in Table 2.

Table 2: t-test results related to the experimental group students' pretest and posttest creative writing total scores and sub-dimension scores

	<i>N</i>	$\bar{X}$	<i>Ss</i>	<i>t</i>	<i>p</i>
<i>Originality of the Ideas</i>					
Pretest	38	2.18	.65	-9.69	.000
Posttest	38	3.92	.96		
<i>Fluency of the Thoughts</i>					
Pretest	38	1.92	.48	-11.03	.000
Posttest	38	3.89	1.03		
<i>Flexibility of the Thoughts</i>					
Pretest	38	1.92	.48	-10.31	.000
Posttest	38	3.71	.98		
<i>Richness of the Vocabulary</i>					
Pretest	38	2.24	.58	-8.31	.000
Posttest	38	3.53	.86		
<i>Sentence Structure</i>					
Pretest	38	2.24	.05	-7.59	.000
Posttest	38	3.55	.92		
<i>Organization</i>					
Pretest	38	2.26	.60	-10.43	.000
Posttest	38	3.97	.88		
<i>Genre</i>					
Pretest	38	2.10	.51	-12.72	.000
Posttest	38	3.97	.88		
<i>Style and Correct Use of Grammar</i>					
Pretest	38	2.31	.59	-9.85	.000
Posttest	38	3.78	.74		
<i>Creative Writing Total</i>					
Pretest	38	17.61	3.63	-11.70	.000
Posttest	38	30.34	6.52		

$p < 0.05$

When Table 2 is examined, it is seen that there is a significant difference ($p < .05$) between the experimental group students' pretest creative writing total score and sub-dimension scores and their posttest creative writing total score and sub-dimension scores. When the means are investigated, it is seen that this difference is in favor of the posttest scores.

Findings Related to the Second Sub-problem

A dependent samples t-test was run to test whether there is a significant difference between the control group students' pretest creative writing total score and sub-dimension scores (originality of the ideas, fluency of the thoughts, flexibility of the thoughts, richness of vocabulary, sentence structure, organization, genre and style, and correct use of grammar) and their posttest creative writing total score and sub-dimension scores. The obtained data are presented in Table 3.

When Table 3 is examined, it is seen that there is no significant difference ($p < .05$) between the control group students' pretest creative writing

total score and sub-dimension scores and their posttest creative writing total score and sub-dimension scores.

Findings Related to the Third Sub-problem

An independent samples t-test was run to test whether there is a significant difference between the experimental group students' posttest creative writing total score and sub-dimension scores (originality of the ideas, fluency of the thoughts, flexibility of the thoughts, richness of vocabulary, sentence structure, organization, genre and style, and correct use of grammar) and the control group students' posttest creative writing total score and sub-dimension scores. The obtained data are presented in Table 4.

When Table 4 is examined, it is seen that there is a significant difference ($p < .05$) between the experimental group students' posttest creative writing total score and sub-dimension scores and the control group students' posttest creative writing total score and sub-dimension scores. This difference is in favor of the posttest scores of the experimental group students.

Table 3: t-test results related to the control group students' pretest and posttest creative writing total scores and sub-dimension scores

	<i>N</i>	$\bar{X}$	<i>Ss</i>	<i>t</i>	<i>p</i>
<i>Originality of the Ideas</i>					
Pretest	38	2.26	.50		
Posttest	38	2.36	.71	-.94	.353
<i>Fluency of the Thoughts</i>					
Pretest	38	1.89	.45		
Posttest	38	2.10	.76	-1.48	.146
<i>Flexibility of the Thoughts</i>					
Pretest	38	2.10	.45		
Posttest	38	2.07	.78	.23	.822
<i>Richness of the Vocabulary</i>					
Pretest	38	2.11	.56		
Posttest	38	2.15	.68	-.44	.661
<i>Sentence Structure</i>					
Pretest	38	2.18	.56		
Posttest	38	2.13	.66	.42	.676
<i>Organization</i>					
Pretest	38	2.05	.52		
Posttest	38	2.36	.63	-2.77	.090
<i>Genre</i>					
Pretest	38	2.08	.48		
Posttest	38	2.21	.62	-1.53	.133
<i>Style And Use of Correct Grammar</i>					
Pretest	38	2.11	.51		
Posttest	38	2.13	.66	-.25	.800
<i>Creative Writing Total</i>					
Pretest	38	16.79	2.76		
Posttest	38	17.55	4.48	-1.34	.186

$p < 0.05$

Table 4: t-test results related to the posttest creative writing total scores and sub-dimension scores of the experimental and control groups

	<i>N</i>	$\bar{X}$	<i>Ss</i>	<i>t</i>	<i>p</i>
<i>Originality of the Ideas</i>					
Experimental	38	3.92	.97	7.82	.000
Control	38	2.36	.71		
<i>Fluency of the Thoughts</i>					
Experimental	38	3.89	1.03	8.11	.000
Control	38	2.10	.76		
<i>Flexibility of the Thoughts</i>					
Experimental	38	3.71	.98	7.59	.000
Control	38	2.07	.78		
<i>Richness of the Vocabulary</i>					
Experimental	38	3.52	.86	7.34	.000
Control	38	2.15	.68		
<i>Sentence Structure</i>					
Experimental	38	3.55	.92	7.75	.000
Control	38	2.13	.66		
<i>Organization</i>					
Experimental	38	3.97	.88	8.77	.000
Control	38	2.37	.63		
<i>Genre</i>					
Experimental	38	3.97	.88	11.19	.000
Control	38	2.21	.62		
<i>Style and Correct Use of Grammar</i>					
Experimental	38	3.79	.74	10.57	.000
Control	38	2.13	.66		
<i>Creative Writing Total</i>					
Experimental	38	30.34	6.53	9.66	.000
Control	38	17.55	4.49		

$p < 0.05$

DISCUSSION

In the present paper, the effect of the digital storytelling method on students' creative writing skills was investigated. For this purpose, and in the application of the designed experimentally and lasting seven weeks, the instruction was delivered to the experimental group through the digital storytelling method and to the control group through PowerPoint presentation-based instruction. By means of the rubric used as a data collection instrument, the pre-service teachers' creative writing skills and sub-dimensions (originality of the ideas, fluency of the thoughts, flexibility of the thoughts, richness of vocabulary, sentence structure, organization, genre and style, and correct use of grammar) were evaluated before and after the experimental process.

