

# Digital Storytelling Applications for Improving Self-Management Skills of Primary School Students

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## Abstract

*The main purpose of this study is to determine the effect of digital storytelling used in the Life Science course on the development of students' self-management skills. This study adopted a mixed method approach, combining quantitative and qualitative methods within an embedded experimental design. In this context, the research was carried out through a quasi-experimental one-group pre-test post-test model, implemented with a study group of 20 third-grade primary school students. In addition to the Self-management Skills Scale for Primary School Students developed by the researchers, observations, interviews, diaries, and student products were used as data collection tools. A quasi-experimental one-group pre-test post-test model was used to examine the impact of digital storytelling on students' self-management skills. Paired samples t-test was used to analyze quantitative data. For the qualitative part, observations, student products, diaries, and interviews with students and the classroom teacher were collected. These data were analyzed using inductive content analysis to explore how self-management skills were used and developed during the intervention. At the end of the one-group quasi-experimental process, it was determined that the digital storytelling applications used in the Life Science course had a statistically positive effect on students' self-management skills. Qualitative results also showed that students utilized self-management skills during digital storytelling practices. As a result of the interviews with the classroom teacher and students, it was concluded that digital storytelling applications supported active learning of students, contributed to their skills and lives, and turned the lessons into fun. However, it was also stated that digital storytelling applications were a process that required time and effort and that there were difficulties in terms of technical use. Based on the results of*

*the research, suggestions were made for the use of digital storytelling applications in different grades and for the development of different skill areas.*

**Key words:** *narrative-based instruction; primary level education; skill development; student autonomy; technology-enhanced learning*

## Introduction

The 21st century, in which everything in our lives undergoes rapid development and changes, imposes many new requirements both for individuals and societies. Meeting these needs and adapting to changes requires individuals to have different skills and competencies. Undoubtedly, 21st century skills are among the most emphasized competencies in contemporary education. These skills enable individuals to access information easily, use it effectively in daily life, complete complex tasks, recognize their own competencies, solve problems they encounter, and employ higher-order thinking skills. In addition, these skills offer advantages to individuals in terms of working in harmony with other people, using information and technology effectively, and perceiving socio-economic events in the society and the world we live in (Kılıç, 2015).

In the literature, it is evident that 21st century skills are classified in different ways by various institutions and organizations. Partnership for 21st Century Learning (P21) classified them as “learning and renewal skills, life and career skills, information, media and technology skills”, Assessment and Teaching of 21st Century Skills (ATCS) as “ways of thinking, ways of working, tools for living and working in the world”, and National Educational Technology Standards (NETS-ISTE) as “creativity and renewal, critical thinking, problem solving and decision making, communication and collaboration, digital citizenship, technological applications and concepts, research and information fluency”. The classification of the European Union (EU) is “learning to learn, communication, cultural awareness, social and citizenship competence, entrepreneurship, digital competence” (Voogt & Roblin, 2010). These skills, which are classified in different ways, are included in Turkish curricula as 21st century skills or basic life skills. The acquisition of these skills, which are defined as both 21st century skills and basic life skills, is possible through education systems.

Education systems aim to support students’ development, accelerate their adaptation to changes in their environment, and raise them as effective individuals in solving the problems they may encounter in daily life. In this respect, it is of great importance for students to acquire basic life skills such as self-management, decision making, creative thinking, critical thinking, empathy, problem solving, communication, cooperation and entrepreneurship (Ministry of National Education [MoNE], 2018). Therefore, it has become a fundamental goal in education for students to acquire life skills from an early age. At this point, the primary school stage is of vital importance, because it is through the courses in primary school that students are encouraged to gain basic skills related to life. One of these courses is undoubtedly Life Science. In the Life Science course, the values of common life are discussed in the dimensions of human, society,

and nature (Sabancı & Şahin, 2005). In addition, Life Science enables children to gain knowledge, skills and values related to their daily lives by centering their experiences on how they perceive the world (Kabapınar, 2012). In addition to providing students with basic scientific knowledge, this course also helps them gain skills to solve the problems they face in daily life, establish healthy relationships, and take responsibilities. Therefore, it can be said that the Life Science course has a different and prioritized importance than other courses.

Through the revisions made to the Life Science Curriculum in Turkey in 2005, the skills expected to be acquired by primary school students were given a wide coverage. This program aimed not only to enhance students' academic success but also to address the need for developing social and emotional skills. In addition, the skills that should be developed in students are clearly defined and categorized in the curriculum (Kabapınar, 2009). As a result of a detailed examination of the skills in the curriculum, it is stated that the prerequisite skill for most skills is the self-management skill (Sarısoy & Orhan, 2016). Similarly, skills such as "responsibility, goal setting, ethical behavior, self-knowledge, leadership, emotion management, learning to learn, sharing, having fun, career planning" in the 2009 Life Science Course Curriculum were included under the title of self-management skills (MoNE, 2009). As a matter of fact, in the 2018 Life Sciences Curriculum, self-management skills are referred to as skills that should be acquired and developed among the basic life skills. The most comprehensive definition of self-management skills in the literature is expressed as "controlling, planning and managing cognition, affect and actions" (McClelland & Cameron, 2011). In addition, expressions such as individuals regulating and controlling themselves in lifelong learning and personal development processes (Goleman, 2011), individuals' competence to struggle with the negativities encountered in their daily lives and regulating these competencies (Mayer et al., 2004), and individuals' ability to mobilize themselves to perform a certain task or job, controlling their impulses and emotions (Doleman, 2007) can also be accepted within the definition of self-management skills.

Self-management skills are also defined as skills that enable students to fulfil complex tasks without the help of their elders, to find solutions to the problem situations they encounter in daily life with self-confidence, and to apply what they have learned to different situations (Medland, 1990; Shapiro & Cole, 1994). In this context, it is seen that self-management skills play a key role in controlling individuals' own emotions and thoughts, ensuring their personal development, and organizing and controlling themselves (Goleman, 2011). Therefore, it is very important that students acquire self-management skills. However, in the Life Science Course Curriculum, it is stated that there is uncertainty about how students will acquire both self-management skills and other skills (Sarısoy & Orhan, 2016), but many different ways can be used to help students acquire these skills (MoNE, 2009). In addition, when the curriculum is examined in detail, attention is drawn to the necessity of creating student-centered experiences in the section of issues to be considered for the implementation of the

curriculum (MoNE, 2018). In this context, in order for students to develop self-management skills and other life skills, it is necessary to incorporate student-centered methods, techniques and learning experiences that allow students to learn by doing and experiencing.

Learning and teaching environments have also been affected by technological developments and changes in the 21st century. As a reflection of this, technological and digital infrastructures have started to strengthen in educational environments, diversity has been provided in learning environments, and it has become easier for students to access and use information effectively. This situation has led to the emergence of new applications in educational environments. In addition, it is also evident that educational environments are enriched in terms of technological and digital materials, and different methods and applications that require the use of technology in learning environments have started to be used. In this direction, one of the important digital materials and applications used in learning environments in recent years is digital storytelling (Sadık, 2008). Digital storytelling is the telling of stories by narrators using tools such as voice, music, pictures, photographs and videos, and the transmission of these stories to their audiences. In addition, digital storytelling is defined as an integrated portrait of storytelling, an ancient communication tool for humanity, and today's digital technologies (Nguyen, 2011). In this context, it can be said that digital storytelling is an effective and amusing learning-teaching tool that uses a combination of modern and traditional tools.

Digital stories are used as a powerful and effective teaching tool for teachers and students in educational settings (Robin, 2008). Digital storytelling studies contribute to the teaching of 21st century skills such as visual skills, collaboration and technology use, as well as basic subjects such as language skills, and history and teacher education (McLellan, 2006). Digital storytelling studies, which try to establish an integrity between human creativity and technology, bring a new perspective on learning and teaching processes. In addition to having a student-centered structure, this approach allows learning environments to be technologically rich and interactive (Smeda et al., 2010). However, various studies have also found that digital storytelling enriches learning environments, educational programs, and learning experiences (Sadık, 2008); contributes to students' skills such as research and investigation, creativity, writing, presentation, and editing (Dogan & Robin, 2009); increases students' interest, attitude, and motivation for the course and their academic performance (Demirer, 2013), and improves students' self-confidence (Yüksel, 2011).

In the 21st century, it is very important to educate students in such a way that they can meet the expectations and needs of society. In this context, it is stated that 21st century skills can be taught to students through digital stories (Jakes & Brennan, 2005). As a matter of fact, it has been seen that digital storytelling applications enable the effective use of technology in learning environments and develop 21st century skills such as visual literacy, information literacy, creativity and critical thinking in students (Atalay, 2015; Brown et al., 2005; Robin, 2008; Sadık, 2008). In addition, when the

literature is examined, it can be seen that digital storytelling applications are used in different educational levels and courses in the context of both gaining skills and creating effective learning experiences (Atalay, 2015; Campbell, 2012; Chung, 2007; Ciğerci, 2015; Çiçek, 2018; Foley, 2013; Hung et al., 2012; Jakes & Brennan, 2005; Karakoyun, 2014; Robin, 2006; Robin, 2008; Sadik, 2008; Yamaç, 2015; Yüksel et al., 2011).

In Turkey, it is stated that 21st century skills overlap with the basic life skills in the 2018 Life Sciences Curriculum (Kılıç & Gültekin, 2015) and it is predicted that these skills can be developed through digital storytelling practices. In this direction, it is assumed that digital storytelling applications will create appropriate learning experiences for students to gain or develop self-management skills in the Life Science course.

While previous studies have focused on the general effectiveness of digital storytelling in fostering 21st century skills such as creativity, critical thinking, or information literacy, there remains a gap in the literature regarding how digital storytelling contributes specifically to the development of self-management skills within the context of the Life Science course in primary education. Unlike existing research that often centers on technology integration or language development, this study uniquely examines the role of digital storytelling in promoting self-regulatory behaviors and personal responsibility through real-life tasks. By incorporating both quantitative and qualitative data, the present study aims to provide a more holistic understanding of how digital storytelling applications affect self-management skills in young learners and how these experiences are perceived by both students and classroom teachers. In this way, the research offers a new contribution by bridging the gap between digital pedagogy and personal skill development in primary education.

In this context, the main purpose of the research is to determine the effect of digital storytelling applications used in the Life Science course on students' self-management skills. As part of the research objectives, the following questions were sought to be answered:

In the Life Science course;

- Do the digital storytelling applications used have an effect on improving students' self-management skills?
- How do students use self-management skills during digital storytelling practices?
- What are the opinions of classroom teachers and students about the development of self-management skills in students through digital storytelling applications?

## **Methodology**

In this section, information about the research model, participants, research environment, experimental process, data collection tools used in the research, data analysis and weaknesses and strengths of the research are presented.

### ***Research model***

A mixed methods research design was used in this study. In the mixed methods research, approaches related to quantitative and qualitative methods are integrated

(Creswell, 2006). At this point, approaches to qualitative and quantitative research methods can be used together in data collection, data analysis or the entire research process (Tashakkori & Tedlie, 1998). Creswell and Plano-Clark (2007) defined four different designs for mixed methods research. These are triangulation, explanatory, exploratory, and embedded mixed designs. In the embedded mixed design, quantitative and qualitative data are collected together. Either of the quantitative or qualitative data sets constitutes the primary data set. However, one data set is used to support the other. The embedded mixed design is divided into two parts – embedded experimental and embedded relational design (Creswell & Plano-Clark, 2007). In this study, embedded experimental mixed design was used. The use of the embedded experimental mixed design in this study is illustrated in Image 1.

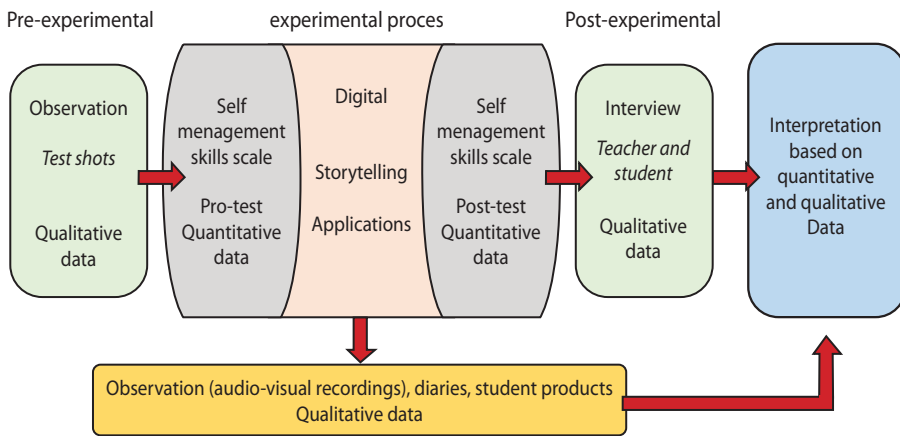


Image 1. Reflection of embedded experimental mixed design on research

In the application process of the research, digital storytelling applications were used as the experimental process. In the experimental process in which the quasi-experimental method was used, a one-group pre-test post-test model was used. It is stated that this model can be preferred in social sciences when it is difficult to control all variables in the research environment (Karasar, 2011). In addition, the COVID-19 pandemic conditions were still effective during the implementation process and during the selection of the model. Within the scope of the model, there was only one study group. Before the experimental process, one of the researchers was present in the classroom for 3 weeks and observed the study group. In addition, quantitative data were collected by applying the Self-management Skills Scale as pre-test and post-test for students before and after the experimental procedure. Observations, student work, and diaries were used during the experimental process to determine how students used life skills. After the experimental process, interviews were conducted with the students and the classroom teacher. The change in students' self-management skills was determined quantitatively and how they used and reflected on these skills during the implementation process was determined qualitatively.

## Participants and research setting

Criterion sampling, one of the purposeful sampling methods, was used to select the students who participated in the study. Purposive sampling allows in-depth study of the situations to be studied. However, the facts and events related to the subject to be researched will be explained in detail. Criterion sampling involves a set of predetermined criteria. The criteria can be created by the researcher or a ready-made list of criteria can be used. All situations that can meet the criteria can be studied (Yıldırım & Şimşek, 2011). In this direction, the participants of the study consisted of 3-A class students in a public school in Viranşehir district, Şanlıurfa province. The school administration and the classroom teacher's support for the students' research and their willingness to participate in the research were important for the selection of the school and classroom. In addition, allowing camera recordings during the research, the class teacher's positive attitude towards practice-based studies, and the availability of technological equipment in the classroom played an important role in selecting the classroom. The necessary permissions were obtained from the classroom teacher, parents, and students. In addition, the necessary permissions were obtained from Anadolu University Social and Human Sciences Research and Publication Ethics Committee (ethics committee permission dated 30.12.2020 with protocol number 72720) and Şanlıurfa Provincial Directorate of National Education (application permission dated 17.02.2021 with number E-47377298-44-20791694).

