



THE EFFECT OF DIGITAL STORYTELLING PROJECT ON FINE ARTS HIGH SCHOOL STUDENTS' TEAMWORK SKILLS

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Abstract

Digital storytelling is one of the pedagogical approaches that use new technologies and can provide students in deep, effective learning environment. In this study, the purpose was to explore the function of digital storytelling project in Fine Arts high school students' teamwork skills along with their communication skills. This study is important by being one of the few sources in Turkish literature using a digital storytelling approach in high school setting. Digital storytelling is also proposed as one of the educational tools to be used for technology integration into courses. The generalization was not the main purpose of the study; therefore it was confined to 19 high school students. The findings from this study indicated that digital storytelling has positive effect on students' teamwork and communication skills in this sample.

Keywords: Digital storytelling, teamwork skills, communication skills.

INTRODUCTION

Digital tools such as digital cameras, smart boards, software tools, computers and other technologies make possible to integrate technology into classrooms and enable the creation of digital stories easily. As a result, we have started to see storytelling or digital storytelling (in other words digital narrative) as a way of instructional method in education.

Digital storytelling has been defined as a mix of traditional storytelling and multimedia technology (Normann, 2011) to share information (Xu, Park, & Baek, 2011). Additionally, digital storytelling is accepted as one of the educational tools to be used for technology integration in education (Robin, 2008). Storytelling can increase students' critical thinking, academic performance (Yang & Wu, 2012), and ownership of learning (Dupain & Maguire, 2005); therefore it can be an influential tool for education. Furthermore, according to the literature, enhancing the self-expression of children (Craig, Hull, Haggart, & Crowder, 2001), motivation, ICT skills (Sadik, 2008) and 21st century skills (Dogan & Robin, 2008), increasing student engagement, (Smeda, Dakich, & Sharda, 2012), and problem solving skills (Chung, 2007), advancing the relationship of students and peer learning (Alterio, 2003) can be provided through the integration of digital storytelling into curriculum as a pedagogical method. In particular, teamwork skills along with communication skills can be developed by using digital storytelling in the instruction of the courses (Yuksel, Robin & McNeil, 2011). Therefore, it has been named as a curriculum innovation due to enhancing students' curiosity and motivation (Hathorn, 2005) and as "an effective learning environment for fostering collaboration and co-construction of meaning" (Yang & Wu, 2012, p. 350) in education. Due to the valuable benefits of digital storytelling on students, in this research, it was intended to explore the function of digital storytelling project on Fine Arts high school students' teamwork skills by trying to find out answers to the below questions;

- How can digital storytelling project enhance students' teamwork skills?
- How does teamwork affect the communication skills of the students?

Kocaman Karaoglu (2015) has pointed out that recently, there has been an inclination making researches about digital storytelling in Turkey, however only three studies (Kahraman, 2013; Kaya, 2014; Kotluk & Kocakaya, 2015) have been found about digital storytelling in high school educational settings. Although there were some studies looking for high school students' (Kotluk & Kocakaya, 2015) and primary school students' (Karakoyun, 2014) teamwork and communication skills, the results were general, these researches were not built on examining specifically these skills and were not realized particularly in Fine Arts high school which specialized in art and music education. Additionally in Turkey, the Turkish Ministry of Education has aimed to use information technology effectively in classrooms, however it is noticed that teachers generally struggle to incorporate computer applications into their instructional practices to increase learning (Demirer, 2013). According to Demirer (2013), new pedagogical approaches and models are needed for technology integration at schools and using digital storytelling in education which improves the learning and teaching (Sadik, 2008), can be one of the technological activities in teaching (Karakoyun, 2014).

This research is important to examine the effect of digital storytelling on students of one of the Fine Arts high schools where teachers generally use traditional methods of instruction; there is less technological usage in courses and mostly individual study is preferred. Furthermore, we propose digital storytelling as one of the educational tools to be used for technology integration into classrooms by providing a perspective on the implementation of digital storytelling and its valuable educational benefits.

METHOD

To understand the digital storytelling project extensively, in this research, a case study which has a pilot and main projects for analysis was preferred to research and focus on an issue. According to Creswell (2009), a case study explores an event, activity, process, a document or subjects in details and Yıldırım and Simsek (2003) stated that a case study design includes when, why and how questions in a situation to examine the case deeply. In order to achieve a complete understanding of this project, the research methodology was designed to utilize qualitative research methods in which data was obtained from researcher notes based on observations, students' diaries kept for the project, and semi-structured interviews with students. The result of this research was based on the analysis of these documents. The generalization was not the main purpose of the study; therefore it was confined to 19 high school students.

