



Investigation of the Effect of Digital Storytelling on Cultural Awareness and Creative Thinking *

Memet Karakuş¹, Buket Turhan Türkkân², Nihan Arslan Namlı³

Abstract

In this study, the effects of the teaching of the life science course performed using Storyjumper software- one of the Web 2.0 tools-, on primary school second grade students' cultural awareness and creative thinking skills were examined. In the study, single group pretest-posttest weak experimental model was used. Convenience sampling method was used for determining the participants of the research. The participants of the research consisted of 22 second grade students. In order to collect the research data, Torrance Test of Creative Thinking Verbal-A and Cultural Awareness Level Determination Form created by the researchers were used. The analysis of quantitative data was conducted via Wilcoxon signed-ranks test. The answers for Cultural Awareness Level Determination Form were analyzed using inductive content analysis methods. As a result of the study, it was determined that the teaching performed for digital story creation had positive effects on students' cultural awareness and creative thinking skills.

Keywords

Digital storytelling
Cultural awareness
Creative thinking
Primary school
Life science course

Article Info

Received: 03.08.2019

Accepted: 06.02.2020

Online Published: 07.16.2020

DOI: 10.15390/EB.2020.8576

Introduction

Nowadays, the rapid change in information and technology has led to changes in education systems and also in the qualifications expected from individuals. Media and digital technologies has started to form contemporary approaches on teaching and learning (Grant & Bolin, 2016). Accordingly, through designing learning environments, the importance of active participation of students in learning processes and the use of technological tools has increased (Haşlaman, 2017). One of these technological tools is digital storytelling. Digital storytelling is a technology application installed in a way to help users take advantage of the content they contribute and teachers overcome some of the obstacles to the efficient use of technology in their courses (Robin, 2008). Digital storytelling involves the integration of the art of storytelling and various digital multimedia tools (Yürük & Atıcı, 2017). Storytelling has existed for thousands of years to exchange information and to produce meaning (Malita & Martin, 2010). Storytelling has changed over time and started to be transferred to the virtual environment in accordance with the requirements of the age and to be told from here. In this context, the experts in the field of education also discovered digital storytelling and started to use it as a tool through educational activities (Balaman, 2015).

* This article is orally presented at 6th International Multidisciplinary Congress of Eurasia.

¹ Çukurova University, Faculty of Education, Department of Educational Sciences, Turkey, memkar@cu.edu.tr

² Çukurova University, Faculty of Education, Department of Educational Sciences, Turkey, bturhan@cu.edu.tr

³ İskenderun Technical University, Dörtüyl Vocational School of Higher Education, Department of Computer Technologies, Turkey, nihan.arslannamli@iste.edu.tr

In digital storytelling, it is allowed to use different forms of materials such as media, pictures, and sound; it is ensured that students gain richer experiences and subjects and events difficult to teach can be easily taught in many ways (Balaman, 2016). In digital storytelling, individuals do research within the frame of a subject and write a script text by using the information they have obtained by the research. A video is created integrating the script text, utilizing different types of multimedia items such as image, sound, graphics, text, video, and music. Then, they tell the story they have created with their own voice, and the videos created are turned into short films that can be viewed on the computer or on the Internet (Robin, 2008). In the process of digital storytelling, students take part in the process as active participants and make sense of their own learning, and thus, digital storytelling is considered to be an effective application in teaching environments regarding learners' being able to show what and how much they have understood (Kocaman Karaoğlu, 2015). Educational applications created through digital storytelling can provide significant contributions to increase students' interest in the course, ensure their active participation in the process and acquire high-level thinking skills that individuals are required to possess at the present time (Kotluk & Kocakaya, 2015). Besides, the digital storytelling approach both ensures learning and improves creativity, communication and writing skills (Turgut & Kışla, 2015). Furthermore, the teaching organized for digital storytelling can be effective in students' comprehension of the subjects in the content and increasing success (Sadik, 2008). The integration of digital technologies with effective teaching practices reshapes teaching and learning and ensures the creation of more up-to-date and more effective environments, and in this respect, it is stated that studies should be carried out in our country as all over the world to integrate digital technologies with classroom practices creating different opportunities in the classroom by teachers (Kocaman Karaoğlu, 2015). When the contributions of the digital storytelling approach and the shortcomings stated in the literature are taken into account, it is considered important to employ the digital storytelling approach for effective teaching and learning processes and to put forward the effects of this practice.

In twenty-first century, activities for improving students' learning, innovation and creativity skills have gained importance for a more complex living and working environment (Malita & Martin, 2010). In line with this, creativity skill of the students can be supported through multimedia activities in education (Nilsson, 2010). Digital storytelling is also seen as an important tool for improving students' creativity (Alexandra, 2008; Benmayor, 2008; Burgess, 2006; Czarnecki, 2009; Lambert, 2013; Malita & Martin, 2010; Robin, 2016). When creating digital stories, students switch from a blank paper to a creative process in a different way (Tackvic, 2012). In a study conducted by Long (2011) on undergraduate students, it was found that generating digital stories creates a chance to be creative. In addition, in a study conducted regarding preservice teachers by Duman and Göcen (2015), it was seen that digital storytelling method improved creative writing skills. As it is seen from the results of these studies, it could be asserted that digital storytelling has significant effects on encouraging creativity.

Digital storytelling not only empowers students intellectually and creatively, but also it empowers students culturally (Benmayor, 2008). Digital storytelling intersects the creative and analytical thinking of students both in production and process. It enables discussion of some topics especially language, culture and disadvantaged groups (Malita & Martin, 2010). Developing cultural awareness or cultural responsiveness is seen as important for students in today's rapidly changing demographic structures (Cushing & Love, 2013). With respect to this, digital storytelling can be described as a powerful tool for learning cultural issues (Malita & Martin, 2010) and individuals' understanding of culture can be developed through digital storytelling (Şimşek, 2012). In addition, having cultural skills and different perspectives in digital storytelling is seen as important components of the digital storytelling process (Grant & Bolin, 2016). In a study conducted in this context, it was determined that digital storytelling improves the intercultural awareness of undergraduate students and it is stated that creating digital stories about cultural and intercultural issues also enables students

to understand the situations related to other cultures as well as their own cultures (Ribeiro, 2016). Moreover, in a similar study, it was observed that the cultural competences and technological skills of undergraduate students improved through the use of digital storytelling method and also digital storytelling offers opportunities for development of cultural awareness (Grant & Bolin, 2016). From this point of view, it is thought that digital storytelling can be an effective tool for improving students' cultural awareness besides increasing their creative thinking skills.