There are 22 students in the 3-A class where the research was conducted. Two of these students were not included in the study because one of them was absent frequently and one of them did not participate in the pre-test and post-test. Of the 20 students who participated in the study, 7 were girls and 13 were boys. The age range of these students varied between 8 and 10 years old. The layout of the classroom, with the classical desk arrangement before the research, was organized as a cluster layout during the research process.

## Data collection tools

The data collection tools to be used in the study were determined by considering the model structure of the mixed methods research and the research questions. The data collection tools used in the research are shown in Image 2.

Pre-experimental procedure	During experimental procedure	Post-experimental procedure
<ul style="list-style-type: none"><li>• Observation</li><li>• Self-management Skills Scale (Pre-test)</li></ul>	<ul style="list-style-type: none"><li>• Observation (audio-video recordings)</li><li>• Diaries</li><li>• Student productions</li></ul>	<ul style="list-style-type: none"><li>• Self-management Skills Scale (Post-test)</li><li>• Interviews with students and class teacher</li></ul>

Image 2. Data collection tools

As seen in Figure 2, quantitative and qualitative data collection tools were used together to collect data for the purpose of the study. In this context, the Self-Management Skills Scale for Primary School Students (Köseoğlu & Boyacı, 2022) developed by the researchers was used as a quantitative data collection tool. The Self-management Skills Scale consists of 20 items and 6 factors. These factors are “nature conservation and resource management”, “perceiving space and location”, “taking responsibility”, “behaving ethically”, “managing one’s own learning”, and “self-awareness and decision-making”. The alpha reliability coefficient of the scale is .818. Audio and video recordings, diaries, and semi-structured interviews with students and the classroom teacher were used as qualitative data collection tools. In addition, digital stories created by the students were also used as qualitative data.

### ***Experimental procedure***

One of the researchers made observations in the classroom during 5 lessons before starting the experimental procedure. After the observations, the classroom teacher and the students were informed about the digital storytelling practices. Then, on 13<sup>th</sup> October, 2021, the Self-management Skills Scale was administered to the students as a pre-test. On 18<sup>th</sup> October, 2021, the experimental process was initiated. This process continued for thirteen weeks, between 18<sup>th</sup> October, 2021 and 11<sup>th</sup> January, 2022, during the first semester of the 2021/2022 academic year. Preliminary practices were conducted in the first three weeks of this process. In the preliminary applications, students were told what to do in the digital storytelling process, the digital storytelling program (Microsoft Photo Story-3) was introduced, and sample applications were carried out. In this process, students were encouraged to create digital stories related to the topics covered. After these preliminary implementations, the lesson plans were reorganized and the actual implementation phase started. This phase lasted 10 weeks and students were expected to create five digital stories. During the ten-week period, Life Science lessons were taught for 30 class hours and students were encouraged to create digital stories within the scope of these lessons. The classroom was organized in groups in order to conduct digital storytelling practices effectively. In addition, care was taken to divide the students into heterogeneous groups and to have them take part in different groups every week. Throughout the process, the implementation environment was observed with a camera and audio and video recordings were made. After each digital story study, students were asked to write a diary. At the end of the implementation process, the Self-management Skills Scale was administered to the students as a post-test. Then, semi-structured interviews were conducted with 15 students and the classroom teacher.

### ***Data collection and analysis***

The quantitative data of the study were collected through the Self-management Skills Scale for Primary School Students. The scale was administered to the study group students before and after the digital storytelling practices as a pre-test and post-test,

respectively. SPSS 24.0 was used to analyze the collected data. The normality of the quantitative data was examined and statistical comparisons were performed. In this context, the Shapiro Wilk test was performed to examine the normality of the data. Skewness and kurtosis values were also analyzed. As a result of the analysis, it was determined that both the Shapiro Wilk test results (pre-test: 0.816, post-test: 0.061;  $p > 0.05$ ), skewness (pre-test: 0.000; post-test: -1.094) and kurtosis (pre-test: -.639; post-test: 1.014) values met normality. Normality of the data affects the statistical comparison methods to be applied. In single-group studies, if the data meet normality for measurements taken in two different time periods, dependent-samples t-test (paired-samples t-test) is recommended among parametric tests (Büyüköztürk et al., 2010; Ekiz, 2009). Accordingly, dependent samples t-test was used to analyze the quantitative data in the study and the significance level was examined at 0.05 level.

The “inductive content analysis” method was used to analyze the qualitative data such as audio-video recordings, diaries, student products and interviews. In this method, the researcher organizes the qualitative data and proceeds to open coding. During open coding, the entire content is examined, repeated readings are made, and categories are created (Hsieh & Shannon, 2005). After the categories have been created, they are combined under broader headings (Kızıltepe, 2021, p. 265). All qualitative data related to the research were analyzed regularly. In addition, the relationship and consistency of the data were also examined. Similarly, the transcripts of the interviews were coded by a field expert other than the researchers. Within the framework of the coding of the researchers and the field expert, it was determined that the codes related to the interview transcripts overlapped to a great extent.

## **Results**

In this section, the data obtained within the scope of the purpose of the study and the research questions are presented as findings.

### ***Results on the effect of digital storytelling applications on students' self-management skills***

A dependent group's t-test was conducted to determine the effect of digital storytelling practices in the Life Sciences course on the self-management skills of the students in the study group. In this context, the pre-test and post-test scores the students achieved on the Self-management Skills Scale were analyzed. In addition, students' scores on the sub-dimensions of the scale were also compared. The results of the dependent group's t-test regarding the scores of the students on the Self-management Skills Scale are given in Table 1.

Table 1 shows that there was a statistically significant difference between the pre-test and post-test scores of students' self-management skills ( $t = -11.097$ ,  $p < .05$ ). Similarly, a statistically significant difference was found in all sub-dimensions of the scale. Based on this findings, it can be said that the digital storytelling applications

used have an effect on improving students' self-management skills. The effect size of the study was also examined. In line with the standards specified by Cohen (1988), when the effect size indicators are examined, effect size is considered to have a low level when its value is lower than 0.2, a medium level with the value 0.5 and a high level with the value greater than 0.8. As a result of the analysis conducted in the context of this study, it can be said that the effect size of the data obtained ( $\bar{x} = -10.35$ ,  $sd = 4.17$ ;  $d = 2.48$ ) is at a high level.

Table 1  
Dependent group's t-test results for pre-test and post-test

Score	Groups	N	$\bar{X}$	Sd	t	df	p																																																																				
Self-management as a whole	Pre-test	20	41.00	7.49	-11.097	19	.000*																																																																				
	Post-test	20	51.35	6.11				Nature conservation and resource management	Pre-test	20	8.40	2.25	-5.904	19	.000*	Post-test	20	11.05	1.09	Perceiving space and location	Pre-test	20	5.00	2.00	-4.350	19	.000*	Post-test	20	7.20	1.77	Taking responsibility	Pre-test	20	8.45	2.14	-5.407	19	.000*	Post-test	20	10.45	1.28	Behaving ethically	Pre-test	20	6.60	1.31	-3.269	19	.004*	Post-test	20	7.80	1.70	Managing one's own learning	Pre-test	20	6.50	1.28	-3.446	19	.003*	Post-test	20	7.50	1.43	Self-awareness and decision-making	Pre-test	20	6.05	1.50	-3.266	19	.004*
Nature conservation and resource management	Pre-test	20	8.40	2.25	-5.904	19	.000*																																																																				
	Post-test	20	11.05	1.09				Perceiving space and location	Pre-test	20	5.00	2.00	-4.350	19	.000*	Post-test	20	7.20	1.77	Taking responsibility	Pre-test	20	8.45	2.14	-5.407	19	.000*	Post-test	20	10.45	1.28	Behaving ethically	Pre-test	20	6.60	1.31	-3.269	19	.004*	Post-test	20	7.80	1.70	Managing one's own learning	Pre-test	20	6.50	1.28	-3.446	19	.003*	Post-test	20	7.50	1.43	Self-awareness and decision-making	Pre-test	20	6.05	1.50	-3.266	19	.004*	Post-test	20	7.35	1.23								
Perceiving space and location	Pre-test	20	5.00	2.00	-4.350	19	.000*																																																																				
	Post-test	20	7.20	1.77				Taking responsibility	Pre-test	20	8.45	2.14	-5.407	19	.000*	Post-test	20	10.45	1.28	Behaving ethically	Pre-test	20	6.60	1.31	-3.269	19	.004*	Post-test	20	7.80	1.70	Managing one's own learning	Pre-test	20	6.50	1.28	-3.446	19	.003*	Post-test	20	7.50	1.43	Self-awareness and decision-making	Pre-test	20	6.05	1.50	-3.266	19	.004*	Post-test	20	7.35	1.23																				
Taking responsibility	Pre-test	20	8.45	2.14	-5.407	19	.000*																																																																				
	Post-test	20	10.45	1.28				Behaving ethically	Pre-test	20	6.60	1.31	-3.269	19	.004*	Post-test	20	7.80	1.70	Managing one's own learning	Pre-test	20	6.50	1.28	-3.446	19	.003*	Post-test	20	7.50	1.43	Self-awareness and decision-making	Pre-test	20	6.05	1.50	-3.266	19	.004*	Post-test	20	7.35	1.23																																
Behaving ethically	Pre-test	20	6.60	1.31	-3.269	19	.004*																																																																				
	Post-test	20	7.80	1.70				Managing one's own learning	Pre-test	20	6.50	1.28	-3.446	19	.003*	Post-test	20	7.50	1.43	Self-awareness and decision-making	Pre-test	20	6.05	1.50	-3.266	19	.004*	Post-test	20	7.35	1.23																																												
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### **Results on how students use self-management skills during digital storytelling practices**

In order to determine how students used their self-management skills in digital storytelling practices, the researcher taught Life Sciences lessons for three hours each week. The digital storytelling process was organized in two-week periods. In the first week, the lessons were taught in accordance with the learning outcomes of the related subject, and in the second week, digital storytelling practices were carried out in line with the subject and learning outcomes. In this process, the aim was to determine how students used their self-management skills. In this context, the findings obtained during the implementation were analyzed in terms of self-management skills by considering the stages of the digital storytelling process. For this purpose, the digital storytelling process was divided into four stages: determining the topic and creating a story; scripting and creating a storyboard; editing and narrating the story, and sharing the story. The behaviors exhibited by the students throughout the stages of the digital storytelling process within the scope of self-management skills are summarized in Table 2.

Table 2.  
Behaviors exhibited throughout the digital storytelling process

Determining the topic and creating a story	Scripting and creating a storyboard	Editing and narrating the story	Sharing the story
Responsibility	Responsibility	Responsibility	Responsibility
Collaboration	Collaboration	Collaboration	Collaboration
Self-awareness and decision making	Self-awareness and decision making	Self-awareness and decision making	Behaving ethically
Nature conservation and resource management	Nature conservation and resource management	Nature conservation and resource management	Emotion management
Perceiving space and location	Perceiving space and location	Perceiving space and location	
Problem solution	Problem solution	Problem solution	
Leadership	Leadership	Leadership	
Emotion management	Managing one's own learning	Emotion management	
Behaving ethically			

Some of the behaviors exhibited by the students in terms of taking responsibility and collaboration were reflected in the in-group conversations as follows:

.....

Leyla: Let's decide who will write. Let's decide on the writer first.

Damla: I think you will write. I'll write too, I'll help you.

Ali: Okay, you write, I'll do other things.

Leyla: Okay. Let's let Damla write first, then we'll write together, we'll continue.

Damla: Okay, first let's have people, someone in our story.

Leyla: Yes, it should be like that, but let's also have a title, let's write it (November 29, 2021, Audio recording).

Similar statements were found in the diaries written by the students as follows:

Hasan: Someone wrote, someone narrated, and some of us drew a picture.

Fatih: We wrote with Pusat, for example. Rüzgar also helped, then we drew pictures together.

Burak: We all worked. I was telling, Elif was writing. Someone else drew pictures.

Cenk: I helped with the script, while the others wrote the story. I also drew pictures. (November 29, 2021, Student diary).

While doing their work in the group, the students also demonstrated decision-making and leadership skills. Their in-group conversations regarding this are as follows:

.....

Gizem: Who will write the story?

Ozan: You can start writing if you want. Then we'll do the other work.

Cenk: I can write it, too. You write first. And then I can write the other one.

Gizem: Okay, fine, I'll write it. Ozan, you'll help us, too. And don't make too much noise.

Ozan: Hiii.... What did I say? (November 29, 2021, Audio-recording)".

The fact that students included behavioral expressions in their stories regarding resource management was also written in the researcher's diary:

I observed that the students generally fulfilled their duties. They created stories. I can say that they are learning about responsibilities. They even made themselves heroes in their stories. Today a group of students gave their own names to the characters in their stories. They also created a game in their stories - the game of keeping the school organized. With this game, they both learn and teach the rules and use their resources effectively. It was very creative and beautiful (December 6, 2021, Researcher diary).

The same situation emerged in the stories written by the students as well. At this point, one of the stories written by the students is presented in Image 3:

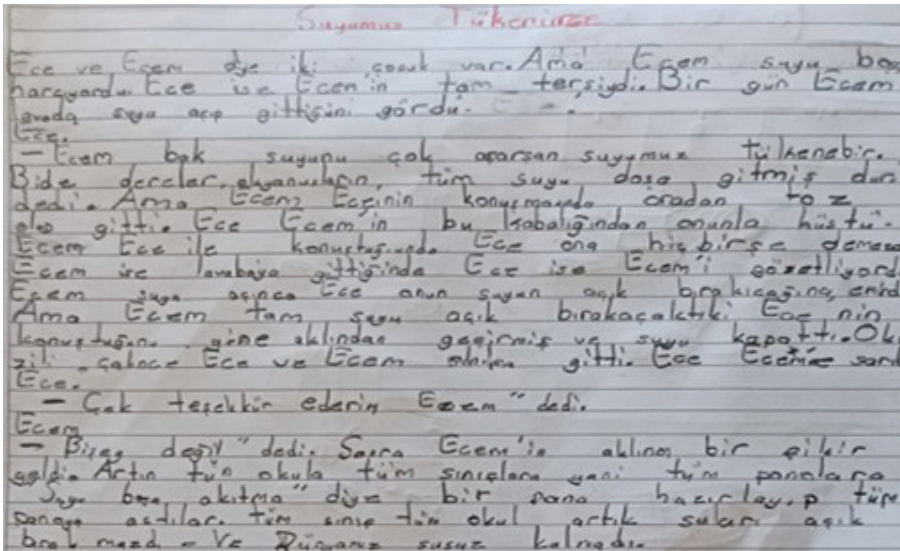


Image 3. Story title: What if we run out of water? (December 13, 2021)

The active participation of students in the activities, and their experiences in this process were reflected in the researcher's diary as follows:

Although there was noise during the activities, the students were actively participating and doing their activities. Today, students were more practical than during previous days. They were doing it easily. During previous days, there were delays in groups, but now they are doing well. During the activities, it seems students are participating in a game. They were very happy and motivated when they wrote, drew and narrated the stories (December 13, 2021, Researcher's diary).