Participants

The participants of this study include a total of 19 high school students (Table 1) of one of the Fine Arts high school in Turkey and they entered these projects voluntarily after the introduction of the project in their schools. In pilot project, while there were 9 students (from 10. 11. and 12. grade), in the main one, 10 students have participated to the project (from 9. and 10. grade). According to McMillan (2004), in case study, the small number of participants allows the researchers to make a better description of the research topic, therefore each project was limited to maximum 10 students.

Table 1: The Number and Genders of Students in the Projects

	Pilot Project	Main Project
Girls	3	4
Boys	6	6
Total	9	10

Context of the Study

This research was about the digital storytelling project that was conducted in one of the Fine Arts high school in Turkey from October 2013 to May 2015 as a free time activity. The project was led by a research assistant who specializes in digital storytelling and a specialist whose major is industrial design. In the project, while one of the researchers guided to the project, the other one collected and dealt with the data. Two digital storytelling projects were realized. The first one was the pilot project and lasted approximately 12 weeks. After the first project, an evaluation was made and the second project was designed with a strict schedule and has continued for 10 weeks (Figure 1).



Figure 1: Images from the project

In both of the projects, the groups were divided into task divisions, these are; scenario, storyboard, design process including character design and background design, animation and montage including technical planning, generic (this group was formed only in the main project) and music design with storytelling and background music. Groups were formed and task sharing was done by students. Furthermore, some of the students were involved in different groups at the same time, since the collaborative nature of digital storytelling process does not have strict rules inside; it is flexible in terms of teams. In addition, they did not just interact within the group; there were also an interaction with other groups. Even though some groups had only 1 student, all of the decisions were made as a whole. Besides, due to task sharing instead of an individual work on the whole project, all of the students created one digital story altogether in each project. In addition, they met regularly once a week and in these meetings, students shared what they had done and for the next stages what they will do with all of the students. The one of the researchers tried to guide them in their work and gave feedback about their works. She also gave a brief about what is due for the next week in these meetings. The number of the students in each group was presented as below in each project (Table 2);

Table 2: Groups and Numbers of students in Pilot and Main Project

Name of the Groups	Number of the Students in Pilot Project	Number of the Students in Main Project
SCENARIO	5	5
STORYBOARD	2	3
DESIGN PROCESS		
Character Design	7	6
Background Design	2	1
ANIMATION	5	3
MONTAGE		

Technical Planning	1	1
Music Design		
Storytelling	2	2
Background Music	1	1
Generic		1

Implementation of Digital Storytelling

First project was a twelve week pilot project which was made in 2013-2014 fall semester. The explanation of all of the weeks of the project is presented in Table 3.

Table 3: The Process of the Pilot Project

1. & 2. week	The digital storytelling was introduced to the students by showing examples. Furthermore, the project and its stages were explained comprehensively.
3. & 4. week	The groups were formed according to the students' interest; the main theme was determined by brainstorming in the class and the scenario and the design process group started to work.
5. week	While scenarists were working, the research about visuals was presented.
6. week	The scenarists presented the scenario to the class for their comments. According to the comments, changes were made and they reached the last version of the scenario. The storyboard designers were told to work on the scenario for the next week.
7. week	The storyboard designers presented their works to the class and final versions of the storyboards were decided. Since the digital storytelling visual outline were made, the character designers were told to start working.
8. week	The designs of the characters were started under the control of the scenarists. At that time, the students in the montage group tried to find programs that support digital storytelling technically. Furthermore, the students in the music group started to search for music.
9. week	While the character designs were continuing, the animation group started to work. The programs related to montage were installed and they were tested by the technical planning group. The dialogues in digital storytelling were created by the scenarists.
10. week	The researches related to the programs and the design processes of the characters were continued. The character designers continuously took feedback from teammates and the project manager.
11. week	The character design and the animation process were finished and the information about the animation was given to the students who were in the montage group (including both technical planning and music). Therefore, the montage group started to work.
12. week	Visuals were edited in one of the computer program and the music was selected from the archives that students created. The recording for storytelling was made and the effect was applied to the recorded voice. At the end, all of the materials were imported to another computer program to compose the animation.

After the pilot project, an evaluation was made according to students' feedback and researcher notes; and the researchers found out that more time was spent for scenario than expected and the schedule of the project could not be managed well due to students' other courses. Therefore, the main project which was realized in 2014-2015 spring semester was designed with a strict schedule and continued for 10 weeks. The main project has followed almost the same steps of the pilot one, only addition was made to the last part for creating generic. Although these steps are not the only procedures to implement digital storytelling, they can be used by teachers in their classrooms to integrate or use technology for creating digital storytelling. Furthermore, as mentioned before, students in different groups have different tasks; therefore, the above explanations in Table 3 can explain the students' roles in these projects.