Cultural awareness is the individual's awareness of own values, beliefs, and perceptions. It is important to undergo an educational process to be aware of one's own culture (Tuna, 2011). Cultural awareness education should include activities that would help the individual develop his/her awareness of the behavior directed by his/her culture and the ability to express his/her cultural stance and also in which different individuals can develop awareness of the behaviors directed by their culture (Tomalin & Stempleski, 2013). In the literature, it is stated that cultural and social situations can be handled with a digital storytelling approach (Balaman, 2015; Grant & Bolin, 2016; Malita & Martin, 2010; Ribeiro, 2016; Şimşek, 2012). Accordingly, it is considered that the digital storytelling approach can also be used for the development of cultural awareness. In addition, the digital storytelling approach provides students with an environment in which they can use technology as actively involved designers in the process of presenting their thoughts and an opportunity for students to create their own original and creative languages (Bedir Erişti, 2016). Creativity is the process of developing different, rich and original thoughts and products. Creativity is the process of designing something new. It is stated that developing digital creativity of individuals positively nurtures social and cultural values (Burgess, Foth, & Klaebe, 2006) and there is also a relationship between knowledge of culture and creative thinking processes (Lee, Therriault, & Linderholm, 2012). Digital storytelling is a design process, and the individual can use a lot of skills to think creatively in this process. Based on these statements, it is considered that the digital storytelling approach can improve students' cultural awareness, creative thinking skills, and skills to use technology. Through digital storytelling, the student will get rid of memorization and learn in a meaningful way. Students will learn willingly and entertainingly and develop positive attitudes toward school and learning.

The individuals' awareness and knowledge related to the culture of the society they live in is an important element of being an active citizen of the society. In line with this, in the life science course curriculum implemented in our country, individuals' ability to fully understand their own culture is described as an important and essential skill in respecting cultural diversity, and it is stated that the fact that individuals have positive attitudes toward their own culture and cultural diversity also includes individual expression, the development of creativity, artistic and aesthetic capacity through participation in cultural life, (Ministry of National Education [MoNE], 2017). Introducing cultural awareness improves students' skills such as respecting, developing empathy, collaborating and finding common solutions. It contributes to the perception of cultural diversity as a richness rather than a problem (Tuna, 2011). Considering that digital storytelling is handled as a method for developing cultural skills (Grant & Bolin, 2016), it can be said that making digital storytelling activities regarding cultural awareness will contribute to the field. Accordingly, the research has been shaped on three dimensions: digital storytelling, cultural awareness and creative thinking skills.

Assuming that digital storytelling also contributes to the development of students' digital and technological skills (Grant & Bolin, 2016), technological and digital skills are also considered important in the research. It is aimed to gain these skills as well in the curricula and it appears as digital competence skill. The digital competence skill is among the basic skills that individuals must gain in the primary school life science course curriculum in our country. It is mentioned in the primary school curriculum that the digital competence skill involves the use of computers for access to information, and the evaluation, storage, production, presentation and exchange of information within the

information communication technology, and moreover the skills to participate and communicate in common networks via the Internet (MoNE, 2017). In the life science course curriculum, the development of analytical and creative thinking skills is also considered as important, and accordingly, it is recommended to conduct activities aimed at enriching experiences for life, recognizing historical background and reaching ways to reproduce (MoNE, 2017). In this context, it can be said that a significant emphasis is laid on the development of individuals' cultural awareness, creative thinking skills and digital competences in the life science course curriculum. As one of the ways to develop these skills, it is considered important to carry out this study with the idea that the use of digital storytelling within the context of cultural awareness can positively affect both creative thinking and cultural awareness of individuals. Nevertheless, when from near-to-far teaching principle is taken into account, it is considered that it will be more effective to start from the immediate environment of students in a study on the development of cultural awareness at the primary school level, and accordingly, it can be extended towards a more distant environment as the grade level increases. From this point of view, in this study, it is aimed to determine the effects of creating digital storytelling with web 2.0 tools in the life science course on students' cultural awareness and creative thinking skills. Based on this aim, the answers to the following research questions were sought:

- Does the teaching of the life science course using Storyjumper software, one of the Web 2.0 tools, make a significant difference regarding creative thinking skills of primary school second grade students?
- Does the teaching of the life science course using Storyjumper software, one of the Web 2.0 tools, affect the development of cultural awareness of primary school second grade students?

Method

Research Design

In research where a new teaching practice is tried, it is stated that a single group experimental designs can be preferred in line with the features of the research (Creswell, 2012). From this point of view, in the study single group pretest-posttest weak experimental model was used. In a single group pretest-posttest pattern, independent variable is applied to one group (Karasar, 2008). In this pattern, pre-test data is collected from a single group before application, then the application is performed and finally post-test data is collected. In this context, research findings are formed by comparing pre-test and post-test scores (McMillan, 2004). In the study, before the application concerning digital storytelling, data were collected from a single group for cultural awareness and creative thinking, then the application was carried out and finally after the application was completed, data regarding cultural awareness and creative thinking were collected again. The findings of the study were formed by comparing the data collected before and after the application.

Group	Pretest	Process	Posttest
G	O ₁	X	O ₂
	Torrance Creative Thinking Test Verbal-A Form Cultural Awareness Determination Form (Dependent Variable)	4 Weeks Application (Intervention)	Torrance Creative Thinking Test Verbal-A Form Cultural Awareness Determination Form (Independent Variable)

Figure 1. Single Group Pretest-Posttest Model Sample Used In The Study (Adapted from Büyüköztürk, Kılıç Çakmak, Akgün, Karadeniz, & Demirel, 2019)

Participants

Participants of the study were determined by convenience sampling method. In convenience sampling, the researcher selects a situation that is easy to access and is often used in circumstances where the researcher cannot use other sampling methods (Yıldırım & Şimşek, 2008). In this study, a single class teacher and parents allowed for the application. Therefore, convenience sampling method had to be chosen depending on the circumstances. Accordingly, the study was carried out with 22 primary school second-grade students in the classroom of a primary school teacher who was willing to perform different applications in the classroom. Twelve of the students were girls and 10 of them were boys. The primary school where the application was performed is located in a region where families with moderate socio-economic status live in the city of Adana in Turkey. In the study, the teacher of the classroom where the application was performed, made passive observations throughout the teaching process. While the second researcher gave a lecture on cultural awareness, the second and third researchers actively acted as a guide to students for the use of Storyjumper in the creation of a digital story part of the course. The second researcher played two roles in the process; the first is the role of teaching, and the second one is the role of guiding students in the use of Storyjumper. The third researcher only has the role of guiding students through the use of Storyjumper. The first researcher observed the application in the process.

Data Collection and Analysis

The application was performed in the 2017-2018 education year. The Torrance Test of Creative Thinking Verbal-A Form, which was developed by Torrance (1966, as cited in Aslan, 2001) and adapted into Turkish by Aslan (2001), and the Cultural Awareness Level Determination Form (Appendix-3), prepared by the researchers, were used in the collection of research data.