Students reflected on their feelings and thoughts about digital storytelling activities in their structured diaries as follows:

Gizem: Our group did very well today. I was proud of our group. It is also very nice to hear our voices and see what we did on the board. I was a little embarrassed at first. But we did it. This makes us proud (November 30, 2021, Student diary).

Burak: It's nice to watch our stories. We watched them with our teacher. We watched them all. It was very exciting. I was excited. It was very different to watch what we did and hear our voices (January 11, 2022, Student diary).

When the storyboards of the students are examined, it can be noticed that they exhibited behaviors showing responsibility, collaboration, managing their learning, recognizing their mistakes, and self-regulation. Storyboard examples are shown in Image 4 and Image 5:

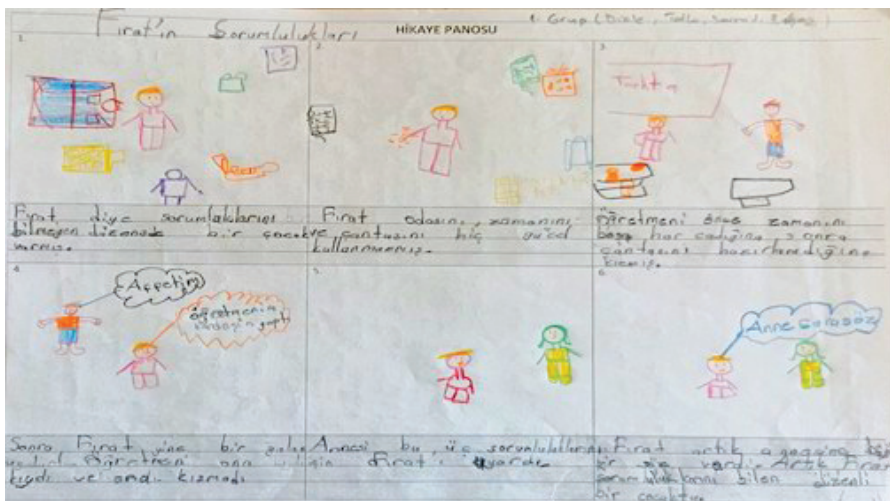


Image 4. Storyboard title: Responsibilities of Fırat (December 6, 2021)



Image 5. Storyboard title: Which fruits should we eat? (January 10, 2022)

The appearance of the digital stories created by the students in Microsoft Photo Story-3 program and the final version of the digital story are shown in Image 6:

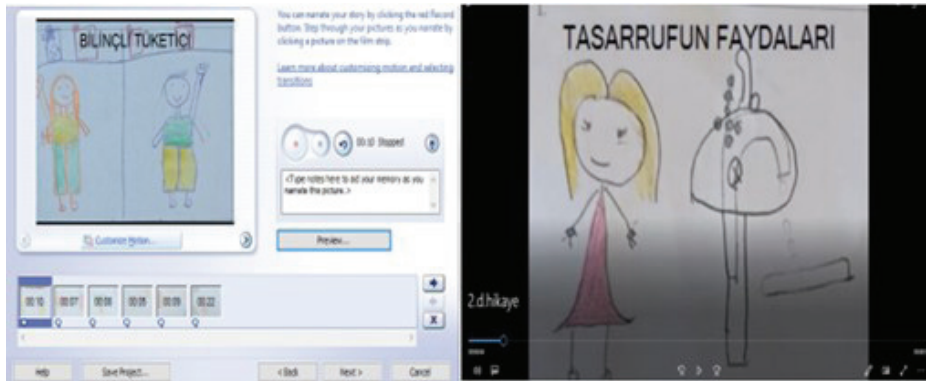


Image 6. The story created in the program/view of the digital story (December 14, 2021)

### **Results on student and teacher opinions**

In order to determine the use of digital storytelling applications in Life Science lessons and how this process was evaluated by the students, interviews were conducted with both the students and the classroom teacher. The data obtained from the interviews were analyzed. The students' opinions were grouped under the headings of "teamwork, cooperation, cooperation", "self-regulation/self-control", and "interaction with friends, exchange of ideas". The opinions of the classroom teacher were listed under the headings of "behavior change and improvement in skills", "active learning", and "feedback on implementation". In addition, some common points were also identified between the opinions of the students and the classroom teacher. These common points are organized under the headings of "contribution to learning and life", "positive emotions/fun lessons", "difficulties encountered", and "suggestions". The views of the students and the classroom teacher on the use of digital storytelling in the Life Science course are shown in Image 7.

Some of the students' opinions on teamwork, collaboration and cooperation are as follows:

Burak: For example, I was writing the story and writing the text under the pictures and my friends were drawing and coloring. Most of the time I did the dubbing and sometimes my friends did the dubbing. We collaborated and everyone worked on something.

Leyla: We worked in groups, we wrote stories together, we drew pictures and colored them, and then we put them on the computer, and we did the dubbing. We worked together on a lot of different topics, we recorded our story and then we made a movie, and then we watched it, so it was a group collaboration. Some of us wrote, some of us drew pictures, and some of us did dubbing.

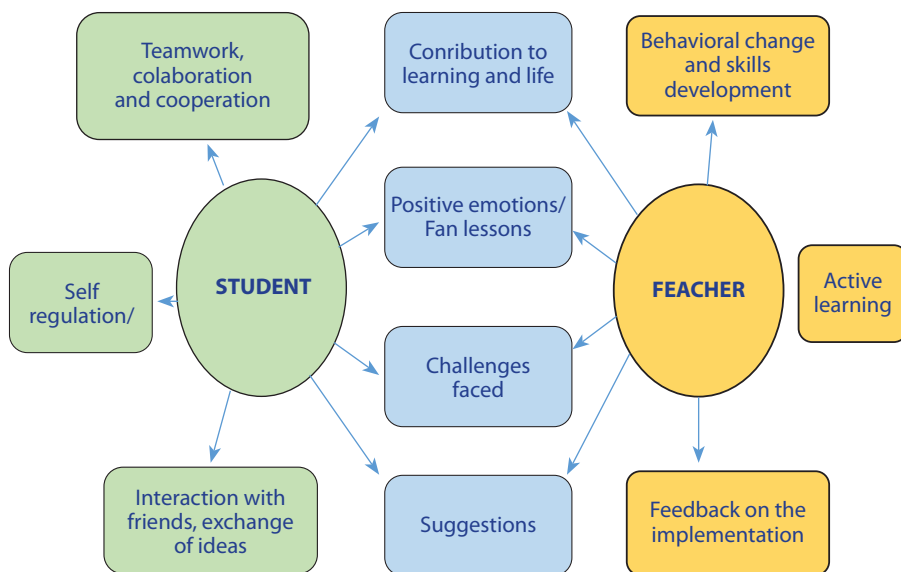


Image 7. Categories related to interview results

Stating that the digital storytelling process contributed to their self-regulation, the students expressed the following:

Damla: In the past, I used to have a snack in the afternoon before dinner. The snacks filled me up and I didn't eat my mom's meals. But now I eat my mom's meals. I eat junk food occasionally now.

Leyla: I didn't know how to be thrifty before. Now I've learned to be thrifter. Even when my brother leaves the taps on, I warn him. I've also learned to eat a balanced and healthy diet. I pay more attention to what I eat.

Students stated that they interacted and exchanged ideas with their friends more during this process. Students' opinions on this are as follows:

Hasan: I get along better with my friends now. I didn't talk to Ozan much before, nor to Ali. But now we communicate more. I see Kemal a lot now, he has become my best friend. In the first grade we hardly spoke to each other, but now we are together all the time.

Gizem: For me, it was very positive. I learned many things from it. I learned about new ideas from my friends, and I was influenced by their ideas. They said I was good at writing. Maybe they were also influenced by me.

The class teacher stated that digital storytelling practices contributed to behavioral change and skill development in students as follows:

The practice was extremely useful in revealing students' talents and skills. It helped them discover their own potential. Students recognized technological applications. Leadership qualities of some students emerged and their ability to manage each other in the group improved. Their communication skills also

improved. I also observed significant changes in their behaviors. For example, they became more aware of saving the resources we need to use at school. I can also say that there has been progress in keeping the floors clean, cutting nails, hair care and cleanliness of clothes.

The class teacher also stated that digital storytelling applications led students to active learning. His views on this are as follows:

Since they are involved in these practices themselves, students show more interest and as a result, a product emerges. Thus, students participate in classes in a more enjoyable and motivated way. In this process, they get away from monotony and clichés. In fact, when I told them that this practice was coming to an end, they were sad. Students discovered themselves through this application. In this process, the class teacher stated that he had received positive feedback from parents and school administration. At this point, he expressed the following opinions:

Based on the feedback I received from families, I can say that children have gained significant benefits. The students have become aware of the need to keep the floors clean, and they pay attention to personal care issues such as nail cutting, hair care, and cleanliness of clothes. They had some deficiencies in these things before, but now they are in a better situation. The feedback from the school administration is also positive. Even the cleaner says, “Teacher, I don’t need to clean your classroom”. This is a very nice thing for us...

In the interviews with the students and the class teacher, some common points became evident in the thoughts of both the class teacher and the students. One of these common points is that digital storytelling applications contribute to both students’ learning and their lives. Some of the opinions expressed by the class teacher and students on this are as follows:

Class teacher: Every week, the students tried to tell us about their lives and what they did through these stories. Therefore, they absorbed and grasped this method and applied the knowledge they learned to their daily lives.

Çenk: I’m learning new things. For example, I’ve learned to be clean, to be organized, to eat a balanced diet, and to protect nature. I’m learning a lot more and different things than before.

The class teacher and students expressed positive feelings towards digital storytelling applications. In addition, students and the class teacher stated that the lessons became more enjoyable, and a fun learning process emerged. Some opinions regarding this are as follows:

Class teacher: I am glad that this practice was implemented in my class. I would like to do these practices to improve myself. The students participated in the lessons in a much more enjoyable and motivated way. They participated in the lessons willingly and lovingly. Sometimes they even asked other students why they did not come to school when they were absent.

Elif: I liked what we did in these lessons. I felt happy, it was fun. I like writing stories. We draw pictures and that is also very nice. I also enjoyed working with the computer and doing dubbing... I was very emotional when we watched what we did. It was really nice, and it made us happy. I was spending time with my friends in a fun way, it was like a game...

The class teacher and students stated that they had encountered some difficulties while practicing digital storytelling. Some of the opinions of the students and the class teacher on this issue are as follows:

Class teacher: Although this implementation is a good experience for the students, it can be challenging for the teacher in terms of classroom management. The teacher may need to further develop his/her classroom management skills, because these applications are quite challenging for the teacher. Otherwise, we may not be able to manage such an implementation. It is a bit tiring and labor-intensive.

Ozan: My friends were writing nice stories. Sometimes I wanted to write them myself, but sometimes I had difficulty because I couldn't write well. I also had difficulties in editing and cropping the pictures on the computer. Later I learned how to do these things.

The classroom teacher and students also made some suggestions about digital storytelling applications and this process. These suggestions are as follows:

Class teacher: It is important to collaborate with parents so that students can fully transfer what they have learned and done to life. It would be better if parents were also involved in this process in a different version. So, it would also be useful to get feedback from parents. Also, these applications can be utilized in other courses, such as Science, Social Studies, Turkish or Mathematics.

Gizem: We can also use these applications in other lessons. For example, we can use it in Math. If a person does not understand a subject, they can learn it more easily through this application. We can also use it in Turkish class. We can shorten the stories, draw pictures, and dub them. We can create digital stories.

## **Discussion**

In this study, within the scope of self-management skills, students' behaviors related to taking responsibility, self-awareness, and decision-making, managing their learning, acting ethically, protecting nature and resource management, perceiving space and location, problem solving, collaboration, development of communication skills, and social interaction were examined and compared to the results of other studies cited in the literature.

The ability to take responsibility is defined as the ability of individuals to fulfill tasks appropriate to their gender, age, and developmental level, starting from early

childhood (Yavuzer, 1998). This skill is of great importance for individuals to lead a regular life. In addition, this skill should be taught to children from an early age. It is stated that there are different approaches to develop the ability to take responsibility and one of these approaches involves active learning practices (Kılıç, 2015). Indeed, in the study conducted by Kılıç (2015), it was determined that active learning practices improve the ability to take responsibility in students. In this context, it is stated that digital storytelling applications are also an approach that supports active learning (Sadik, 2008; Smeda et al., 2010; Wang & Zhan, 2010; Yüksel et al., 2011; Hung et al., 2012). During the digital storytelling applications used in the study, it was found out that students exhibited the skills of taking responsibility. In addition, both the students and the class teacher stated that digital storytelling applications improved this skill in students.

It is extremely important for a student to prepare for the lesson, to evaluate his/her own learning, to determine study strategies and to predict his/her goals, to know himself/herself, to make effective decisions and to manage the learning process. During the digital storytelling practices, students planned their studies and created digital stories by taking their own learning responsibilities. In this context, it was observed that they exhibited behaviors in self-knowledge and decision-making processes. The class teacher and students also stated that they took responsibility for their own learning and decided on their own what to do. Similarly, studies show that students who participate in digital storytelling activities take more responsibility and participate more actively in learning processes (Chung, 2007; Sadik, 2008; Robin, 2008; Yang & Wu, 2012; Kotluk & Kocakaya, 2015). When these studies are examined, it can be said that digital storytelling applications are an effective tool for students to construct and control their own learning.

Within the scope of the research, one of the skills evaluated and examined within self-management skills is ethical behavior. Within the scope of ethical behavior, students are expected to exhibit behaviors such as following the rules, respecting the rights of their friends, refraining from bad-mouthing, telling the truth in case of disagreements, not lying, being honest, and detecting wrong behaviors. During the digital storytelling activities, students respected each other's rights, followed the classroom and school rules, and included these behaviors in the stories they were preparing. In cases of conflict or disagreement, they warned each other and tried to exhibit correct behaviors. In a study by Kılıç (2015), the effect of active learning practices on self-management skills was examined and it was found that students exhibited ethical behaviors during active learning practices. In this context, it can be said that digital storytelling applications can be evaluated within the scope of active learning and this finding is consistent with other findings in the literature.

It has been stated that digital storytelling applications provide students with the opportunity to work more with their friends throughout the process (Smeda et al., 2012) and that the digital stories prepared by students increase peer collaboration by creating an instructive environment for their friends (Miller, 2009). In this study,

it was found that students helped each other, cooperated, and worked as a team at every stage of digital storytelling applications. In a study conducted by Sadik (2008), it was found that digital storytelling activities improved students' collaboration and communication skills. In addition, it was also found that in digital storytelling activities, students supported what they learned by sharing with each other and helped each other when they encountered various problems. In the study conducted by Karakoyun (2014), it was stated that students helped each other during digital storytelling activities and therefore their cooperation and collaboration skills improved. As a result, it can be said that the digital storytelling activities developed students' cooperation and cooperation skills, and supported students' learning from each other by creating an instructive environment.