Data Collection

In both of the projects, for the reliability of the research, researchers collected data in different ways. They have taken notes continuously and students have kept diaries about project by using WhatsApp application. Besides, semi-structured interviews were made with students at the end of each project to assess the project's strengths, weaknesses and the evaluation of teamwork. In this research, after a year passed, semi-structured interviews were also made with 19 students again to get richer details of students' experiences about digital storytelling studies' impact on teamwork skills for verifying the data collected during the project. Before the projects and the interviews, all participants were acknowledged about the aim of the study and consent forms were obtained from the interviewees. All interviews were audio-recorded by the researcher after taken the participants' permission. In the interviews, there are questions about the evaluation of the digital storytelling process, the pros and cons of the project, the relationship of the students with each other in terms of teamworking, communication, and their suggestions related to the project.

Data Analysis

The data that were obtained in the research (pilot and main projects) were analyzed through thematic analysis based on qualitative research and the data were rechecked several times by researchers in this stage. To analyze the qualitative data, all the data (interviews, observations, students' diaries) were prepared, organized and converted into text data in computer. After that, an analysis of the data was made by reading and dividing the data into parts. Then the data was explored through the process of coding for the general picture of the information and similar codes were grouped to reach themes. Additionally, by using a schema, the themes have been layered to show sub-themes under a main theme to represent the findings. Finally, the findings were interpreted through the cause and effect relations and it was supported by direct quotes from the interview data. The accuracy of the findings was made with cross-checking the codes that were obtained by each researcher. As a result, the findings have been discussed and compared with the existing literature (Creswell, 2012) for the reliability of the research. The data were examined in the framework of 'provisional codes' which are the 'start list' of codes prior to fieldwork' (Miles and Huberman, 1994, p. 58) by taking into consideration the research questions. Within the recommendation of Miles and Huberman (1994), the provisional codes (teamwork and communication skills) were determined, but the sub-themes were emerged after the analysis of the qualitative data obtained in the research.

FINDINGS

Under teamwork skills, seven main themes were detected from this study, which are; responsibility, self-confidence & motivation, peer feedback & reflection, individual growth professionally, mutual trust, empathy, and communication having three sub-themes including social interaction, decision-making, problem solving. In addition, four themes, which are responsibility, time management, social interaction and self-confidence, were found related to the problems based on students' views about the project. While giving direct quotes of the students, instead of using names, students were entitled as S1, S2, S3,... etc. in this research.

Findings Related to Students' Views about Teamwork and Communication Skills

This study was investigated from the point of "teamwork skills" and "communication skills". In this framework, seven sub-themes for "teamwork skills" which are responsibility, self-confidence & motivation, peer feedback & reflection, individual growth professionally, empathy, mutual trust and communication having three sub-themes including social interaction, decision-making, problem solving (Figure 2) have been determined. The findings of this research indicated that teamwork skills (Table 4) and communication skills (Table 5) were developed between students as a result of the digital storytelling project in this framework.

Table 4: Students' Views about Teamwork Skills

	f	%
Responsibility	8	42.1
Self-confidence & Motivation	8	42.1
Peer feedback & Reflection	9	47.3
Individual Growth Professionally	13	68.4
Empathy	9	47.3
Mutual Trust	9	47.3
Total number of students	19	100

Table 5: Students' Views about Communication Skills

	f	%
Social Interaction	15	78.9
Decision-making	15	78.9
Problem Solving	12	63.2
Total number of students	19	100

Under the teamwork main theme, one of the students (S1) stated her comment as follows "I would not like to make the project on my own. In group work, we could produce clearer and multiple ideas. I could not show this success myself. Working as a team was productive. There were multiple ideas and critiques. I liked teamwork." The other student (S2) made her comment regarding teamwork as follows; "I found teamwork good. Instead of working alone, working as a group is logical, since there are multiple ideas. Somebody can say something else and it all becomes better." Another one (S11) found teamworking as a fun process: "A lot of people mean a lot of ideas and working as a group means working with fun and the job made with fun always be fine". Another student (S12) also referenced his appreciation to teamwork as follows; "It is better to share your victory with others rather than alone". One of the students (S4) also stated her desire about working as a team with the sentences; "I would like to work as a group, since you can see your deficiencies. You can find out what you want to improve in yourself. This is very good, I like it." While student mentioned about her satisfaction from teamwork, she also pointed out another sub-theme, individual growth professionally.