Torrance Creative Thinking Test has an important place in the literature in the context of directly measuring creativity (Aslan, 2001). Dr. E. Paul Torrance is considered the "Father of Creativity" and is known for developing the Torrance Creative Thinking Tests. Torrance Creative Thinking Test was developed by Torrance in 1966 and was renewed four times in 1974, 1984, 1990 and 1998. Torrance Creative Thinking Test has two verbal forms (Verbal-A and Verbal-B) and two figural forms (Figural-A and Figural-B). This test is highly recommended in the field of education and is used worldwide (Kim, 2006). Torrance Creative Thinking Test Verbal-A Form is mostly used for younger age groups and since the research focused on digital storytelling, Verbal-A Form was used. For Torrance Creative Thinking Test Verbal Forms, scoring is performed in three sub-dimensions: fluency, flexibility and originality and the total creativity score is reached by adding the scores of these dimensions. Fluency is based on the ability to produce a large number of ideas and to make distant connotations within a certain time limit. Authenticity is related to the rarity and the unusualness of the response. Flexibility is based on the diversity of the relevant answer categories. In the Torrance Creative Thinking Test Verbal-A Form, there are seven activities which are asking questions, predicting reasons, predicting results, product development, unusual uses, unconventional questions, and let's suppose. The overall duration of the test is approximately 75-80 minutes (Aslan, 2001) and scoring is done through the scoring guide (Torrance, 1974, 1984, as cited in Aslan, 2001). It was concluded that the test was valid and reliable (Torrance, 1974, 1984, as cited in Aslan, 2001). The adaptation of the test to the Turkish language was performed by Aslan (2001) and as a result of the research, it was determined that the test was sufficient in terms of linguistic equivalence, reliability and validity studies.

The Cultural Awareness Level Form was developed by the researchers. In this form, there were five open-ended questions about weddings, folk songs, food, cultural places and legends unique to Adana. Student responses to this form were analyzed qualitatively.

The data collection tools were applied twice, before and after the application. Due to the small number of participants in the study, quantitative data for the creative thinking test were analyzed using

the Wilcoxon signed-ranks test, one of the non-parametric tests. The answers given in the Cultural Awareness Level Determination Form were examined within a qualitative context, and the inductive content analysis technique was used. In this context, students' answers to the form were analyzed using NVIVO 10 software, and the themes were created by combining interrelated encodings.

In a single group pretest-posttest design, as the time between pretest and posttest increases and the implementation is less controlled and planned, it may pose more potential threats to internal validity. In this design, it is possible that negative effects will not affect the results by using measurement tools such as achievement and skill tests and possible internal validity problems can be eliminated when threats related to the time between tests are taken into consideration (McMillan, 2004). In this research, a skill test for creative thinking and a data collection tool to determine cultural awareness were used and there was approximately one month between pre-application and post-application data collection processes, and possible threats to internal validity were tried to be reduced.

For the reliability study of qualitative data, expert review method was used. In the expert review, experts analyze the data together, presenting their views to consider additional perspectives and explanations at various stages of the data collection and data analysis processes (Long & Johnson, 2000). Within expert review method, different experts are involved in the process both to evaluate the quality of the data analysis and to check the data analysis process to support external validity (Patton, 2002). For this reason, the first and third researchers examined the coding and themes of the second researcher, namely the analysis of the data, and presented their opinions and suggestions. In this direction, the necessary arrangements were made and the qualitative data analysis process was completed. Within the scope of the validity and reliability studies for the quantitative data, 10 tests randomly selected from 44 tests were re-analyzed by one of the researchers and Spearman's Rank Correlation Coefficient was calculated between these two analyzes. In this respect, Spearman's Rank Correlation Coefficient was calculated as .988 in fluency dimension, .981 in the flexibility dimension, .979 in the originality dimension, and .997 in the context of total creativity. Based on these rates, it is concluded that the analysis of the data is reliable.

Ethical Issues

It is recommended to pay attention to two practices on the subject of ethics in research involving human participants. The first is that the participants are willing to participate in the research and the participants are informed about the qualifications of the research and the possible negative situations that they may encounter in the process. The second situation is that the participants are not exposed to greater risks than the gains they will achieve (Bogdan & Biklen, 2007). In this context, these two measures were taken into account. First, permission was obtained from Adana Provincial Directorate of National Education for ethical dimension. After obtaining the necessary permissions, the parents of the students who participated in the study were informed about the practices to be performed within the scope of the study. In addition, the students in the application class were given the necessary information about the research. Moreover, it was confirmed that the students voluntarily participated in the research. Then the application was started. Finally, the research report did not include the names of students and the name of the school in which they study.

Application Process

The themes included in the application process are presented in Figure 2, and the application process is described below.

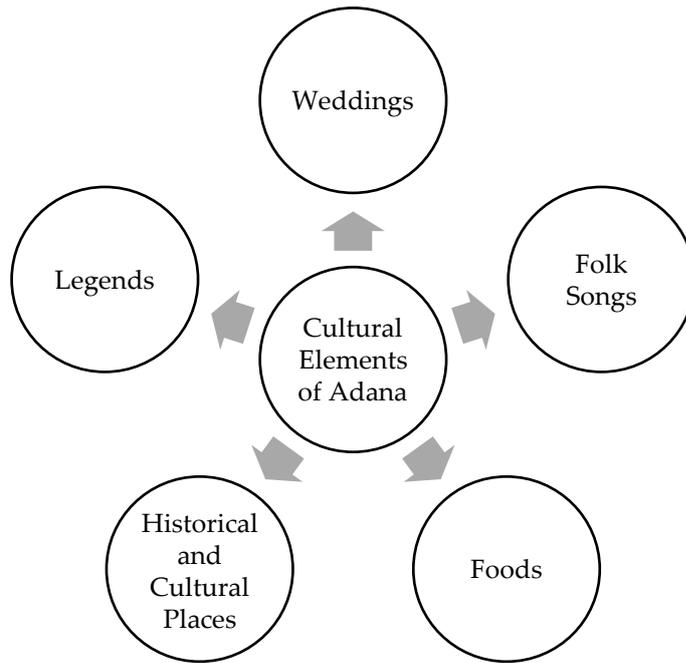


Figure 2. Themes Included in the Application Process

As it is seen in Figure 1, the themes of Adana Weddings, Adana Folk Songs, Adana's Foods, Historical and Cultural Places in Adana and the Legends specific to Adana were discussed in the application process. Detailed descriptions for this process are presented below.

The application process was initiated on Monday, April 9, 2018. In the first lesson, the information manual for the use of Storyjumper prepared by the researchers was given to the students. Then, how to use Storyjumper was described, and the examples of the application were displayed. Several of the students were allowed to perform an application on the computer. The first application lasted for 2 lesson hours.

In the second application, the theme of "Adana Weddings" was covered. At the beginning of the lesson, the students were asked to talk about the weddings they went to. Then, the digital story created by the researchers for weddings was presented. Class discussion was made about the story after the presentation of the digital story. At the end of the lesson, the students were asked to write a story about weddings on paper, as in the digital story presented. The lesson was finished after the students wrote their stories. The second application lasted for 2 lesson hours.