In this study, another skill evaluated in the context of self-management skills is perceiving space and location. It is extremely important for students to be able to distinguish the places and different locations they are in in order to recognize their environment. In this context, students' knowledge of main and intermediate directions, their ability to use directional expressions correctly, their ability to draw graphs and sketches, their ability to recognize shapes related to places and locations, and their ability to interpret sketches, plans and drawings of different areas are behaviors that will facilitate their daily lives. During the digital storytelling practices in the Life Science course, students organized the space according to their own needs during the implementation process and included situations related to space and locations in the digital stories they were preparing, exhibiting their ability to perceive space and location by making sketches and drawings in their digital stories.

It was determined that the digital storytelling process supported and improved students' technology skills by using computers and digital story programs. In the interview with the classroom teacher, it was stated that students' skills in using computer technologies improved. In similar studies, it has been seen that digital storytelling applications enable students to use technological tools and accordingly improve students' skills in using technology (Robin, 2008; Coutinho, 2010; Yüksel et al., 2011; Karakoyun, 2014). Robin (2006) states that students use multimedia elements such as text, music, and pictures through different programs in the digital storytelling process and thus, students' technological literacy improves. Coutinho (2010) stated that digital storytelling develops 21st century skills such as communication and technology skills.

It is of great importance for students to act with the knowledge that natural resources are limited and that the environment needs to be protected in terms of resource management and environmental protection. In their digital stories, students described situations focused on protecting nature and the environment. In this context, students used their classroom and school belongings and personal belongings effectively and efficiently. In addition, by creating digital stories that included behaviors such as keeping common areas clean and not polluting the environment, they exhibited

behaviors in terms of economical and careful use of resources. This was also expressed in the interviews with the students and the classroom teacher. No research findings on this subject were found in the literature. However, based on this finding, it may be recommended to investigate this issue in detail in future studies.

During the digital storytelling practices, students encountered some problems arising from the use of technological tools and intra-group conflicts. The students consulted their class teachers and the researcher about these problems, developed suggestions by discussing the issues among themselves, and solved these problems. In addition, the students watched the digital stories they had created as a class and criticized each other. In this context, it can be said that the digital storytelling process improved students' problem solving and critical thinking skills. Similar studies in the literature also show that digital storytelling practices improve students' critical thinking and problem solving skills (Robin, 2008; Yüksel et al., 2011; Yang & Wu, 2012; Kotluk & Kocakaya, 2015). Yang and Wu (2012) state that the evaluation of the digital stories created by others improves critical thinking skills.

In this study, it was also determined that digital storytelling applications contributed to students' learning processes and lives. Classroom teachers and students stated that digital storytelling applications made the lessons more enjoyable and fun. In this direction, it can be said that the fact that students enjoy and have fun in the lessons contributes positively to students' learning and skills development. In similar studies, it has been seen that digital storytelling applications make lessons fun, increase students' interest, support their learning, and contribute to the development of various skills (Çiğerci, 2015; Demirer, 2013; Hung et al., 2012; Jakes & Brennan, 2005; Kotluk & Kocakaya, 2015; Robin, 2006; Robin, 2008; Sadik, 2008; Yang & Wu, 2012; Yüksel et al., 2011).

Some difficulties were also experienced during the digital storytelling process. This situation was also mentioned by the classroom teacher and students. The classroom teacher stated that digital storytelling is a time-consuming and labor-intensive method. The students, on the other hand, expressed that they had difficulties with time management in terms of technical use and creating digital stories. In similar studies, difficulties such as time management, technical problems and inability to use technology were encountered (Coutinho, 2010; Dogan & Robin, 2009; Sadik, 2008). In addition, some of the students who participated in the study had some problems in reading, writing and using language. This situation caused student groups to have difficulties in doing their tasks on time and collaborating.

## **Conclusion**

The results of the research and similar studies in the literature reveal that digital storytelling practices are an effective method for students to gain knowledge and skills. According to the quantitative and qualitative findings of this study, it can be said that students used self-management skills during digital storytelling practices and these practices improved students' self-management skills.

A significant difference was found between the pre-test and post-test scores of the students in the study group regarding the Self-management Skills Scale ( $p < .05$ ). There was also a significant difference between the pre-test and post-test scores of the students regarding all sub-dimensions of the scale ( $p < .05$ ). In this context, it can be said that digital storytelling practices are effective in developing students' self-management skills.

In the digital storytelling process, students demonstrated behaviors such as "taking responsibility, self-awareness, and decision making, acting ethically, protecting nature and resource management, perceiving space and location, problem solving, collaboration, leadership and emotion management" by using self-management skills.

Within the scope of the stages of the digital storytelling process, students used self-management skills by exhibiting behaviors such as "taking responsibility, self-awareness and decision-making, acting ethically, protecting nature and resource management, perceiving space and location, problem solving, collaboration, leadership and emotion management".

The results regarding the opinions of teachers and students on digital storytelling are as follows:

The digital storytelling applications used resulted in improvements in students' skills. There were changes in students' behaviors in the desired direction. There were significant behavioral changes, especially in terms of protecting the environment and using resources, following cleaning rules and personal care. Digital storytelling practices enabled students to take responsibility for their own learning and realize active learning.

In the digital storytelling process, students engaged in teamwork, cooperated, and exhibited behaviors in the context of self-regulation. In addition, it was also stated that students' social skills improved.

The activities contributed to the learning processes and lives of the students. It was also found that digital storytelling applications made the lessons more fun and enjoyable. It was also stated that this situation provided permanence in students' learning.

It was also determined that digital storytelling applications are time-consuming and labor-intensive. It was also seen that students encountered situations such as using the technology and not being able to complete the story on time. However, it was also stated that digital storytelling applications can be used in other courses.

### ***Suggestions***

Based on the results of the study, the following suggestions were made for future applications and research:

- Digital storytelling studies were carried out with groups of 4 – 5 students. In the context of students' more effective use of self-management skills, studies can be conducted individually to create digital stories.

- The research was conducted with the third grade students. Considering that skills should be acquired and developed from the early stages of life, similar studies can be conducted at both preschool and primary school (first and second grade) levels.
- Life Sciences course is a skills course aimed to help students gain and develop basic life skills. In this context, digital storytelling applications can be used in courses such as Social Studies and Science, which are the follow-up courses of this course in the upcoming semesters.
- In the research, pilot applications were conducted in a three-week period. However, technical difficulties such as computer usage, moving and saving files, making transitions and vocalization were experienced during the applications. In this direction, the pilot application period can be extended by conducting extra studies to provide technical support to students.
- In the study, the opinions of the students and the classroom teacher were also consulted regarding the development of students' self-management skills. In similar studies, parents can also be included in the process at the point of determining the development of students' self-management skills.
- Digital storytelling can be systematically integrated into the primary education curriculum in order to support interdisciplinary skills development.
- Schools may consider designing learning experiences that promote self-management skills such as responsibility-taking, problem-solving, and leadership.
- Professional development programs can be implemented to train teachers in the pedagogical use of digital storytelling for fostering student competencies.
- Digital storytelling can be used to strengthen environmental awareness and sustainability practices among young learners.
- Planning tools such as scheduling templates, scaffolding strategies, and peer support structures may be used to reduce the time and effort challenges associated with digital storytelling projects.

### ***Strengths and Weaknesses of the Study***

Mixed methods were used in the study. Methodologically, mixed methods can provide more detailed and effective results than quantitative or qualitative studies alone. In addition, only one group was used as a study group in the research and no control group was formed for comparison. It can be said that this situation constitutes a weakness in the quantitative dimension of the research. The continuation of the pandemic conditions during the period when the research was conducted was effective in the emergence of such a situation. However, we tried to overcome this weakness by supporting the quantitative data obtained due to the nature of mixed methods with qualitative data (observations, diaries, interviews, student products).

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# Aplikacije digitalnoga pripovijedanja za poboljšanje vještina samoupravljanja učenika osnovne škole

## Sažetak

Glavni je cilj ove studije utvrditi učinak digitalnoga pripovijedanja korištenoga na predmetu Životne znanosti na razvoj vještina samoupravljanja učenika. Ova je studija primijenila mješoviti metodološki pristup, kombinirajući kvantitativne i kvalitativne metode unutar ugrađenoga eksperimentalnog dizajna. U tom je kontekstu istraživanje provedeno putem kvaziekperimentalnoga modela s jednom skupinom, koji uključuje pretest i posttest, a proveden je na skupini od 20 učenika trećega razreda osnovne škole. Osim Skale vještina samoupravljanja za učenike osnovne škole koju su razvili istraživači, kao alati za prikupljanje podataka korišteni su promatranja, intervjui, dnevnici i učenikov rad. Kvaziekperimentalni model s jednom skupinom i pretestom-posttestom korišten je za ispitivanje utjecaja digitalnoga pripovijedanja na vještine samoupravljanja učenika. Za analizu kvantitativnih podataka korišten je *t*-test uparenih uzoraka. Za kvalitativni dio prikupljeni su opažanja, radovi učenika, dnevnici i intervjui s učenicima i razrednom nastavnicom. Ti su podatci analizirani induktivnom analizom sadržaja kako bi se istražilo kako su se vještine samoupravljanja koristile i razvijale tijekom intervencije. Na kraju kvaziekperimentalnoga procesa s jednom skupinom utvrđeno je da su aplikacije digitalnoga pripovijedanja korištene na predmetu Prirodne znanosti imale statistički pozitivan učinak na vještine samoupravljanja učenika. Kvalitativni nalazi također su pokazali da su učenici koristili vještine samoupravljanja tijekom aktivnosti digitalnoga pripovijedanja. Kao rezultat intervjua s razrednom učiteljicom i učenicima, zaključeno je da su aplikacije digitalnoga pripovijedanja podržavale aktivno učenje učenika, doprinijele njihovim vještinama i životima te su nastavu učinile zabavnom. Međutim, također je navedeno da je primjena digitalnoga pripovijedanja proces koji zahtijeva vrijeme i trud te da su postojale poteškoće u pogledu tehničke upotrebe. Na temelju rezultata istraživanja, dani su prijedlozi za primjenu digitalnoga pripovijedanja u različitim razredima i za razvoj različitih područja vještina.

**Ključne riječi:** nastava temeljena na pripovijedanju; osnovno obrazovanje; razvoj vještina; studentska autonomija; učenje potpomognuto tehnologijom

## Uvod

21. stoljeće, u kojem sve što se tiče života prolazi kroz brzi razvoj i promjene, nameće mnoge nove zahtjeve i pojedincima i društvima koja čine pojedinci. Ispunjavanje tih potreba i prilagodba promjenama zahtijevaju da pojedinci posjeduju različite vještine i kompetencije. Bez sumnje, vještine 21. stoljeća spadaju među najistaknutije kompetencije u suvremenom obrazovanju. Te vještine omogućuju pojedincima da jednostavno pristupe informacijama, učinkovito ih koriste u svakodnevnom životu, obavljaju složene zadatke, prepoznaju vlastite kompetencije, rješavaju probleme na koje naiđu i primjenjuju vještine višega reda razmišljanja. Osim toga, ove vještine pružaju pojedincima prednosti u radu u skladu s drugim ljudima, učinkovitom upotrebom informacija i tehnologije te u shvaćanju socioekonomskih događaja u društvu i svijetu u kojem živimo (Kılıç, 2015).

U literaturi se može vidjeti da različite institucije i organizacije vještine 21. stoljeća klasificiraju na različite načine. *Partnership for 21st Century Learning* (P21) klasificirao ih je kao „vještine učenja i obnove, životne i karijerne vještine, vještine informiranja, medija i tehnologije”, *Assessment and Teaching of 21st Century Skills* (ATCS) kao „načini razmišljanja, načini rada, alati za život i rad u svijetu”, a *National Educational Technology Standards* (NETS-ISTE) kao „kreativnost i obnova, kritičko razmišljanje, rješavanje problema i donošenje odluka, komunikacija i suradnja, digitalno građanstvo, tehnološke primjene i koncepti, istraživanje i informacijska pismenost”. Klasifikacija Europske unije (EU) je „učenje kako učiti, komunikacija, kulturna osviještenost, socijalna i građanska kompetencija, poduzetništvo, digitalna kompetencija” (Voogt i Roblin, 2010). Ove vještine, koje se klasificiraju na različite načine, uključene su u turske kurikule kao vještine 21. stoljeća ili osnovne životne vještine. Stjecanje ovih vještina, koje se definiraju i kao vještine 21. stoljeća i kao osnovne životne vještine, moguće je putem obrazovnih sustava.

Obrazovni sustavi nastoje podržati razvoj učenika, ubrzati njihovu prilagodbu promjenama u okruženju i odgojiti ih kao učinkovite pojedince u rješavanju problema s kojima se mogu susresti u svakodnevnom životu. U tom je pogledu od velike važnosti da učenici steknu osnovne životne vještine kao što su samoupravljanje, donošenje odluka, kreativno razmišljanje, kritičko razmišljanje, empatija, rješavanje problema, komunikacija, suradnja i poduzetništvo (Ministarstvo nacionalnog obrazovanja [MoNO], 2018). Stoga je temeljni obrazovni cilj da učenici od rane dobi steknu životne vještine. U tom je smislu razdoblje osnovne škole od presudne važnosti. Jer putem nastavnih sadržaja predmeta u osnovnoj školi učenici nastoje steći osnovne životne vještine. Jedan od tih predmeta nesumnjivo je Priroda. U predmetu Priroda raspravlja se o vrijednostima svakodnevnoga života u dimenzijama čovjeka, društva i prirode (Sabancı i Şahin, 2005). Osim toga, tečaj Prirodnih znanosti omogućuje djeci da steknu znanja, vještine i vrijednosti povezane s njihovim svakodnevnim životom, usmjeravajući svoja iskustva na način na koji percipiraju svijet (Kabapınar, 2012). Osim što učenicima pruža osnovna znanstvena znanja, ovaj tečaj također im pomaže steći vještine za rješavanje problema s kojima se susreću u svakodnevnom

životu, uspostavljanje zdravih odnosa i preuzimanje odgovornosti. Stoga se može reći da predmet Priroda ima drugačiji i prioritetniji značaj od ostalih predmeta.