The analyses of the collected data revealed that there is a significant difference ($p < .05$) between the experimental group students' pretest creative writing total score and sub-dimension scores and their posttest creative writing total score and sub-dimension scores. In light of this finding, it can be argued that instruction deliv-

ered through the digital storytelling method contributed to the development of the experimental group students' creative writing skills. It was observed that the experimental group students who were instructed through the digital storytelling method were able to develop original ideas in their texts. Throughout the application process of the digital storytelling method, the students were provided with an environment in which they could develop their ideas freely as well as express and share them comfortably. In line with the suggestion of Rubin (2000), "For students to write creative texts, there is a need for a classroom environment for students to feel psychologically secure, to think individually and share their thoughts with their peers"; such an environment was created for the students within the context of the present paper, and this helped the students to develop themselves in the sub-dimension of the originality of the thoughts. The reason for the experimental group students' development of their creative writing skills in the sub-dimensions of fluency of the thoughts, flexibility of the thoughts and organization may have been the fact that they continuously prepared

digital stories during the experimental process. The experimental group students prepared digital stories and storyboards every week, and this may have contributed to the development of their writing fluency, flexibility and organization. The reason for the experimental students' development in the sub-dimension of the richness of vocabulary may have been the preparation of their stories in cooperation with their peers and thus, sharing opinions about different aspects of vocabulary such as the richness of word meanings, determination of the correct words, suitability of the words for the purpose of the text etc., and finding opportunities to revise their stories and make corrections when necessary. In analogy to these findings, Xin (2014) precipitated in his paper that the use of the digital storytelling method increases the number of words and complete sentences used by the learners. Presentation and evaluation of the digital stories prepared by the students in the class may have contributed to the development of the experimental group students in the sub-dimensions of sentence structure, genre and style, and correct use of grammar.

The analyses of the data collected from the control group students revealed that there is no significant difference ($p < .05$) between the control group students' pretest creative writing total score and sub-dimension scores and their posttest creative writing total score and sub-dimensions scores. This may indicate that PowerPoint presentation-based instruction is not an effective method for improving students' creative writing skills. PowerPoint presentation-based instruction is commonly used by instructors in higher education (Roehling and Trent-Brown 2011; Yilmazel-Sahin 2009). Research shows that frequent use of PowerPoint presentation-based instruction in class makes students feel bored and distracted (Roehling and Trent-Brown 2011; Alpan 2013). What makes PowerPoint presentation-based instruction ineffective may be that the teacher—not the students—is active and dominant, and it is just a technological reflection of a traditional lecturing. Rickman and Grudzinski (2000) and Alpan (2013) reported that students see teachers who teach based on PowerPoint presentation-based instruction as a new version of the former boring teachers who teach by reading from a book. As in PowerPoint presentation-based instruction, students only use the presented information; they have difficulty creating orig-

inal products, and this method is ineffective in developing students' creative writing skills.

Another finding of the present paper is that there is a significant difference ($p < .05$) between the experimental group students' posttest creative writing total score and sub-dimension scores and the control group students' posttest creative writing total score and sub-dimensions scores. This difference is in favor of the posttest scores of the experimental group students. In light of this finding, it can be argued that the digital storytelling method is more effective in developing creative writing skills of the students than PowerPoint presentation-based instruction. As students write stories about the content of the course and create an original product by combining these stories with visual and audio elements, they can enhance their creativity and creative writing skills. Gresham (2014) asserted that the digital storytelling method, which enables the learners to work with digital technologies, improves their creative writing confidence.

CONCLUSION

The analyses of the collected data revealed that there is a significant difference ($p < .05$) between the experimental group students' pretest creative writing total score and sub-dimension scores (originality of the ideas, fluency of the thoughts, flexibility of the thoughts, richness of vocabulary, sentence structure, organization, genre and style, and correct use of grammar) and their posttest creative writing total score and sub-dimension scores.

The analyses of the data collected from the control group students revealed that there is no significant difference ($p < .05$) between the control group students' pretest creative writing total score and sub-dimension scores (originality of the ideas, fluency of the thoughts, flexibility of the thoughts, richness of vocabulary, sentence structure, organization, genre and style, and correct use of grammar) and their posttest creative writing total score and sub-dimension scores.

Another finding of the present paper is that there is a significant difference ($p < .05$) between the experimental group students' posttest creative writing total score and sub-dimension scores (originality of the ideas, fluency of the thoughts, flexibility of the thoughts, richness of vocabulary, sentence structure, organization,

genre and style, and correct use of grammar) and the control group students' posttest creative writing total score and sub-dimension scores. This difference is in favor of the posttest scores of the experimental group students.

RECOMMENDATIONS

1. In line with technological developments, learning-teaching environments should be arranged and pre-service teachers should be equipped with competencies necessary to use these technologies.

2. Required adjustments should be made in education programs by incorporating active methods, techniques and strategies.

3. More importance should be attached to applied courses for education faculties for pre-service teachers to have required qualifications concerning active learning methods.

4. Methods and techniques to improve pre-service teachers' qualifications should be sought through various studies.

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