In the third application, the students were asked to digitally create a story containing the significant cultural elements of Adana, which had been previously created by the researchers, so that the students would practice digital storytelling as a group. During the application, the researchers actively helped the students in technical issues. Then, the theme of "Adana Folk Songs" was covered. At the beginning of the lesson, the digital story prepared by the researchers for the folk song "Aman Adanalı" was presented to the students. Then, the students were asked questions about this folk song, and the story was discussed. In the next stage, the students were made to listen to the folk song "Adana Köprübaşı" on the computer. It was observed that some students were dancing while playing this folk song. After the lyrics of the folk song were read, challenging questions were asked about it. At the end of the lesson, homework including writing a story for this folk song was given, and the lesson was finished.

In the fourth application, the digital story about the food and drink culture of Adana, which was created by the researchers, was presented to the students at the beginning of the lesson. The students were asked questions about the meals mentioned in the story, and discussions were made about the story. Then, the digital storytelling study on Adana's foods was performed as a group. The students created digital stories under the guidance of the researchers. At the end of the lesson, the

homework given in the previous application was collected. In the second lesson, the students were asked to write a story about Adana's foods individually. The lesson was finished after the students wrote their stories.

In the fifth application, the introductory film of Adana prepared by the Governorship of Adana Provincial Directorate of Culture and Tourism was displayed during the first hour. Then, questions were asked about the film and discussions were made about the historical and cultural places of Adana. In the second hour, the digital story created by the researchers for the historical and cultural places of Adana was presented. Then, the students were given a worksheet including the photographs of Adana's cultural and historical places. The students were asked to write a story about the historical and cultural places of Adana by choosing the places they wanted. The lesson was finished when the students completed their stories.

In the sixth application, explanations regarding the definition of the concept of legend were made at the beginning of the lesson. The students were presented with a digital story about the "Legend of Luqman the Wise" which was created by the researchers and is said to have taken place in Adana. Then, speeches were made for this legend. In the second lesson, the students were asked to write creative and original legends by thinking of impossible events. The lesson was finished when the students finished writing stories for their legends.

After all the themes were finished, an application was performed for students to create their individual digital stories. This application was spread over 3 different days by considering that it could be difficult to provide technical assistance to all students during the application of individual digital storytelling. The students were divided into three different groups, while a group was writing digital stories, the other groups conducted free activities with their teachers in a different classroom. During this application process, the students were asked to select one of the themes discussed in the application process of the individual digital storytelling study and to create a digital story about this theme/these themes. The researchers provided technical assistance to the students while engaged in digital storytelling. The application process of the study was completed on Wednesday, May 9, 2018.

Results

The results of the study were discussed under two headings: The results related to the development of creative thinking skills and the results related to the development of cultural awareness.

Development of Creative Thinking Skills

The results related to the development of creative thinking skills were discussed in four dimensions in terms of fluency, flexibility and originality scores, which are the sub-dimensions of creativity, and creativity total scores and the findings related to these dimensions are presented in Table 1.

Table 1. Wilcoxon Signed-Ranks Test Results for Pretest-Posttest Fluency, Flexibility, Originality and Total Creativity Scores

	Posttest – Pretest	N	Mean Rank	Sum of Ranks	z	p
Fluency	Negative Ranks	5	12.00	60.00	-2.160	0.031
	Positive Ranks	17	11.35	193.00		
	Equal	0				
Flexibility	Negative Ranks	3	11.00	33.00	-3.043	0.002
	Positive Ranks	19	11.58	220.00		
	Equal	0				
Originality	Negative Ranks	4	3.75	15.00	-3.496	0.000
	Positive Ranks	17	12.71	216.00		
	Equal	1				
Total Creativity	Negative Ranks	5	8.20	41.00	-2.776	0.006
	Positive Ranks	17	12.47	212.00		
	Equal	0				

According to the results of the Wilcoxon signed-ranks test that was performed to determine whether there was a difference between the pre-application fluency scores and post-application fluency scores of students, a statistically significant difference was observed [$z = -2.160$; $p < 0.05$]. The fact that the difference scores are in favor of positive ranks (posttest scores) indicates that the application has a significant effect on fluency scores. Besides, according to the results of the Wilcoxon signed-ranks test that was performed to determine whether there was a difference between the pre-application and post-application flexibility scores of students, a statistically significant difference was observed [$z = -3.043$; $p < 0.05$]. That the difference scores are in favor of positive ranks (posttest scores) indicates that the application has a significant effect on flexibility scores. Also, looking at the results of the Wilcoxon signed-ranks test to see the difference between the pre-application and post-application originality scores of students, a statistically significant difference was observed [$z = -3.496$; $p < 0.05$]. The fact that the difference scores are in favor of positive ranks (posttest scores) indicates that the application has a significant effect on originality scores. Finally, in regard to the results of the Wilcoxon signed-ranks test that was performed for comparing pre-application and post-application creativity scores of students, a statistically significant difference was observed between the two scores. [$z = -2.776$; $p < 0.05$]. The difference scores are in favor of positive ranks (posttest scores) which indicates that the application has a significant effect on creativity scores.

Development of Cultural Awareness

The results related to the development of cultural awareness were discussed in five dimensions: Awareness of weddings, awareness of folk songs, awareness of the food and drink culture, awareness of cultural/historical places, and awareness of legends. The themes created for the awareness of weddings are presented in Figure 3.

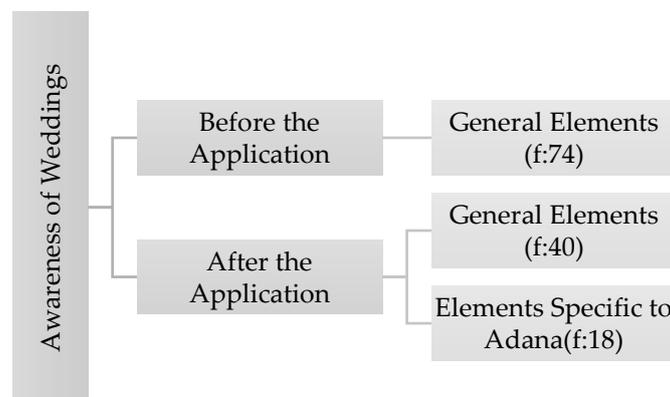


Figure 3. Themes Created for the Awareness of Weddings

Within the scope of the awareness of weddings theme, it was determined that all of the students mentioned the elements related to the whole country in general rather than Adana before the application. In line with this, it was observed that they presented 74 different situations. Within the context of general elements for weddings before the application, they mentioned situations such as dancing (f:12), offering food and drink (f:12), and singing (f:8). After the application, the students mentioned the elements specific to Adana as well as general elements. After the application, the students indicated 18 elements specific to Adana weddings. After the application, while situations such as dancing halay (f:16), offering food and drink (f:11), marriage gift (f:2) were mentioned within the context of general elements, situations such as breaking sugar cone (f:8), planting onions to the pole (f:6), giving present for invitation to the wedding (f:4) were mentioned within the context of the elements specific to Adana. From this point of view, it can be said that students' cultural awareness

regarding Adana weddings started to develop after the application. The themes created for the awareness of folk songs are presented in Figure 4.