Revizije kurikula prirodnih znanosti u Turskoj iz 2005. godine dale su široku pozornost vještinama koje su učenici osnovnih škola trebali steći. Ovaj je program bio usmjeren ne samo na poboljšanje akademskoga uspjeha učenika, nego i na zadovoljavanje potrebe za razvojem socijalnih i emocionalnih vještina. Osim toga, vještine koje treba razvijati kod učenika jasno su definirane i kategorizirane u kurikulumu (Kabapınar, 2009). Kao rezultat detaljnoga ispitivanja vještina u kurikulumu, navodi se da je preduvjetna vještina za većinu vještina vještina samoupravljanja (Sariso y i Orhan, 2016). Slično tome, vještine poput „odgovornosti, postavljanja ciljeva, etičkoga ponašanja, poznavanja sebe, vodstva, upravljanja emocijama, učenja kako učiti, dijeljenja, zabave, planiranja karijere” u kurikulumu tečaja Prirodnih znanosti iz 2009. godine bile su uključene pod naslovom vještine samoupravljanja (MoNO, 2009). Zapravo, u Kurikulumu za životne znanosti iz 2018. godine vještina samoupravljanja uključena je kao vještina koju treba steći i razviti među osnovnim životnim vještinama. Najopsežnija definicija vještine samoupravljanja u literaturi izražena je kao „kontroliranje, planiranje i upravljanje kognicijom, afektom i djelovanjem” (McClelland i Cameron, 2011). Osim toga, izrazi kao što su pojedinci koji reguliraju i kontroliraju sebe u procesima cjeloživotnoga učenja i osobnoga razvoja (Goleman, 2011), kompetencija pojedinaca da se nose s negativnostima na koje nailaze u svakodnevnom životu i da reguliraju te kompetencije (Mayer i dr., 2004), osobna sposobnost mobilizacije za obavljanje određenoga zadatka ili posla, kontroliranja vlastitih impulsa i emocija (Doleman, 2007) također se može prihvatiti u definiciju vještina samoupravljanja.

Vještine samoupravljanja također se definiraju kao vještine koje omogućuju učenicima da obavljaju složene zadatke bez pomoći starijih, da s pouzdanjem u sebe pronalaze rješenja za problematične situacije na koje nailaze u svakodnevnom životu i da primijene ono što su naučili u različitim situacijama (Medland, 1990; Shapiro i Cole, 1994.). U tom kontekstu uočava se da vještine samoupravljanja igraju ključnu ulogu u kontroliranju vlastitih emocija i misli, osiguravanju osobnoga razvoja te organiziranju i kontroliranju samih sebe (Goleman, 2011). Stoga je vrlo važno da učenici steknu vještine samoupravljanja. Međutim, u kurikulumu predmeta Životne znanosti navodi se da postoji nesigurnost u vezi s time kako će učenici steći vještine samoupravljanja i druge vještine (Sariso y i Orhan, 2016), no može se koristiti mnogo različitih načina kako bi se učenicima pomoglo da steknu te vještine (MoNO, 2009). Osim toga, kada se nastavni plan i program detaljno analizira, ističe se potreba za stvaranjem iskustava usmjerenih na učenike u odjeljku pitanja koja treba razmotriti pri provedbi nastavnoga plana i programa (MoNO, 2018). U tom kontekstu, kako bi učenici razvili vještine samoupravljanja i druge životne vještine, potrebno je uključiti metode, tehnike i iskustva učenja usmjerene na učenike koja im omogućuju učenje kroz rad i iskustvo.

Okružja za učenje i poučavanje također su zahvaćena tehnološkim razvojem i promjenama u 21. stoljeću. Kao odraz toga, tehnološka i digitalna infrastruktura počela se jačati u obrazovnim okružjima, osigurana je raznolikost u okružjima za učenje i

učenicima je postalo lakše učinkovito pristupati informacijama i koristiti ih. Ova je situacija dovela do pojave novih aplikacija u obrazovnim okružjima. Osim toga, uočava se i da se obrazovna okružja obogaćuju tehnološkim i digitalnim materijalima te da se počinju koristiti različite metode i aplikacije koje zahtijevaju upotrebu tehnologije u okružjima za učenje. U tom smislu, jedan od važnih digitalnih materijala i aplikacija koji se posljednjih godina koriste u okružjima za učenje jest digitalno pripovijedanje (Sadik, 2008). Digitalno pripovijedanje je pripovijedanje u kojem pripovjedač koristi alate poput glasa, glazbe, slika, fotografija i videozapisa te prenošenje tih priča publici. Osim toga, digitalno pripovijedanje definira se kao sveobuhvatan prikaz pripovijedanja, drevnoga komunikacijskog alata čovječanstva i današnjih digitalnih tehnologija (Nguyen, 2011). U tom kontekstu može se reći da je digitalno pripovijedanje učinkovit i zabavan alat za učenje i poučavanje koji koristi kombinaciju modernih i tradicionalnih alata.

Digitalne priče koriste se kao moćan i učinkovit nastavni alat za nastavnike i učenike u obrazovnim okružjima (Robin, 2008). Studije o digitalnom pripovijedanju doprinose poučavanju vještina 21. stoljeća, kao što su vizualne vještine, suradnja i korištenje tehnologije, kao i osnovnih predmeta poput jezičnih vještina, povijesti i obrazovanja učitelja (McLellan, 2006). Istraživanja digitalnoga pripovijedanja, koja nastoje uspostaviti integritet između ljudske kreativnosti i tehnologije, donose novu perspektivu na procese učenja i poučavanja. Osim što ima strukturu usmjerenu na učenika, ovaj pristup omogućuje da okružja za učenje budu tehnološki bogata i interaktivna (Smeda i dr., 2010). Međutim, različite studije također su otkrile da digitalno pripovijedanje obogaćuje okružja za učenje, obrazovne programe i iskustva učenja (Sadik, 2008), doprinosi vještinama učenika kao što su istraživanje, kreativnost, pisanje, prezentacija i uređivanje (Dogan i Robin, 2009), povećava interes, stav i motivaciju studenata prema kolegiju i njihov akademski uspjeh (Demirer, 2013) te pozitivno poboljšava samopouzdanje studenata (Yüksel, 2011).

U 21. stoljeću vrlo je važno obrazovati učenike tako da mogu zadovoljiti očekivanja i potrebe društva. U tom kontekstu navodi se da se vještine 21. stoljeća mogu poučavati putem digitalnih priča (Jakes i Brennan, 2005). Zapravo, uočava se da aplikacije za digitalno pripovijedanje omogućuju učinkovitu upotrebu tehnologije u okružjima za učenje i razvijaju vještine 21. stoljeća, poput vizualne pismenosti, informacijske pismenosti, kreativnosti i kritičkoga razmišljanja kod učenika (Atalay, 2015; Brown i dr., 2005; Robin, 2008; Sadik, 2008). Osim toga, kada se prouči literatura, uočava se da se aplikacije digitalnoga pripovijedanja koriste na različitim obrazovnim razinama i kolegijima u kontekstu stjecanja vještina i stvaranja učinkovitih iskustava učenja (Atalay, 2015; Campbell, 2012; Chung, 2007; Ciğerci, 2015; Çiçek, 2018; Foley, 2013; Hung i dr., 2012; Jakes i Brennan, 2005; Karakoyun, 2014; Robin, 2006; Robin, 2008; Sadik, 2008; Yamaç, 2015; Yüksel i dr., 2011).

U Turskoj se navodi da se vještine 21. stoljeća preklapaju s osnovnim životnim vještinama iz Kurikula životnih znanosti iz 2018. godine (Kılıç & Gültekin, 2015) te se predviđa da se te vještine mogu razviti tijekom aktivnosti digitalnoga pripovijedanja. U tom smislu pretpostavlja se da će primjene digitalnoga pripovijedanja stvoriti

odgovarajuća iskustva učenja za učenike kako bi stekli ili razvili vještine samoupravljanja u predmetu Životne znanosti.

Iako su se prethodne studije usredotočile na opću učinkovitost digitalnoga pripovijedanja u poticanju vještina 21. stoljeća kao što su kreativnost, kritičko razmišljanje ili informacijska pismenost, u literaturi i dalje postoji praznina o tome kako digitalno pripovijedanje konkretno doprinosi razvoju vještina samoupravljanja u kontekstu predmeta Prirodne znanosti na razini osnovnoga obrazovanja. Za razliku od postojećih istraživanja koja se često usredotočuju na integraciju tehnologije ili razvoj jezika, ovo istraživanje jedinstveno ispituje ulogu digitalnoga pripovijedanja u promicanju samoregulativnih ponašanja i osobne odgovornosti putem zadataka iz stvarnoga života. Uključujući kvantitativne i kvalitativne podatke, ova studija ima za cilj pružiti sveobuhvatnije razumijevanje načina na koji aplikacije za digitalno pripovijedanje utječu na vještine samoupravljanja kod mladih učenika te kako ta iskustva percipiraju i učenici i razredni nastavnici. Tako istraživanje daje novi doprinos premošćujući jaz između digitalne pedagogije i razvoja osobnih vještina u osnovnom obrazovanju.

U ovom kontekstu glavni je cilj istraživanja utvrditi učinak aplikacija za digitalno pripovijedanje korištenih na kolegiju Životne znanosti na vještine samoupravljanja učenika. Kao dio ciljeva istraživanja nastoji se odgovoriti na sljedeća pitanja:

U tečaju Znanost o životu;

- Imaju li primijenjene aplikacije za digitalno pripovijedanje utjecaja na poboljšanje vještina samoupravljanja kod učenika?
- Kako učenici koriste vještine samoupravljanja tijekom primjene digitalnoga pripovijedanja?
- Koja su mišljenja nastavnika i učenika o razvoju vještina samoupravljanja kod učenika pomoću aplikacija za digitalno pripovijedanje?

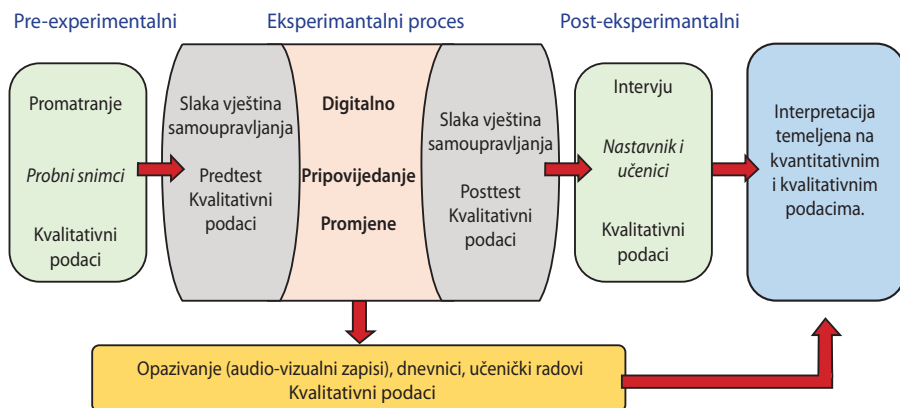
## Metodologija

U ovom poglavlju prikazane su informacije o istraživačkom modelu, sudionicima, istraživačkom okružju, eksperimentalnom procesu, alatima za prikupljanje podataka korištenima u istraživanju, analizi podataka te slabostima i snagama istraživanja.

### *Istraživački model*

U ovoj je studiji korištena mješovita metoda. U istraživanjima mješovitih metoda koriste se pristupi kvantitativnim i kvalitativnim metodama njihovom integracijom (Creswell, 2006). U tom smislu pristupi kvalitativnim i kvantitativnim istraživačkim metodama mogu se koristiti zajedno pri prikupljanju podataka, analizi podataka ili u cijelom istraživačkom procesu (Tashakkori i Tedlie, 1998). Creswell i Plano-Clark (2007) definirali su četiri različita dizajna za istraživanja mješovitim metodama. To su triangulacijske, eksplanatorne, istraživačke i ugrađene mješovite studije. U ugrađenoj mješovitoj studiji prikupljaju se kvantitativni i kvalitativni podatci zajedno. Međutim, bilo koji skup kvantitativnih ili kvalitativnih podataka predstavlja primarni skup podataka. Ipak, jedan skup podataka služi kao potpora drugome. Ugrađena mješovita

studija dijeli se na ugrađeno eksperimentalni i ugrađeno relacijski dizajn (Creswell i Plano-Clark, 2007). U ovoj je studiji korišten ugrađeni eksperimentalni mješoviti dizajn. Način na koji je ugrađeni eksperimentalni mješoviti dizajn korišten u ovoj studiji prikazan je na Slici 1.



Slika 1. Odras ugrađenoga eksperimentalnog kombiniranog dizajna u istraživanju

U procesu primjene istraživanja, aplikacije digitalnoga pripovijedanja korištene su kao eksperimentalni postupak. U eksperimentalnom postupku u kojem je korištena kvaziekperimentalna metoda, primijenjen je model s jednom skupinom, predtestom i posttestom. Navodi se da se ovaj model može odabrati u društvenim znanostima kada je teško kontrolirati sve varijable u istraživačkom okruženju (Karasar, 2011). Osim toga, nastavak pandemije bolesti COVID-19 tijekom procesa provedbe također je utjecao na odabir modela. U okviru modela postojala je samo jedna studijska skupina. Prije eksperimentalnoga procesa jedan je istraživač tri tjedna bio prisutan u učionici i promatrao grupu za proučavanje. Osim toga, kvantitativni su podatci prikupljeni primjenom „skale vještina samoupravljanja” na učenike kao pretest i posttest prije i nakon eksperimentalnoga postupka. Tijekom eksperimentalnoga procesa korišteni su opažanja, učenički radovi i dnevници kako bi se utvrdilo kako su učenici koristili životne vještine. Nakon eksperimentalnoga procesa provedeni su intervjui s učenicima i razrednom nastavnicom. Promjena u vještinama samoupravljanja učenika utvrđena je kvantitativno, a kvalitativnom metodom nastoji se otkriti kako su učenici koristili i reflektivno promišljali o tim vještinama tijekom procesa provedbe.

### **Sudionici i istraživačko okruženje**

Kriterijski uzorak, jedna od ciljnih metoda uzorkovanja, korišten je za odabir učenika koji su sudjelovali u studiji. Namjensko uzorkovanje omogućuje dubinsko proučavanje situacija koje se istražuju. Međutim, činjenice i događaji povezani s predmetom istraživanja nastoje se detaljno objasniti. Kriterijsko uzorkovanje uključuje skup unaprijed određenih kriterija. Kriterije može izraditi istraživač ili se može koristiti gotova lista kriterija. Sve situacije koje mogu ispuniti kriterije mogu se

proučiti (Yıldırım i Şimşek, 2011). U tom smislu, sudionici istraživanja bili su učenici razreda 3-A u javnoj školi u okrugu Viranşehir, pokrajina Şanlıurfa. Podrška uprave škole i razrednoga učitelja istraživanju učenika te njihova volja za sudjelovanjem u istraživanju bili su odlučujući pri odabiru škole i učionice. Osim toga, dopuštanje snimanja kamerom tijekom istraživanja, pozitivan stav razrednika prema istraživanjima temeljenim na praksi i dostupnost tehnološke opreme u učionici odigrali su važnu ulogu u odabiru učionice. Potrebne su suglasnosti dobivene od razrednoga učitelja, roditelja i učenika. Osim toga, potrebne su dozvole dobivene od Etičkoga povjerenstva za istraživanje i publikacije društvenih i humanističkih znanosti Sveučilišta Anadolu (dozvola Etičkoga povjerenstva od 30. 12. 2020. pod protokolnim brojem 72720) i Pokrajinskoga upravnog odjela za nacionalno obrazovanje Şanlıurfa (dozvola zahtjeva od 17. 2. 2021. pod brojem E-47377298-44-20791694) .