Under the sub-theme responsibility, one of the students (S3) stated his feeling of responsibility with the sentences; "Responsibility! Succeed in something increased my responsibility. I mean as a group". In addition, another student (S8) made his comment about responsibility and his dedication to the teamwork and his friends as follows; "While working in a group, you cannot leave something in the middle. There is a feeling of responsibility and you do not feel alone and believe that you will be succesfull." This statement also emphasize that the feeling of responsibility resulted from mutual trust. Under the sub-theme of peer feedback & reflection, one of the students (S4) mentioned how this interaction happened as follows; "I was in my senior year, but the others were in their second and third grade. I helped them in their drawings and I also learnt from them". Another one (S14) pointed out this situation with the sentences; "One of the group members could not draw his character properly; he had a different point of view from the others, so this created problem in his drawings. We gave him feedback and told him what is wrong, and then he changed his drawings".

Developing teamwork skills also referred to improving communication skills in this project. Most of the students stated that the communication between the groups was good. From the point of social interaction, while one of the students (S4) told her view with the sentence "I never had a problem in communication", another one (S6) supported this view as follows "This helped me to socialize more." Besides, another one (S10) told that; "Even though we did not have a meeting for the project, when we found an idea, we took others' decisions about it by using WhatsApp or making face to face meeting". They also pointed out that good communication resulted in idea sharing, social interaction and mutual assistance. In the communication theme, decision-making sub-theme was referenced several times by students. One of them stated (S2) that "We did not have a communication problem in the group. Everybody helped each other anyway. We took our decisions as a group." Another one (S5) said "We took our decision as a group, for instance, as a group we decided who would make the voice recording." Another one stated (S7) her views about decision-making as follows "In teamwork, everybody took support from each other, sharing ideas was important since different things came up." One of the students' statements (S13) also valued decision-making as follows; "Although sometimes your own ideas might have been of secondary importance, it could be better for the result instead of following your own ones". Additionally, under the sub-theme of self-confidence, one of the students (S5) said "Group working improved my self-confidence." Additionally, according to our observations, teamwork also made some students more active and involved in the project. In other words, it increased their self-confidence, while they were withdrawn at first. This can also be related making their own choices, expressing and sharing their ideas freely in the project.

Furthermore, our observations indicated that, one of the major problems in the project was that none of the students knew digital storytelling terminology at first. For example, some of the drawings could not be transferred to the computer program or they created problems in the stream of the animation. In that point, as a solution, these hand drawings had to be made on computer, or were tried to be combined with computer drawings or as a last option, they had to discard these drawings. Therefore, owners of these works tried to understand each other's techniques by making empathy to find a solution to these problems. As a result, they overcame these problems by negotiating the problem. Additionally, one of the students mentioned about his teammate who has a hearing impairment; he helped him to understand what he should do in the project and consequently his teammate was involved more in the project. It is obvious that, students tried to solve their group members' problems by creating empathy with them. Therefore, it can be stated that under the sub-theme of problem solving, while they were trying to solve the problems, they tried to make empathy, which is another sub-theme in this project, with team members to understand the issue properly.

Within the context of the findings obtained from this study, it can be stated that from many aspects, digital storytelling project affected students positively on their teamwork and communication skills.

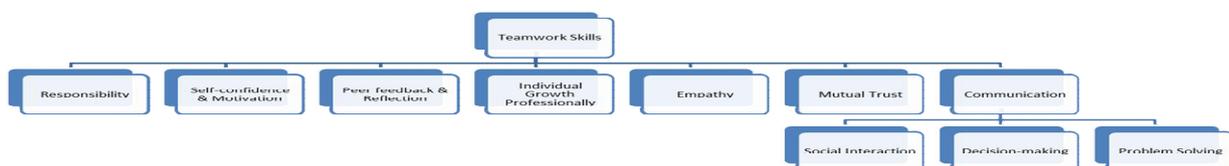


Figure 2: Themes about teamwork and communication skills

Findings Related to the Problems based on Students' Views about the Project

While causing positive effect on students, according to our findings, some problems and concerns (Table 6) were encountered by some of the students in the beginning of the project. According to our findings, four sub-themes which are responsibility, self-confidence, time management and social

interaction have been determined in this part. In this framework, it was tried to look for whether these problems were solved or how it was solved within the process.