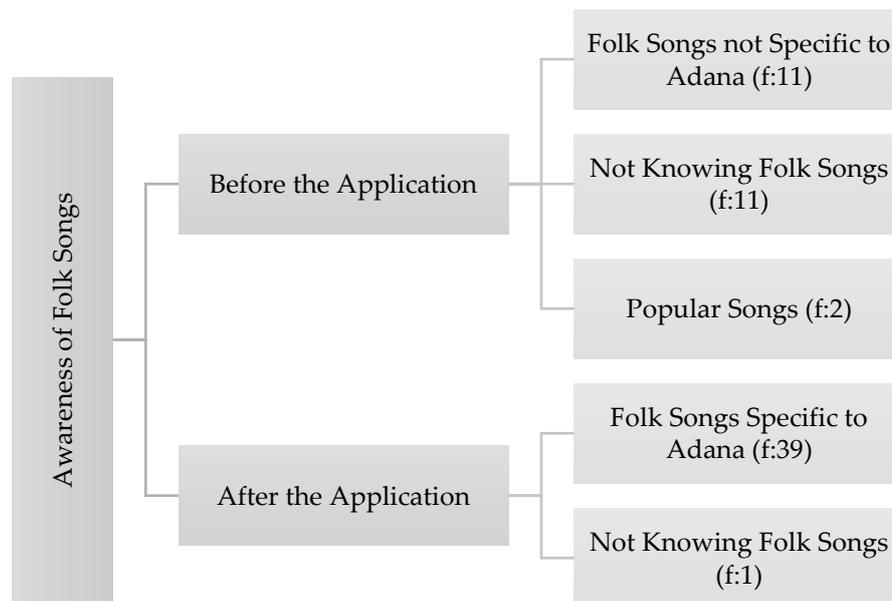


Figure 4. Themes Created for the Awareness of Folk Songs

Regarding the awareness of folk songs theme, half of the students stated that they did not know folk songs before the application. It was observed that other students mentioned the folk songs that are not specific to Adana (f:11) and general popular songs (f:2). Before the application, they mentioned the folk songs, such as Ankara'nın Bağları (f:5) and Erik Dalı (f:2) within the scope of the folk songs that are not specific to Adana. After the application, one of the students stated that he/she did not know folk songs and other students stated that they knew the folk songs that are specific to Adana (f:39). After the application, the students stated that they knew the folk songs Aman Adanalım (f:20) and Adana Köprübaşı (f:19) within the scope of the folk songs that are specific to Adana. When the situations before and after the application are compared within the context of awareness of folk songs, it can be said that students' awareness of folk songs specific to Adana started to develop after the application. The themes created for the awareness of food and drink culture are presented in Figure 5.

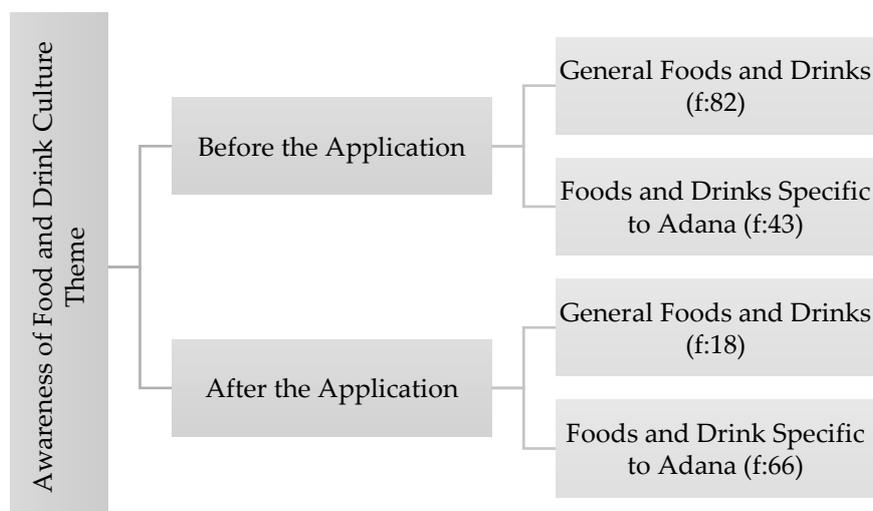


Figure 5. Themes Created for the Awareness of the Food and Drink Culture

Related to the awareness of food and drink culture theme, it was determined that the students mentioned the general food and drinks (f: 82) and the food and drinks specific to Adana (f: 43) before the application. Before the application, it was determined that the students mentioned food and drinks such as baklava (f:14), ayran (f:6), kadayıf (f:5), lahmacun (f:3) concerning general food and drinks, and food and drinks such as kebab (f:21), turnip (f:9), bici bici (f:3) regarding food and drinks specific to Adana. After the application, it was observed that they mentioned the general food and drinks (f:18) and food and drinks specific to Adana (f:66). When the awareness concerning the food and drink culture was compared before and after the application, it was determined that the students mostly mentioned the general food and drinks before the application while they mostly mentioned the food and drinks specific to Adana after the application. After the application, the food and drinks such as ayran (f:4), pilaff (f:2), dolma (f:2) were mentioned related to general food and drinks, and the foods such as kebab (f:20), turnip (f:13), sıkma (f:11), thimble soup (f:9) were mentioned within the scope of food and drinks specific to Adana. From this point of view, it can be said that students' awareness of the food and drink culture of Adana increased. The themes created for the awareness of cultural and historical places are presented in Figure 6.