U razredu 3-A, u kojem je provedeno istraživanje, bilo je 22 učenika. Dvoje od tih učenika nije uključeno u studiju jer jedan često izostajao, a drugi nije sudjelovao u pretestiranju i posttestiranju. Od 20 učenika koji su sudjelovali u studiji, 7 je bilo djevojčica, a 13 dječaka. Dobni raspon tih učenika kretao se između 8 i 10 godina. Raspored klupa u učionici, koji je prije istraživanja bio klasičan, tijekom procesa istraživanja organiziran je u grupni raspored.

### **Alati za prikupljanje podataka**

Alati za prikupljanje podataka koji će se koristiti u studiji određeni su uzimajući u obzir strukturu modela istraživanja mješovite metode i istraživačka pitanja. Alati za prikupljanje podataka istraživanja prikazani su na Slici 2.

Preeksperimentalni postupak	Tijekom eksperimentalnoga postupka	Post-eksperimentalni postupak
<ul style="list-style-type: none"><li>• Promatranje</li><li>• Skala vještina samoupravljanja (predtest)</li></ul>	<ul style="list-style-type: none"><li>• Promatranje (audio-video snimanje)</li><li>• Dnevnici</li><li>• Učenički radovi</li></ul>	<ul style="list-style-type: none"><li>• Skala vještina samoupravljanja (posttest)</li><li>• Intervjui s učenicima i razrednim učiteljem</li></ul>

Slika 2. Alati za prikupljanje podataka

Kao što je prikazano na Slici 2, kvantitativni i kvalitativni alati za prikupljanje podataka korišteni su zajedno radi prikupljanja podataka za potrebe studije. U tom je kontekstu Skala vještina samoupravljanja za učenike osnovnih škola (Köseoğlu i Boyacı, 2022), koju su razvili istraživači, korištena kao kvantitativni alat za prikupljanje podataka. Skala vještina samoupravljanja sastoji se od 20 stavki i 6 faktora. Ti faktori su „očuvanje prirode i upravljanje resursima”, „doživljavanje prostora i lokacije”, „preuzimanje odgovornosti”, „etično ponašanje”, „upravljanje vlastitim učenjem” i „samosvijest i donošenje odluka”. Alfa koeficijent pouzdanosti skale iznosi 0,818. Audio i videosnimke, dnevnici i polustrukturirani intervjui s učenicima i razrednim

učiteljem korišteni su kao alati za prikupljanje kvalitativnih podataka. Osim toga, digitalne priče koje su izradili učenici također su korištene kao kvalitativni podatci.

### ***Eksperimentalni postupak***

Jedan od istraživača proveo je promatranja u učionici tijekom pet školskih sati prije početka eksperimentalnoga postupka. Nakon promatranja, razredna učiteljica i učenici informirani su o aktivnostima digitalnoga pripovijedanja. Zatim je 13. 10. 2021. učenicima provedeno mjerenje vještina samoupravljanja kao pretest. Dana 18. 10. 2021. započeo je eksperimentalni proces. Taj je proces trajao trinaest tjedana između 18. 10. 2021. i 11. 1. 2022. u prvom semestru akademske godine 2021/2022. U prva tri tjedna ovog procesa provedene su preliminarne vježbe. U preliminarnim primjenama učenicima je rečeno što trebaju raditi u procesu digitalnoga pripovijedanja, predstavljen je program za digitalno pripovijedanje (Microsoft Photo Story-3) i provedene su primjere primjena. U tom su procesu učenici potaknuti da stvore digitalne priče vezane uz obrađene teme. Nakon prethodnih implementacija, planovi nastave su reorganizirani i započela je stvarna faza implementacije. Ova je faza trajala 10 tjedana i od učenika se očekivalo da stvore pet digitalnih priča. Tijekom desetotjednoga razdoblja održano je 30 školskih sati nastave iz prirodnih znanosti, a učenici su poticani da u okviru tih sati stvaraju digitalne priče. U učionici su učenici bili organizirani u grupe kako bi se vježbe digitalnoga pripovijedanja mogle učinkovito provoditi. Osim toga, vodila se briga da se učenici podijele u heterogene grupe i da svaki tjedan sudjeluju u različitim grupama. Tijekom cijeloga procesa okružje provedbe promatrano je kamerom te su snimani audio i videozapisi. Nakon svake studije digitalne priče učenici su bili zamoljeni da vode dnevnik. Na kraju procesa provedbe učenicima je kao posttest primijenjen skala vještina samoupravljanja. Zatim su provedeni polustrukturirani intervjui s 15 učenika i razrednim učiteljem.

### ***Prikupljanje i analiza podataka***

Kvantitativni podatci studije prikupljeni su pomoću Skale vještina samoupravljanja za učenike osnovnih škola. Skala je primijenjena na učenike istraživačke skupine prije i nakon primjene aktivnosti digitalnoga pripovijedanja, odnosno kao pretest i posttest. Za analizu prikupljenih podataka korišten je SPSS 24.0. Normalnost kvantitativnih podataka je ispitana te su donesene odluke o statističkim usporedbama. U tom je kontekstu proveden Shapiro-Wilkov test za ispitivanje normalnosti podataka. Također su analizirane vrijednosti asimetrije i kurtoze. Kao rezultat analize utvrđeno je da oba rezultata Shapiro-Wilkova testa (pretest: 0,816, posttest: 0,061;  $p > 0,05$ ) te asimetrija (pretest: 0,000; posttest: -1,094) i kurtosis (pretest: -0,639; posttest: 1.014) zadovoljavaju normalnu raspodjelu. Normalnost podataka utječe na metode statističke usporedbe koje će se primijeniti. U jednogrupnim studijama, ako podatci zadovoljavaju normalnu raspodjelu za mjerenja provedena u dva različita razdoblja, preporučuje se t-test za zavisne uzorke (t-test za uparene uzorke) među parametrijskim testovima (Büyükoztürk

i dr., 2010; Ekiz, 2009). Sukladno tome, za analizu kvantitativnih podataka u studiji korišten je t-test za zavisne uzorke, a razina značajnosti ispitivana je na razini od 0,05.

Metoda „induktivne analize sadržaja” korištena je za analizu kvalitativnih podataka kao što su audio-video snimke, dnevници, učenički radovi i intervjui. U ovoj metodi istraživač organizira kvalitativne podatke i prelazi na otvoreno kodiranje. Tijekom otvorenoga kodiranja ispituje se sav sadržaj, provode se ponovna čitanja i stvaraju se kategorije (Hsieh i Shannon, 2005). Nakon što su kategorije stvorene, one se kombiniraju pod širim naslovima (Kızıltepe, 2021, str. 265). Svi kvalitativni podatci vezani uz istraživanje redovito su analizirani. Osim toga, ispitani su međusobni odnos i dosljednost podataka. Slično tome, transkripti intervjuja koje je kodirao terenski stručnjak koji nije bio jedan od istraživača. U okviru kodiranja koje su proveli istraživači i terenski stručnjak utvrđeno je da se kodovi vezani uz transkripte intervjuja u velikoj mjeri preklapaju.

## Rezultati

U ovom odjeljku podatci dobiveni u okviru svrhe studije i istraživačkih pitanja predstavljeni su kao nalazi.

### ***Rezultati o učinku aplikacija za digitalno pripovijedanje na vještine samoupravljanja učenika***

Proveden je t-test za zavisne skupine kako bi se utvrdio učinak aktivnosti digitalnoga pripovijedanja na kolegiju Životne znanosti na vještine samoupravljanja učenika u istraživačkoj skupini. U tom je kontekstu analiziran rezultat pretesta i posttesta studenata prema ljestvici vještina samoupravljanja. Osim toga, uspoređeni su i rezultati studenata na poddimenzijama skale. Rezultati t-testa za ovisne skupine u vezi s rezultatima učenika na skali vještina samoupravljanja navedeni su u Tablici 1.

Tablica 1

Tablica 1 pokazuje da je postojala statistički značajna razlika između rezultata pretestiranja i posttestiranja vještina samoupravljanja studenata ( $t = -11,097$ ,  $p < .05$ ). Slično tome, statistički značajna razlika utvrđena je u svim poddimenzijama skale. Na temelju ovoga nalaza može se reći da aplikacije digitalnoga pripovijedanja imaju utjecaj na poboljšanje vještina samoupravljanja učenika. Također je ispitana veličina učinka studije. U skladu sa standardima koje je naveo Cohen (1988), pri ispitivanju pokazatelja veličine učinka prihvaća se da je veličina učinka niska kada je manja od 0,2, srednja kada je 0,5 i visoka kada je veća od 0,8. Kao rezultat analize provedene u okviru ove studije, može se reći da je veličina učinka dobivenih podataka ( $\bar{x} = -10,35$ ,  $sd = 4,17$ ;  $d = 2,48$ ) na visokoj razini.

### ***Rezultati o tome kako učenici koriste vještine samoupravljanja tijekom aktivnosti digitalnoga pripovijedanja***

Kako bi se utvrdilo kako su učenici koristili svoje vještine samoupravljanja u aktivnostima digitalnoga pripovijedanja, istraživač je tri sata tjedno držao nastavu iz

prirodnih znanosti. Proces digitalnoga pripovijedanja organiziran je u dvotjednim razdobljima. U prvom tjednu nastava se izvodila u skladu s ishodima učenja predmeta, a u drugom tjednu provodile su se aktivnosti digitalnoga pripovijedanja u skladu s ishodima predmeta i učenja. U tom se procesu nastojalo utvrditi kako su učenici koristili svoje vještine samoupravljanja. U ovom kontekstu, nalazi dobiveni tijekom provedbe analizirani su s aspekta vještina samoupravljanja, uzimajući u obzir faze procesa digitalnoga pripovijedanja. U tu svrhu proces digitalnoga pripovijedanja podijeljen je na četiri faze: „određivanje teme i stvaranje priče”, „pisanje scenarija i izrada scenarijske ploče”, „uređivanje i ozvučavanje priče” i „dijeljenje priče”. Ponašanja koja su učenici pokazali tijekom faza procesa digitalnoga pripovijedanja u okviru vještina samoupravljanja sažeta su na Tablici 2.

Tablica 2

*Ponašanja iskazana tijekom procesa digitalnoga pripovijedanja*

Određivanje teme i stvaranje priče	Pisanje scenarija i izrada scenarijske ploče	Uređivanje i pripovijedanje priče	Dijeljenje priče
Odgovornost	Odgovornost	Odgovornost	Odgovornost
Suradnja	Suradnja	Suradnja	Suradnja
Samosvijest i donošenje odluka	Samosvijest i donošenje odluka	Samosvijest i donošenje odluka	Postupati etički
Očuvanje prirode i upravljanje resursima	Očuvanje prirode i upravljanje resursima	Očuvanje prirode i upravljanje resursima	Upravljanje emocijama
Percepcija prostora i lokacije	Percepcija prostora i lokacije	Percepcija prostora i lokacije	
Rješavanje problema	Rješavanje problema	Rješavanje problema	
Vodstvo	Vodstvo	Vodstvo	
Upravljanje emocijama	Upravljanje vlastitim učenjem	Upravljanje emocijama	
Postupati etički			

Neka od ponašanja koja su učenici pokazali u pogledu preuzimanja odgovornosti i suradnje odražavala su se u unutargrupnim razgovorima na sljedeći način:

.....

Leyla: Odlučimo tko će pisati. Prvo odlučimo o piscu.

Damla: Mislim da ćeš napisati. I ja ću napisati, pomoći ću ti.

Ali: U redu, ti piši, a ja ću ostale.

Leyla: U redu. Prvo neka Damla piše, pa ćemo zajedno pisati, nastaviti ćemo.

Damla: U redu, prvo da imamo ljude, nekoga u našoj priči.

Leyla: Da, tako bi trebalo biti, ali hajdemo također imati naslov, napišimo ga (29. 11. 2021, zvučni zapis).

Slične izjave pronađene su u dnevnicima koje su učenici napisali na sljedeći način:

Hasan: Netko je pisao, netko je pričao, a neki od nas su crtali slike

Fatih: Primjerice, pisali smo s Pusatom. Pomogao je i Rüzgar, a onda smo zajedno crtali slike.

Burak: Svi smo radili. Ja sam pričao, Elif je pisala. Netko drugi je crtao slike.

Cenk: Pomoću sam oko scenarija, dok su ostali pisali priču. I ja sam crtao slike.  
(29. 11. 2021., Školski dnevnik).

Dok su radili u grupi, učenici su također pokazali ponašanja u pogledu donošenja odluka i vodstva. Njihovi unutargrupni razgovori o tome su sljedeći:

.....

Gizem: Tko će napisati priču?

Ozan: Možeš ti početi pisati ako želiš. Onda ćemo mi raditi ostale stvari.

Cenk: I ja je mogu napisati. Piši ti prva. A onda ja mogu napisati onu drugu.

Gizem: U redu, dobro, ja ću je napisati. Ozan, i ti nam pomaži. I nemoj praviti previše buke.

Ozan: Hiiii.... Što sam rekao? (29. 11. 2021., zvučni zapis).”

Činjenica da su učenici u svojim pričama o upravljanju resursima uključili ponašajne izraze također je zabilježena u istraživačevom dnevniku:

Primijetio sam da su učenici općenito ispunili svoje dužnosti. Stvorili su priče. Mogu reći da uče od odgovornostima. Čak su se i sami učinili junacima u svojim pričama. Danas je grupa učenika likovima u svojim pričama dala svoja imena. Također su u svojim pričama stvorili igru: igra održavanja reda u školi. Pomoću te igre oni i uče i poučavaju pravila te učinkovito koriste svoje resurse. Bilo je vrlo kreativno i lijepo (6. 12. 2021., dnevnik istraživača).”

Ista se situacija pojavila i u pričama koje su napisali učenici. U ovom je trenutku jedna od priča koje su napisali učenici prikazana na Slici 3.

### Slika 3

Aktivno sudjelovanje učenika u aktivnostima i njihova iskustva u tom procesu odražavali su se u dnevniku istraživača na sljedeći način:

Iako je tijekom aktivnosti bilo buke, učenici su aktivno sudjelovali i obavljali svoje aktivnosti. Danas su učenici bili praktičniji nego prethodnih dana. Radili su to s lakoćom. Prethodnih dana bilo je kašnjenja u grupama. Ali sada rade dobro. Tijekom aktivnosti, kao da su učenici u igri. Bili su vrlo sretni i motivirani dok su pisali, crtali i glasno se izražavali (13. 12. 2021., dnevnik istraživača).