Table 6: Problems Based on Students' Views about the Project

	f	%
Responsibility	3	15.8
Self-confidence	3	15.8
Time Management	7	36.8
Social Interaction	3	15.8
Total number of students	19	100

Under the sub-theme of responsibility, students had problems with some team members. Within the framework of this sub-theme, one of the students (S12) in the pilot project said "At first, I could not know what I will do. Therefore, I demoralized, since my friends were drawing and I was indecisive about what I do. However, I left no job unfinished." With this sentence, she confessed about her less contribution at first, however within the time; she handled this issue and finished her duty. It was also observed that, while there was a problem about the responsibility of one of the group members, the others tried to solve it by negotiating it with this person, since they felt to be compatible with each other. Another one (S13) supported this observation and stated the feeling of her responsibility to the teamwork with the sentence "We felt obliged to be in harmony with each other". Under the sub-theme of social interaction, one of the students (S9) stated his concern as follows "My concern was that I did not know anybody and I thought whether I have difficulties in that point. However, I did not have any problems and I started to be active." Additionally, under the sub-theme self-confidence, one of the students (S4) stated that "I was afraid at first, but after a few weeks later, everything went well. We tried to figure out the project." It can be concluded that, after warming up to the project and spending time together, students overcame their concerns related to self-confidence, responsibility and social interaction. The problem of time management was encountered mostly in the pilot project. Writing the scenario lasted long and the courses of some of the students from different grades were overlapped. One of the students (S4) said "We had difficulties to come together since our course hours were overlapped." Due to time management problems, after the pilot project, strict rules have been taken for timeline of the project and the students were obliged to obey these rules. However, there was still time management problems in the main project, therefore, the distribution of responsibilities, communication and interaction of the students in the groups were decided to be managed well to overcome this issue. The overall findings indicated that students managed to overcome these problems by negotiating them together; they sometimes asked assistance of the project manager to handle the issue and also, spending time together eliminated the problems after a while. As a result, while in the beginning there were some concerns and problems, within the process, due to developing mutual trust, the feeling of responsibility to the group members and the assistance of the project manager, students overcame these issues.

CONCLUSION AND DISCUSSION

In this research, it was intended to explore the function of digital storytelling project in Fine Arts high school students' teamwork skills along with their communication skills. The findings indicated that in this project, implementing digital storytelling improved teamworking skills from many aspects. It developed mutual trust between team members and resulted in responsibility to the group members and project. It was also indicated that as a result of this project, students developed themselves by seeing their mistakes and learning from other members. Furthermore, this project assisted students in terms of reflecting their ideas to other members to reach a better solution. They felt free to express themselves and share their ideas; these increased their motivation. Additionally, due to being a contributor, they really enjoyed from the project and that caused more involvement in the process and more satisfaction from team working. Furthermore, due to involving and managing the digital storytelling project by their own preferences, students were found more active and self-confident in



the process. Students also stated the value of teamwork in general, noting that it made the project more meaningful, joyful and productive. These findings are also supported by the literature that digital storytelling is thought to develop team working skills (Hafner & Miller, 2011) and good relationships with other students (Alterio, 2003). Increased motivation (Sadik, 2008) and student engagement, (Smeda, Dakich, & Sharda, 2012), more involvement in the task (Dollar Kesli, & Tolu Tekiner, 2015), peer feedback (Alterio, 2003) and reflection (Craig, Hull, Haggart, & Crowder, 2001) are also identified in the literature. Overall, team working enhanced students' skills and contributed to their educational life in a positive way in this sample. According to our findings, implementing digital storytelling also improved students' communication skills. There was a good social interaction between students due to sharing their thoughts freely and they started to give importance other people' ideas. They made an effort for better communication so that, they could state and defend their ideas easily. The increased communication resulted in taking decisions and solving problems together. Additionally, this social interaction developed the feeling of empathy between students. These findings are also supported by the literature that students develop their communication skills (Robin, 2008) in digital storytelling activities. The overall findings about sharing ideas, mutual assistance, asking questions, expressing ideas freely indicated that students developed their communication skills in this project.

This research is significant by being one of the few written sources in Turkish literature using a digital storytelling approach in high school education. Furthermore, by providing a perspective on the implementation of digital storytelling and its valuable educational benefits, we propose digital storytelling as one of the educational tools to be used for technology integration into classrooms and to provide interaction between digital media and students; consequently an addition is made to Turkish literature about technology integration to an instructional environment by using digital storytelling. Therefore, this study may arouse interest among teachers about using digital storytelling for the integration of technology into their curriculums. However, in this research, there were some limitations. The projects meetings were made as a free time activity not as a high school course, and in the pilot project, the programs of some of the students overlapped. Therefore, this sometimes caused problems in students' attendance and motivation and in the pilot project; the application period took longer time. Despite these limitations, it was concluded that in this project, working in a digital storytelling project helped students to cultivate a deeper sense of interest and engagement. As a result, the findings from this study indicated that digital storytelling has positive effect on Fine Arts high school students' teamwork and communication skills.

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