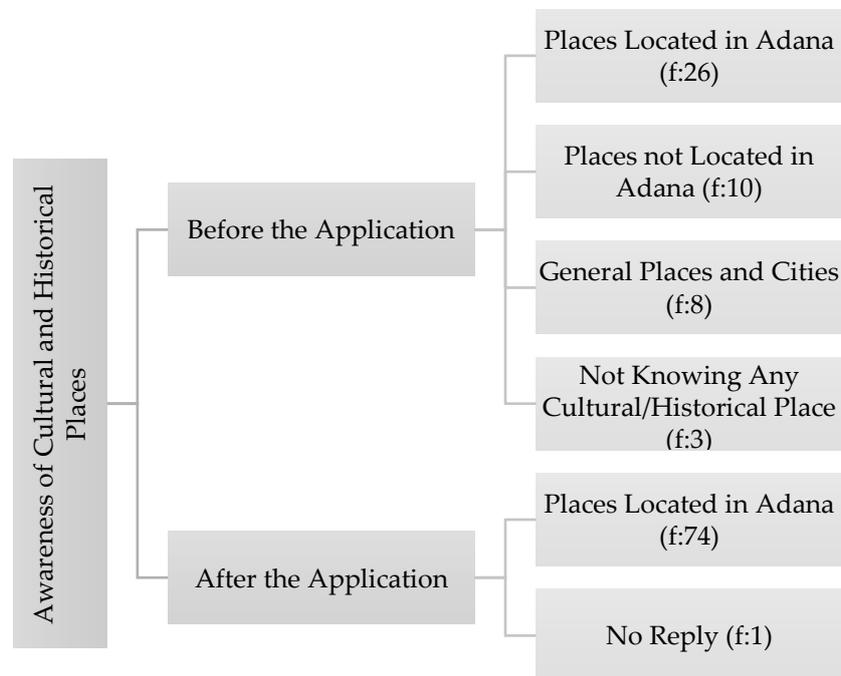


Figure 6. Themes Created for the Awareness of Cultural/Historical Places

In terms of the awareness of cultural and historical places theme, three students stated that they did not know cultural/historical places before the application. Other students mentioned cultural and historical places that are located in Adana (f:26) and not located in Adana (f:10), and more general places and cities (f:8). Before the application, it was observed that they mentioned places such as Ataturk Museum (f:9), Stone Bridge (f:6), Big Clock (f:2) that are located in Adana within the scope of cultural/historical places, and places such as Maiden's Castle (f:5), Ataturk Ship (f:3), Dolmabahce Palace (f:1) that are not located in Adana, and that they gave answers such as museum (f:3), amusement park (f:1), Mersin (f:1) within the scope of general places and cities. After the application, one student did not respond, while other students mentioned the places located in Adana (f:74). After the application, they mentioned the places such as stone bridge (f:13), Snake Castle (f:11), Sabancı Central Mosque (f:8), Ramazanoğlu Mansion (f:5), Bebekli Church (f:4), Cinema Museum (f:4) located in Adana. In line with this, it can be said that students' awareness of the cultural/historical places located in Adana increased. The themes created for the awareness of legends are presented in Figure 7.

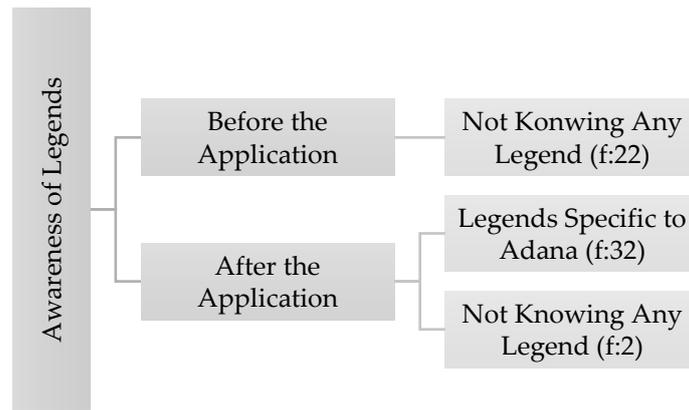


Figure 7. Themes Created for the Awareness of Legends

Within the scope of the awareness of legends theme, all of the students stated that they did not know any legend before the application. After the application, two students stated that they did not know any legend while other students mentioned the legends specific to Adana (f:32). They mentioned the legend of Luqman the Wise (f:20) and the legend of Şahmeran (f:12) within the scope of the legends specific to Adana. According to this, it can be said that students' cultural awareness of the legends specific to Adana developed.

Discussion, Conclusion and Suggestions

Technology has provided teachers with many innovative tools to use in the classroom and opened new ways of creativity and storytelling for individuals who use a computer every day (Mullen & Wedwick, 2008). According to Ohler (2013), digital technology is one of the biggest imagination and creativity boosters that humanity has ever designed, and in this context, digital storytelling requires students to synthesize imagination, creativity, research, and critical thinking to transform their ideas into a form of expression in the production process. According to Malita and Martin (2010), digital storytelling is beyond use of technology and is a means of expression, communication, integration, and imagination, and it is also an application in which creative and analytical thinking intersect. In digital storytelling, students learn by doing-experience in a learning environment based on entertainment, and in this process, they have to develop their creativity, learner autonomy, and critical thinking skills (Tang, 2016). Digital storytelling is described as a hybrid narrative form in multiple environments and also allows for critical and creative thinking (Benmayor, 2008). As a result of this study, it was determined that the creation of digital storytelling with Web 2.0 tools in the life science course increased students' creative thinking skills, and fluency, flexibility and originality scores which are the sub-dimensions of the creative thinking skill. In a similar study carried out by Bedir Erişti (2016), it was revealed that the digital storytelling process positively affected the creativity of secondary school students. In the study carried out by Tang (2016), it was found out that the digital storytelling approach was a positive and applicable approach for students to be creative and critical multimedia narrators. Based on the conclusion of the study and the results in the literature, it can be said that digital storytelling improved the creative thinking skills of students. Accordingly, this application can be made widespread and applied in schools. Nevertheless, when it is considered that digital storytelling positively affects cognitive skills (Malita & Martin, 2010), its effects on different high-level thinking skills, such as critical thinking, reflective thinking and problem solving, can also be examined.

Creativity is a process, in which the existing cultural resources are combined in new ways, and positive effects can be created for this integration through innovative ways since creativity and cultural resources have similar dimensions, in this context, digital storytelling aims not only to develop creativity but also to make a valuable contribution to the local culture (Burgess, 2006). Since students will be able to compare their stories with the stories written by people with different cultural and life experiences in the digital storytelling approach, digital storytelling is described as a powerful tool for

intercultural learning (Malita & Martin, 2010). Nevertheless, teachers can use the digital storytelling approach and guide students to associate their experiences with their social lives in an effective and creative way (Tang, 2016). Digital storytelling is considered as a valuable approach in which students can bring their cultural knowledge and experiences, including their skills related to technology, into the forefront to transform their thoughts and strengthen themselves (Benmayor, 2008). With respect to this, as another result of the study, it was determined that the creation of digital storytelling with Web 2.0 tools in the life science course improved students' cultural awareness. In a study carried out on preservice teachers, it was determined that digital storytelling increased students' awareness of their own culture (Theodore & Afoláyan, 2010). Based on this, it can be said that the digital storytelling approach improved students' cultural awareness. Accordingly, it can be suggested to use the digital storytelling approach in the applications for developing cultural awareness. However, in the study carried out by Ribeiro (2016) on undergraduate students studying in the business communication program, it was also revealed that digital storytelling increased students' intercultural awareness. In this study, applications related to local cultural awareness were performed for the immediate surroundings. Also, applications can be arranged for the cultures of our country and other countries around the world on a wider scale.