Učenici su u svojim strukturiranim dnevnicima na sljedeći način izrazili svoja osjećanja i misli o aktivnostima digitalnoga pripovijedanja:

Gizem: Naša je grupa danas bila jako dobra. Bila sam ponosna na našu grupu.

Također je bilo jako lijepo vidjeti naše glasove i ono što smo radili na ploči.

U početku mi je bilo malo neugodno. Ali uspjeli smo. To nas čini ponosnima (30. 11. 2021., dnevnik učenice).

Burak: Lijepo je gledati naše priče. Gledali smo ih s našim učiteljem. Gledali smo ih sve. Bilo je vrlo uzbudljivo. Bio sam uzbuđen. Bilo je vrlo neobično gledati ono što smo radili i čuti naše glasove (11. 1. 2022., učenički dnevnik).

Kada se pregledaju scenarijske ploče učenika, može se reći da su pokazali ponašanja u smislu odgovornosti, suradnje, upravljanja vlastitim učenjem, prepoznavanja vlastitih pogrešaka i samoregulacije. Primjeri scenarijske ploče prikazani su na Slici 4 i Slici 5.

Slika 4

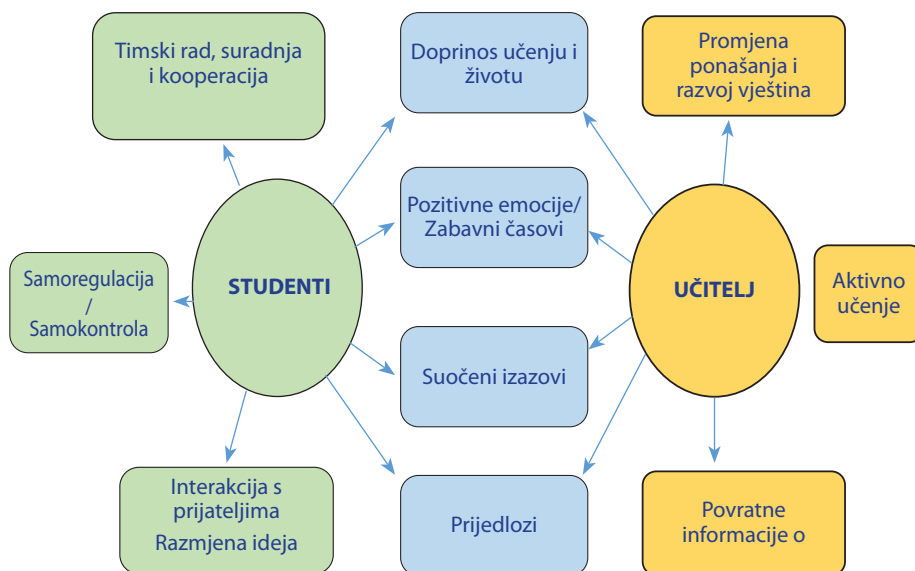
Slika 5

Izgled digitalnih priča koje su učenici izradili u programu Microsoft Photo Story-3 i konačna verzija digitalne priče prikazani su na Slici 6.

Slika 6

### Rezultati o mišljenjima učenika i nastavnika

Kako bi se utvrdila upotreba aplikacija za digitalno pripovijedanje na satima prirodnih znanosti i kako su taj proces ocijenili učenici, provedeni su intervjui s učenicima i razrednim učiteljem. Dobiveni podatci iz intervjua su analizirani. Mišljenja učenika grupirana su pod naslovima „timski rad, suradnja, suradnja”, „samoregulacija/samokontrola” i „interakcija s prijateljima, razmjena ideja”. Mišljenja razredne nastavnice navedena su pod naslovima „promjena ponašanja i poboljšanje vještina”, „aktivno učenje” i „povratne informacije o provedbi”. Osim toga, utvrđene su i neke zajedničke točke između mišljenja učenika i nastavnika u učionici. Te su zajedničke točke organizirane pod naslovima „doprinos učenju i životu”, „pozitivne emocije/zabavni sati”, „poteškoće s kojima smo se susreli” i „prijedlozi”. Gledišta studenata i nastavnika u učionici o korištenju digitalnoga pripovijedanja u predmetu Životne znanosti prikazana su na Slici 7.



Slika 7. Kategorije povezane s rezultatima intervjua

U ovom procesu neka su mišljenja učenika o timskom radu, suradnji i kooperaciji sljedeća:

Burak: Na primjer, ja sam pisao priču u tekst ispod slika, a moji prijatelji su crtali i bojili. Većinu vremena sam ja radio sinhronizaciju, a ponekad su je radili moji prijatelji. Suradivali smo i svatko je radio na nečemu.

Leyla: Radile smo u grupama, zajedno smo pisale priče, crtale slike i bojile ih, a zatim smo ih stavile na računalo i radile sinhronizaciju. Zajedno smo radile na mnogo različitih tema, snimile smo svoju priču, zatim smo napravile film i onda smo ga gledale, tako da je to bila grupna suradnja. Neke od nas su pisale, neke su crtale slike, a neke su radile sinhronizaciju.

Navodeći da je proces digitalnoga pripovijedanja doprinio njihovoj samoregulaciji, učenici su izrazili sljedeće:

Damla: Prije sam poslijepodne prije večere grickala. Grickalice su me zasitile pa nisam jela mamine obroke. Ali sada jedem mamine obroke. Sada povremeno jedem nezdravu hranu.

Leyla: Prije nisam znala kako štedjeti. Sada sam naučila biti štedljivija. Čak i kad moj brat ostavi slavine otvorene, upozorim ga. Također sam naučila jesti uravnoteženu i zdravu prehranu. Više pazim na to što jedem.

Učenici su naveli da su tijekom ovoga procesa više komunicirali i razmjenjivali ideje sa svojim prijateljima. Mišljenja učenika o tome su sljedeća:

Hasan: Sada se bolje slažem sa svojim prijateljima. Prije nisam puno razgovarao s Ozanom, a ni s Alijem. Ali sada je to poraslo. Sada puno viđam Kemala, postao je moj najbolji prijatelj. U prvom razredu jedva smo razgovarali, ali sada smo stalno zajedno.

Gizem: Za mene je to bilo vrlo pozitivno. Naučila sam mnogo toga iz toga. Saznala sam nove ideje od svojih prijatelja i bila sam pod utjecajem njihovih ideja. Rekli su da sam dobra u pisanju. Možda su i oni bili pod mojim utjecajem.

Razredna učiteljica je navela da su aktivnosti digitalnoga pripovijedanja doprinijele promjeni ponašanja i razvoju vještina kod učenika na sljedeći način:

Vježba je bila izuzetno korisna u otkrivanju talenata i vještina učenika. Pomogla im je da otkriju vlastiti potencijal. Učenici su prepoznali tehnološke primjene. Pojavile su se osobine *vođe* nekih učenika i poboljšala se njihova sposobnost međusobnoga upravljanja u grupi. Njihove su se komunikacijske vještine također poboljšale. Također sam primijetila značajne promjene u njihovom ponašanju. Na primjer, postali su svjesniji potrebe štednje resursa koje koristimo u školi. Mogu također reći da je došlo do pozitivnoga napretka u održavanju čistoće podova, rezanju noktiju, njezi kose i čišćenju odjeće.

Razrednik je također izjavio da su aplikacije za digitalno pripovijedanje dovele učenike do aktivnoga učenja. Njegova stajališta o tome su sljedeća:

Budući da su i sami uključeni u ove aktivnosti, učenici pokazuju veći interes i kao rezultat toga nastaje proizvod. Tako učenici sudjeluju na satima na ugodniji i motiviraniji način. U tom procesu udaljavaju se od monotonije i klišeja. Zapravo, kad sam im rekao da ova aktivnost završava, bili su tužni. Učenici su se otkrili tijekom ove primjene.

U ovome procesu razredni učitelj je izjavio da je dobio pozitivne povratne informacije od roditelja i uprave škole. U tom je trenutku iznio sljedeća mišljenja:

Na temelju povratnih informacija koje sam dobio od obitelji, mogu reći da su djeca postigla značajan napredak. Učenici su postali svjesni potrebe da podovi budu čisti i obraćaju pažnju na osobnu higijenu, poput rezanja noktiju, njege kose i čistoće odjeće. Prije su u tim područjima imali određenih nedostataka, ali sada su u boljoj situaciji. Povratne informacije školske uprave također su pozitivne. Čak i domar kaže: „Učitelju, ne moram čistiti tvoju učionicu.” To je za nas nešto vrlo lijepo...

U intervjuima s učenicima i razrednim učiteljem postali su očito neki zajednički stavovi i razrednoga učitelja i učenika. Jedna od tih zajedničkih točaka jest da aplikacije za digitalno pripovijedanje doprinose i učenju učenika i njihovim životima. Neka od mišljenja koja su razredni učitelj i učenici o tome izrazili su sljedeća:

Razrednik: Svaki tjedan, učenici su putem tih priča pokušavali ispričati o svojim životima i onome što su radili. Stoga su usvojili ovu metodu i znanje koje su naučili primijenili u svakodnevnom životu.

Cenk: Učim nove stvari. Na primjer, naučio sam biti čist, organiziran, jesti uravnoteženu prehranu i štititi prirodu. Učim mnogo više i drugačije stvari nego prije.

Razredna učiteljica i učenici izrazili su pozitivne osjećaje prema aplikacijama za digitalno pripovijedanje. Osim toga, učenici i razredna učiteljica naveli su da su nastava postale zabavnije i da se pojavio zabavan proces učenja. Neka su mišljenja o tome sljedeća:

Razrednik: Drago mi je da je ova aktivnost uvedena u mom razredu. Voljela bih primjenjivati ovakve aktivnosti kako bih se usavršila. Učenici su sudjelovali na satima na mnogo ugodniji i motiviraniji način. Sudjelovali su na satima rado i s ljubavlju. Ponekad su čak i pitali zašto niste došli kad ste bili odsutni.

Elif: Svidjelo mi se što smo radili na tim satima. Osjećala sam se sretno, bilo je zabavno. Volim pisati priče. Crtamo slike i to je također jako lijepo. Također sam uživala u radu na računalu i u sinhronizaciji... Bila sam jako emotivna kad smo gledali ono što smo radili. Bilo je stvarno lijepo i usrećilo nas je. Provela sam se s prijateljima na zabavan način, bilo je kao igra...

Razredna učiteljica i učenici naveli su da su naišli na određene poteškoće tijekom vježbanja digitalnoga pripovijedanja. Neka od mišljenja učenika i razredne učiteljice o ovom pitanju su sljedeća:

Razredna učiteljica: Iako je ova primjena dobra iskustva za učenike, može predstavljati izazov za učitelja u pogledu upravljanja učionicom. Učitelj će možda morati dodatno razviti svoje vještine upravljanja učionicom, jer su ove aplikacije prilično zahtjevne za učitelja. U suprotnom možda nećemo moći upravljati takvom primjenom. To je pomalo zamorno i radno intenzivno.

Ozan: Moji prijatelji pisali su lijepe priče. Ponekad sam ih i sam želio napisati, ali sam imao poteškoća jer nisam dobro pisao. Također sam imao problema s uređivanjem i obrezivanjem slika na računalu. Kasnije sam naučio kako to raditi.

Nastavnici u učionicama i učenici također su dali neke prijedloge o aplikacijama za digitalno pripovijedanje i o ovom procesu. Njihovi su prijedlozi sljedeći:

Razrednik: Važno je surađivati s roditeljima kako bi učenici mogli u potpunosti prenijeti ono što su naučili i radili u život. Bilo bi bolje da su roditelji također uključeni u ovaj proces na drugačiji način. Dakle, bilo bi korisno dobiti povratne informacije od roditelja. Također, ove se aplikacije mogu koristiti i u drugim predmetima. Mogu se koristiti u prirodnim znanostima, društvenim znanostima, turskom jeziku ili matematici.

Gizem: Ove aplikacije možemo koristiti i na drugim predmetima. Na primjer, u Matematici. Ako netko ne razumije gradivo, može ga lakše naučiti pomoću ove aplikacije. Možemo je koristiti i na nastavi turskog jezika. Možemo skratiti priče, crtati slike i sinkronizirati ih. Možemo stvarati digitalne priče.

## **Diskusija**

U ovoj studiji, u okviru vještina samoupravljanja, ispitivana su i uspoređivana s rezultatima drugih studija iz literature učenička ponašanja vezana uz preuzimanje odgovornosti, samosvijest i donošenje odluka, upravljanje vlastitim učenjem, etično djelovanje, zaštitu prirode i upravljanje resursima, percepciju prostora i lokacije, rješavanje problema, suradnju, razvoj komunikacijskih vještina i socijalnu interakciju.

Sposobnost preuzimanja odgovornosti definira se kao sposobnost pojedinaca da ispune zadatke primjerene njihovom spolu, dobi i razvojnoj razini, počevši od ranoga djetinjstva (Yavuzer, 1998). Ova je vještina od velike važnosti za vođenje urednoga života. Osim toga, ovu vještinu treba djecu poučavati od rane dobi. Navodi se da postoje različiti pristupi razvoju sposobnosti preuzimanja odgovornosti, a jedan od tih pristupa su aktivni načini učenja (Kılıç, 2015). Doista, u studiji koju je provela Kılıç (2015) utvrđeno je da načini aktivnoga učenja poboljšavaju sposobnost preuzimanja odgovornosti kod studenata. U tom kontekstu navodi se da su primjene digitalnoga pripovijedanja također pristup koji podržava aktivno učenje (Sadik, 2008; Smeda i dr., 2010; Wang i Zhan, 2010; Yüksel i dr., 2011; Hung i dr., 2012). Tijekom primjene digitalnoga pripovijedanja u studiji utvrđeno je da su učenici pokazali vještine

preuzimanja odgovornosti. Osim toga, i učenici i razredna učiteljica izjavili su da je primjena digitalnoga pripovijedanja poboljšala tu vještinu kod učenika.

Izuzetno je važno da se učenik pripremi za nastavu, da procijeni vlastito učenje, da odredi strategije učenja i predvidi svoje ciljeve, da upozna samoga sebe, da donosi učinkovite odluke i upravlja procesom učenja. Tijekom aktivnosti digitalnoga pripovijedanja učenici su planirali svoje učenje i stvarali digitalne priče preuzimajući odgovornost za vlastito učenje. U tom je kontekstu uočeno da su pokazivali ponašanja u procesima samopoznavanja i donošenja odluka. Razredna učiteljica i učenici također su naveli da su preuzeli odgovornost za vlastito učenje i sami odlučili što će raditi. Slično tome, istraživanja pokazuju da učenici koji sudjeluju u aktivnostima digitalnoga pripovijedanja preuzimaju veću odgovornost i aktivnije sudjeluju u procesima učenja (Chung, 2007; Sadik, 2008; Robin, 2008; Yang i Wu, 2012; Kotluk i Kocakaya, 2015). Kada se te studije prouče, može se reći da su aplikacije digitalnoga pripovijedanja učinkovit alat za učenike da sami konstruiraju i kontroliraju vlastito učenje.