Strengths, Limitations and Future Directions

In this research, it has been determined that digital storytelling has positive effects on cultural awareness and creativity and since there are few research in this context, a new understanding has been presented to the field. In addition, reliability information was given to the data collection tools used in the study and the data was evaluated objectively. Furthermore, although the study was limited to a small sample, important results were reached for the dissemination of teaching practices. It can be said that these dimensions constitute the strengths of the research.

Since the teachers and parents of one classroom only allowed for the application in the research, the convenience sampling method was used and the number of sample was therefore limited. The study is limited to 22 primary school second grade students attending a school in a middle socio-economic region in Adana. To this end, similar studies can be conducted to generalize the results by increasing the number of groups and the number of sample in the research. In the research, quantitative data for creative thinking were collected by Torrance Creative Thinking Test Verbal-A Form and qualitative data for cultural awareness were collected by the Cultural Awareness Level Determination Form formed by the researchers. Therefore, the research is limited to the data obtained with these data collection tools. This research can be designed as a mixed method research and can be used to collect both quantitative and qualitative data for the whole data.

Application carried out in the research was limited to local cultural awareness in Adana. In the future research and practices, activities can be planned for cultural awareness of the country of residence and other countries in the world and also, considering the positive effects of the research on students, this practice can be extended and implemented in schools.

Acknowledgements

We would like to thank Çukurova University Scientific Research Projects Coordination Unit for its contribution and support to the project with grant number SBA-2018-9998.

References

- Alexandra, D. (2008). Digital storytelling as transformative practice: Critical analysis and creative expression in the representation of migration in Ireland. *Journal of Media Practice*, 9(2), 101-112.
- Aslan, A. E. (2001). Torrance yaratıcı düşünce testinin Türkçe versiyonu. *M.Ü. Atatürk Eğitim Fakültesi Eğitim Bilimleri Dergisi*, 14, 19-40.
- Balaman, F. (2015). Dijital öyküleme yönteminin öğrencilerin toplumsal değer yargılarına etkisi. *Elektronik Eğitim Bilimleri Dergisi*, 4(8), 159-168.
- Balaman, F. (2016). Dijital öyküleme yönteminin öğrencilerin öğretim teknolojilerine yönelik tutumlarına etkisi. *Pegem Eğitim ve Öğretim Dergisi*, 6(2), 147-168.
- Bedir Erişti, S. D. (2016). Katılımcı tasarım temelli dijital öyküleme sürecinde ilköğretim öğrencilerinin yaratıcılık göstergeleri. *Turkish Online Journal of Qualitative Inquiry*, 7(4), 462-492.
- Benmayor, R. (2008). Digital storytelling as a signature pedagogy for the new humanities. *Arts & Humanities in Higher Education*, 7(2), 188-204.
- Bogdan, R. C., & Biklen, S. K. (2007). *Qualitative research for education – an introduction to theory and methods* (5th ed.). Boston: Pearson Education, Inc.
- Burgess, J. (2006) Hearing ordinary voices: cultural studies, vernacular creativity and digital storytelling. *Continuum*, 20(2), 201-214. doi:10.1080/10304310600641737
- Burgess, J., Foth, M., & Klæbe, H. (2006). Everyday creativity as civic engagement: A cultural citizenship view of new media. In *Proceedings Communications Policy & Research Forum*, Sydney.
- Büyüköztürk, Ş., Kılıç Çakmak, E., Akgün, Ö. E., Karadeniz, Ş., & Demirel, F. (2019). *Eğitimde bilimsel araştırma yöntemleri* (26th ed.). Ankara: Pegem Akademi.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Boston: Pearson Education, Inc.
- Cushing, D. F., & Love, E. W. (2013). Developing cultural responsiveness in environmental design students through digital storytelling and photovoice. *Journal of Learning Design*, 6(3), 63-74.
- Czarnecki, K. (2009). How digital storytelling builds 21st century skills. *Library Technology Reports*, 45(7), 15.
- Duman, B., & Göcen, G. (2015). The effect of the digital storytelling method on pre-service teachers' creative writing skills. *Anthropologist*, 20(1,2), 215-222.
- Grant, N. S., & Bolin, B. L. (2016). Digital storytelling: A method for engaging students and increasing cultural competency. *Journal of Effective Teaching*, 16(3), 44-61.
- Haşlamam, T. (2017). Özdüzenleyici öğrenmenin desteklenmesi: Bir dijital öyküleme uygulaması. *İlköğretim Online*, 16(4), 1407-1424.
- Karasar, N. (2008). *Bilimsel araştırma yöntemi: Kavramlar-ilkeler-teknikler* (18th ed.). Ankara: Nobel Yayın Dağıtım.
- Kim, K. H. (2006). Can we trust creativity tests? A review of the Torrance Tests of Creative Thinking (TTCT). *Creativity Research Journal*, 18(1), 3-14.
- Kocaman Karoğlu, A. (2015). Öğretim sürecinde hikaye anlatmanın teknolojiyle değişen doğası: Dijital hikaye anlatımı. *Eğitim Teknolojisi Kuram ve Uygulama*, 5(2), 89-106.
- Kotluk, N., & Kocakaya, S. (2015). 21. yüzyıl becerilerinin gelişiminde dijital öykülemeler: Ortaöğretim öğrencilerinin görüşlerinin incelenmesi. *Eğitim ve Öğretim Araştırmaları Dergisi*, 4(2), 354-363.
- Lambert, J. (2013). *Digital storytelling - Capturing lives, creating community* (4th ed.). New York: Routledge.
- Lee, C. S., Therriault, D. J., & Linderholm, T. (2012). On the cognitive benefits of cultural experience: Exploring the relationship between studying abroad and creative thinking. *Applied Cognitive Psychology*, 26(5), 768-778.

- Long, B. (2011). Digital storytelling and meaning making: Critical reflection, creativity and technology in pre-service teacher education. In *Proceedings of the Digital Storytelling Conference* (pp. 1-27).
- Long, T., & Johnson, M. (2000). Rigour, reliability and validity in qualitative research. *Clinical Effectiveness in Nursing*, 4, 30-37.
- Malita, L., & Martin, C. (2010). Digital Storytelling as web passport to success in the 21st century. *Procedia Social and Behavioral Sciences*, 2(2010), 3060-3064.
- McMillan, J. H. (2004). *Educational research: Fundamentals for the consumer* (4th ed.). Boston: Pearson Education, Inc.
- Ministry of National Education. (2017). *Hayat bilgisi dersi öğretim programı - İlkokul 1, 2 ve 3. sınıflar*. Ankara: Ministry of National Education.
- Mullen, R., & Wedwick, L. (2008). Avoiding the digital abyss: Getting started in the classroom with youtube, digital stories, and blogs. *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 82(2), 66-69. doi:10.3200/TCHS.82.2.66-69
- Nilsson, M. (2010). Developing voice in digital storytelling through creativity, narrative and multimodality. *Seminar.net - International Journal of Media, Technology and Lifelong Learning*, 6(2), 148-160.
- Ohler, J. B. (2013). *Digital storytelling in the classroom - New media pathways to literacy, learning and creativity* (2nd ed.). California: Corwin.
- Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3rd ed.). Thousand Oaks: Sage Publications.
- Ribeiro, S. P. M. (2016). Developing intercultural awareness using digital storytelling. *Language and Intercultural Communication*, 16(1), 69-82. doi:10.1080/14708477.2015.1113752
- Robin, B. R. (2008) Digital storytelling: A powerful technology tool for the 21st century classroom. *Theory Into Practice*, 47(3), 220-228.
- Robin, B. R. (2016). The power of digital storytelling to support teaching and learning. *Digital Education Review*, 30, 17-29.
- Sadik, A. (2008). Digital storytelling: A meaningful technology-integrated approach for engaged student learning. *Educational Technology Research and Development*, 56, 487-506.
- Şimşek, B. (2012). Enhancing women's participation in Turkey through digital storytelling. *Cultural Science*, 5(2), 28-46.
- Tackvic, C. (2012). Digital storytelling: Using technology to spark creativity. *The Educational Forum*, 76(4), 426-429.
- Tang, S. (2016). Digital storytelling approach in a multimedia feature writing course. *Journal of Language Teaching and Research*, 7(3), 572-578. doi:10.17507/jltr.0703.19
- Theodore, P. A., & Afoláyan, M. (2010). Facilitating cultural competence in teacher education students with digital storytelling: Implications for urban educators. *Multicultural Learning and Teaching*, 5(2).
- Tomalin, B., & Stempleski, S. (2013). *Cultural awareness - Resource books for teachers*. Oxford: Oxford Press.
- Tuna, S. (2011). Kültürel farkındalık yaratma açısından sanat eleştirisi öğretimi. *İlköğretim Online*, 10(2), 569-575.
- Turgut, G., & Kışla, T. (2015). Bilgisayar destekli hikaye anlatımı yöntemi: Alanyazın araştırması. *Turkish Online Journal of Qualitative Inquiry*, 6(2), 97-121.
- Yıldırım, A., & Şimşek, H. (2008). *Sosyal bilimlerde nitel araştırma yöntemleri* (7th ed.). Ankara: Seçkin Yayıncılık.
- Yürük, S. E., & Atıcı, B. (2017). Dijital öykü temelli değerler eğitimi materyallerinin öğrencilerin değer kazanımına etkisi. *Trakya Üniversitesi Eğitim Fakültesi Dergisi*, 7(1), 56-74.

Appendix-1. Examples of Digital Stories Presented by the Researchers

 Home Library Help Prices Search for books... 

Lokantada Adana'nın önemli yemeklerinden biri olan sıkma yedik. Ben patatesli sıkma, kardeşim ise peynirli sıkma yedi. Sıkma yaparken, yufka ekmeğinin içine peynir, patates, ıspanak gibi farklı şeyler konularak sıkıca sarılıyormuş. Bu nedenle adına sıkma deniliyormuş. Yanında salatalık, domates yedik ve çay içtik. Sıkma çok güzeldi.




Öğleden sonra eve dinlenmek için geri döndük. Ahmet amcamın eşi Ayşe yengem Adana'nın meşhur yüksük çorbasından yapmıştı. Yüksük çorbasının içinde mantı konulmuştu. Tadı harikaydı. Ayşe yengemin ellerine sağlık.

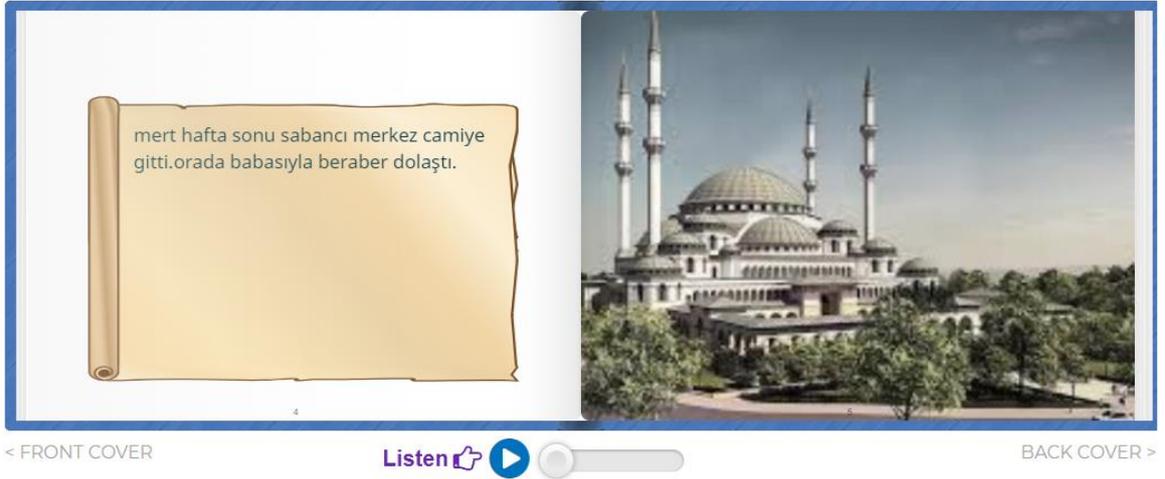
< FRONT COVER   BACK COVER >

Adana Bilim ve Kültür Müzesi de mutlaka gezilmesi gereken yerlerdenmiş. Merve teyzem dedi ki Müze binası 19. yüzyılda yapılmış geleneksel Adana evlerindedir. Atatürk 15 Mart 1923'te Adana'yı ziyaretlerinde bu konakta kalmıştır. 1981 yılında müze haline getirilerek "Atatürk Bilim ve Kültür Müzesi" olarak hizmete girmiştir.



< FRONT COVER   BACK COVER >

Appendix-2. Examples of Digital Stories Created by the Students



Appendix-3. Cultural Awareness Level Determination Form

Dear Students,

In this form, we expect you to transfer your information about the wedding and games, folk songs and songs, foods, cultural places and legendary stories of the environment where you live. There are five questions in the form. You can give any answer you wish freely since your answers will not be shared with anyone. It is important to fill out the form completely. Thanks for answering the form 😊

1) What is done at the weddings you attend in Adana? Which games do people play and have fun at these weddings? Can you tell us about these weddings?

.....
.....

2) What are the folk songs and songs specific to Adana that you know? Can you give examples of the folk songs and songs specific to Adana that you know?

.....
.....

3) What are the foods specific to Adana that you know? Can you tell us what you know about these dishes and foods?

.....
.....

4) Which cultural places are there for visiting in Adana? Can you write the cultural places in Adana that you know?

.....
.....

5) Do you know any event that took place in Adana and is considered legendary? If you know, can you describe this event/these events?

.....
.....