U sklopu istraživanja, jedna od vještina samoupravljanja koja se procjenjivala i ispitivala jest etičko ponašanje. U sklopu etičkoga ponašanja od učenika se očekuje da pokazuju ponašanja kao što su pridržavanje pravila, poštivanje prava svojih prijatelja, ne ogovaraju, govore istinu u slučaju neslaganja, ne lažu, iskrenost i prepoznavanje pogrešnih ponašanja. Tijekom aktivnosti digitalnoga pripovijedanja učenici su poštovali prava jedni drugih, pridržavali su se pravila razreda i škole te su ta ponašanja uključili u priče koje su pripremili. U slučajevima sukoba ili neslaganja upozoravali su jedni druge i nastojali pokazati ispravna ponašanja. U studiji koju je proveo Kılıç (2015), ispitivan je učinak aktivnih oblika učenja na vještine samoupravljanja te je utvrđeno da su učenici tijekom tih aktivnosti pokazali etično ponašanje. U tom kontekstu može se reći da se aplikacije za digitalno pripovijedanje mogu ocijeniti u okviru aktivnoga učenja, a ovo je otkriće u skladu s drugim nalazima u literaturi.

Navodi se da aplikacije za digitalno pripovijedanje učenicima pružaju priliku da tijekom procesa više rade sa svojim prijateljima (Smeda i dr., 2012) te da digitalne priče koje učenici pripreme povećavaju suradnju među vršnjacima stvaranjem poucnoga okružja za njihove prijatelje (Miller, 2009). U ovoj je studiji utvrđeno da su si učenici međusobno pomagali, surađivali i radili u timu u svakoj fazi primjene aplikacija za digitalno pripovijedanje. U studiji koju je proveo Sadik (2008.) utvrđeno je da su aktivnosti digitalnoga pripovijedanja poboljšale suradničke i komunikacijske vještine učenika. Osim toga, utvrđeno je i da su u aktivnostima digitalnoga pripovijedanja učenici učvrstili znanje koje su stekli dijeleći ga jedni s drugima i pomažući si kad bi naišli na razne probleme. U studiji koju je provela Karakoyun (2014) navodi se da su se učenici međusobno pomagali tijekom aktivnosti digitalnog pripovijedanja te su stoga poboljšali svoje vještine suradnje i timskoga rada. Kao rezultat toga, može se reći da su aktivnosti digitalnoga pripovijedanja razvile suradnju i vještine suradnje učenika te podržale njihovo međusobno učenje stvaranjem poucnoga okružja.

U ovoj studiji još je jedna vještina procijenjena u kontekstu vještina samoupravljanja – opažanje prostora i lokacije. Izuzetno je važno da učenici mogu razlikovati mjesta i

različite lokacije na kojima se nalaze kako bi prepoznali svoje okruženje. U tom kontekstu, poznavanje glavnih i međusobnih smjerova, sposobnost ispravnoga korištenja izričaja za označavanje smjera, sposobnost crtanja grafova i skica, sposobnost prepoznavanja oblika povezanih s mjestima i lokacijama te sposobnost tumačenja skica, planova i nacrtu različitih područja ponašanja su koja će im olakšati svakodnevni život. Tijekom primjene aktivnosti digitalnoga pripovijedanja u kolegiju Životne znanosti, učenici su organizirali prostor prema vlastitim potrebama tijekom procesa izvedbe i uključili situacije vezane uz prostor i lokacije u digitalnim pričama koje su pripremili. Pokazali su svoju sposobnost percipiranja prostora i lokacije izrađujući skice i crteže u digitalnim pričama koje su pripremili.

Utvrđeno je da je proces digitalnoga pripovijedanja podržao i poboljšao tehnološke vještine učenika korištenjem računala i programa za digitalno pripovijedanje. U intervjuu s razrednom učiteljicom navedeno je da su se vještine učenika u korištenju računalnih tehnologija poboljšale. U sličnim istraživanjima uočeno je da aplikacije digitalnoga pripovijedanja omogućuju učenicima korištenje tehnoloških alata i time poboljšavaju njihove vještine u korištenju tehnologije (Robin, 2008; Coutinho, 2010; Yüksel i dr., 2011; Karakoyun, 2014). Robin (2006) navodi da učenici koriste multimedijske elemente poput teksta, glazbe i slika putem različitih programa u procesu digitalnoga pripovijedanja i time se poboljšava njihova tehnološka pismenost. Coutinho (2010) navodi da digitalno pripovijedanje razvija vještine 21. stoljeća, poput komunikacijskih i tehnoloških vještina.

Od velike je važnosti da učenici djeluju svjesni da su prirodni resursi ograničeni i da je potrebno zaštititi okoliš u smislu upravljanja resursima i zaštite okoliša. U svojim digitalnim pričama učenici su opisali situacije usmjerene na zaštitu prirode i okoliša. U tom su kontekstu učenici učinkovito i efikasno koristili svoje stvari iz učionice i škole te osobne stvari. Osim toga, stvaranjem digitalnih priča koje su uključivale ponašanja poput održavanja čistoće zajedničkih prostora i ne zagađivanja okoliša, pokazali su ekonomično i pažljivo korištenje resursa. Ovo je također izraženo u intervjuima s učenicima i razrednim učiteljem. U literaturi nisu pronađeni nikakvi istraživački nalazi o ovoj temi. Međutim, na temelju ovoga otkrića može se preporučiti detaljno istraživanje ovoga pitanja u budućim studijama.

Tijekom izrade digitalnih priča učenici su se suočili s problemima koji su proizašli iz upotrebe tehnoloških alata i međusobnih sukoba unutar grupe. Učenici su se o tim problemima posavjetovali s razrednim učiteljima i istraživačem, razvili prijedloge raspravljajući međusobno i riješili te probleme. Osim toga, učenici su zajedno kao razred pogledali digitalne priče koje su izradili i međusobno ih kritizirali. U ovom kontekstu može se reći da je proces digitalnoga pripovijedanja poboljšao vještine učenika za rješavanje problema i kritičko razmišljanje. Slične studije u literaturi također pokazuju da aktivnosti digitalnoga pripovijedanja poboljšavaju kritičko razmišljanje i vještine rješavanja problema učenika (Robin, 2008; Yüksel i dr., 2011; Yang i Wu, 2012; Kotluk i Kocakaya, 2015). Yang i Wu (2012) navode da procjena digitalnih priča koje su stvorili drugi poboljšava vještine kritičkoga razmišljanja.

U ovoj je studiji također utvrđeno da su aplikacije digitalnoga pripovijedanja doprinijele procesima učenja i životima učenika. Nastavnici i učenici naveli su da su aplikacije digitalnoga pripovijedanja učinile nastavu ugodnijom i zabavnijom. U tom smislu može se reći da činjenica da se učenici zabavljaju i uživaju na nastavi pozitivno doprinosi njihovom učenju i razvoju vještina. U sličnim studijama uočeno je da aplikacije za digitalno pripovijedanje čine lekcije zabavnima, povećavaju interes učenika, podržavaju njihovo učenje i doprinose razvoju različitih vještina (Ciğerci, 2015; Demirer, 2013; Hung i dr., 2012; Jakes i Brennan, 2005; Kotluk i Kocakaya, 2015; Robin, 2006; Robin, 2008; Sadik, 2008; Yang i Wu, 2012; Yüksel i dr., 2011).

Tijekom procesa digitalnoga pripovijedanja također su se pojavile neke poteškoće. Ovu su situaciju spomenuli i razredni učitelj i učenici. Razredna nastavnica je izjavila da je digitalno pripovijedanje dugotrajna i radno intenzivna metoda. Učenici su, s druge strane, izrazili da su imali poteškoća s upravljanjem vremenom u pogledu tehničke upotrebe i izrade digitalnoga pripovijedanja. U sličnim istraživanjima susreli su se problemi poput upravljanja vremenom, tehničkih poteškoća i nemogućnosti korištenja tehnologije (Coutinho, 2010; Dogan i Robin, 2009; Sadik, 2008). Osim toga, neki od učenika koji su sudjelovali u istraživanju imali su poteškoća u čitanju, pisanju i korištenju jezika. Ta je situacija uzrokovala da grupe učenika imaju poteškoća s pravovremenim obavljanjem zadataka i suradnjom.

## **Zaključak**

Rezultati istraživanja i sličnih studija u literaturi pokazuju da su aktivnosti digitalnoga pripovijedanja učinkovita metoda za stjecanje znanja i vještina učenika. Prema kvantitativnim i kvalitativnim nalazima ove studije, može se reći da su učenici koristili vještine samoupravljanja tijekom aktivnosti digitalnoga pripovijedanja te da su te aktivnosti poboljšale njihove vještine samoupravljanja.

Utvrđena je značajna razlika između rezultata pretestiranja i posttestiranja učenika u eksperimentalnoj skupini prema skali vještina samoupravljanja ( $p < .05$ ). Također je utvrđena značajna razlika između rezultata pretestiranja i posttestiranja učenika u svim poddimenzijama skale ( $p < .05$ ). U tom kontekstu može se reći da su aktivnosti digitalnoga pripovijedanja učinkovite u razvoju vještina samoupravljanja učenika.

U procesu digitalnoga pripovijedanja učenici su pokazali ponašanja poput preuzimanja odgovornosti, samosvijesti i donošenja odluka, etičkoga djelovanja, zaštite prirode i upravljanja resursima, percipiranja prostora i lokacije, rješavanja problema, suradnje, vodstva i upravljanja emocijama koristeći vještine samoupravljanja.

U okviru faza procesa digitalnoga pripovijedanja, učenici su koristili vještine samoupravljanja pokazujući ponašanja kao što su preuzimanje odgovornosti, samosvijest i donošenje odluka, etično djelovanje, zaštita prirode i upravljanje resursima, percipiranje prostora i lokacije, rješavanje problema, suradnja, vodstvo i upravljanje emocijama.

Rezultati u vezi s mišljenjima nastavnika i učenika o digitalnom pripovijedanju su sljedeći:

Primjena aplikacija za digitalno pripovijedanje poboljšala je vještine učenika. Došlo je do promjena u ponašanju učenika u željenom smjeru. Zabilježene su značajne promjene u ponašanju, osobito u pogledu zaštite okoliša i korištenja resursa, pridržavanja pravila čišćenja i osobne higijene. Aktivnosti digitalnoga pripovijedanja omogućile su učenicima da preuzmu odgovornost za vlastito učenje i ostvare aktivno učenje.

U procesu digitalnog pripovijedanja učenici su radili u timu i suradnji te pokazali ponašanja u kontekstu samoregulacije. Osim toga, također je navedeno da su se učenikove socijalne vještine poboljšale.

Aktivnosti su doprinijele procesima učenja i životima učenika. Također je utvrđeno da su aplikacije za digitalno pripovijedanje učinile lekcije zabavnijima i ugodnijima. Također je navedeno da je ta situacija osigurala trajnost u učenju učenika.

Također je utvrđeno da su aplikacije za digitalno pripovijedanje dugotrajne i radno intenzivne. Isto tako primijećeno je da su se učenici susreli sa situacijama poput korištenja tehnologije i nemogućnosti dovršetka priče na vrijeme. Međutim, također je navedeno da se aplikacije za digitalno pripovijedanje mogu koristiti i u drugim kolegijima.

### **Prijedlozi**

Na temelju rezultata studije donose se sljedeći prijedlozi za buduće primjene i istraživanja:

- Istraživanja digitalnoga pripovijedanja provedena su s grupama od 4 do 5 učenika. U kontekstu učinkovitije primjene vještina samoupravljanja kod učenika, istraživanja se mogu provoditi pojedinačno radi izrade digitalnih priča.
- Istraživanje je provedeno s učenicima trećega razreda. S obzirom na to da se vještine trebaju steći i razvijati od rane životne dobi, slične studije mogu se provoditi i u predškolskom razdoblju te u prvom i drugom razredu osnovne škole.
- Tečaj Životnih znanosti je tečaj vještina u kojem učenici stječu i razvijaju osnovne životne vještine. U tom kontekstu aplikacije za digitalno pripovijedanje mogu se koristiti u predmetima poput društvenih studija i Prirodnih znanosti, koji su nastavak ovoga tečaja u nadolazećim semestrima.
- U istraživanju su pokusne aplikacije provedene u razdoblju od tri tjedna. Međutim, tijekom aplikacija iskusili su se tehnički problemi poput korištenja računala, premještanja i spremanja datoteka, prelasaka i vokalizacije. U tom smislu razdoblje pilot-aplikacija može se produžiti provođenjem dodatnih studija kako bi se učenicima osigurala tehnička podrška.
- U studiji su također uzeta u obzir mišljenja učenika i razrednoga učitelja o razvoju vještina samoupravljanja učenika. U sličnim studijama roditelji se također mogu uključiti u proces pri utvrđivanju razvoja vještina samoupravljanja učenika.
- Digitalno pripovijedanje može se sustavno integrirati u kurikulum osnovnoga obrazovanja kako bi se podržao razvoj interdisciplinarnih vještina.
- Škole mogu razmotriti oblikovanje iskustava učenja koja promiču vještine samoupravljanja kao što su preuzimanje odgovornosti, rješavanje problema i vodstvo.

- Programi stručnoga usavršavanja mogu se provoditi za obuku nastavnika u pedagoškoj primjeni digitalnoga pripovijedanja radi poticanja kompetencija učenika.
- Digitalno pripovijedanje može se koristiti za jačanje ekološke svijesti i održivih praksi među mlađim učenicima.
- Alati za planiranje, kao što su predlošci rasporeda, strategije potpore i strukture međusobne podrške, mogu se koristiti za smanjenje izazova u pogledu vremena i truda povezanih s projektima digitalnoga pripovijedanja.

### ***Prednosti i nedostaci studije***

U studiji su korištene mješovite metode. Metodološki, mješovite metode mogu pružiti detaljnije i učinkovitije rezultate nego što to mogu same kvantitativne ili kvalitativne studije. Osim toga, u istraživanju je korištena samo jedna grupa kao studijska grupa i nije formirana kontrolna grupa za usporedbu. Može se reći da ta situacija predstavlja slabost u kvantitativnoj dimenziji istraživanja. Nastavak pandemijskih uvjeta tijekom razdoblja u kojem je istraživanje provedeno pridonio je nastanku takve situacije. Međutim, nastojala se prevladati ta slabost potkrijepljenjem kvantitativnih podataka dobivenih primjenom mješovitih metoda kvalitativnim podacima (promatranja, dnevници, intervjui, učenički radovi).