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The Effect of Using the Storyline Method in Life Studies Lesson on Problem Solving and Decision Making Skills: A Third Grade Example¹²

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Abstract

This study was conducted to investigate the effect of the Storyline method used in the "Safe Life" unit in the Life Studies course on the problem solving and decision-making skills of elementary school 3rd grade students. The study was conducted with 20 third grade students studying at a private school in Istanbul. The scales used in the research and student activities were collected in the second half of the 2019-2020 academic years. "Problem Solving Inventory for Children", "Decision Making Skill Perception Scale for 3rd and 4th Grade Students", activity papers in the research process in the Life Studies lesson, teacher and student diaries were used as data collection tools. According to the findings of the research, an increase was observed in the problem solving and decision making skills of the students with the Storyline method applied in the Life Studies course.

Keywords: Story method; life science; problem solving skills; decision-making

Hayat Bilgisi Dersinde Storyline Yönteminin Kullanılmasının Karar Verme ve Problem Çözme Becerisi Üzerindeki Etkililiği: Üçüncü Sınıf Örneği

Özet

Bu çalışma, Hayat Bilgisi dersi "Güvenli Yaşam" ünitesinde kullanılan Storyline yönteminin ilkökul 3. sınıf öğrencilerinin problem çözme ve karar verme becerilerine etkisini incelemek amacıyla yapılmıştır. Araştırma İstanbul'da özel bir okulda öğrenim gören 20 üçüncü sınıf öğrencisi ile gerçekleştirilmiştir. Araştırmada ve öğrenci etkinliklerinde kullanılan ölçekler 2019-2020 eğitim-öğretim yılının ikinci yarısında toplanmıştır. Veri toplama aracı olarak "Çocuklara Yönelik Problem Çözme Envanteri", "3. ve 4. Sınıf Öğrencilerine Yönelik Karar Verme Becerisi Algısı Ölçeği", araştırma sürecinde Hayat Bilgisi dersinde yer alan etkinlik kağıtları, öğretmen ve öğrenci günlükleri kullanılmıştır. Araştırmanın bulgularına göre Hayat Bilgisi dersinde uygulanan Storyline yöntemi ile öğrencilerin problem çözme ve karar verme becerilerinde artış gözlemlenmiştir.

Anahtar Sözcükler: Storyline yöntemi; hayat bilgisi; problem çözme becerisi; karar verme becerisi

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1. INTRODUCTION

The child who comes to the primary school period acquires new knowledge academically from the moment he starts school, apart from the knowledge he has acquired in daily life. The most important lesson that bases on the knowledge of the child who is introduced to the school in his daily life and transfers academic concepts to the child is Life Studies in the primary school period.

Since Life Science is a basic course that enables the child to get to know life, it makes the active participation of the student in the course process inevitable. The Storyline method is a method that started to be used in Scotland in the 1980s. This method makes the lesson process fun, effective and efficient. The main element of the storyline method is stories and key questions. The method consists of different steps. The steps of the storyline method are: parts of storytelling, key questions, student activities, classroom organization, materials, learning outcomes and evaluation (Şekerci ve Kabapınar, 2019).

The Storyline method wants to add a new one on the knowledge and experience which the students have. In the storyline method, drama, station, theater, group work, problem solving, decision making, critical thinking, question-answer etc. uses many teaching methods and techniques. Storyline is an interdisciplinary learning process in which the characters are put to work, an event is selected to work on, and real problems are presented one after another to solve by placing the learning process in a detailed time frame and sequence (Bell, 2003; Bell & Harkness, 2006; Creswell, 1997; Güney, 2003; cited in Tepetaş, 2011).

The storyline method has a long history. In 1967, a three-person teacher training group (Steve Bell, Sallie Harkness & Fred Rendell) consisting of Jordanhill College of Education lecturers guided the teachers in many schools by working on the understanding of this program until the beginning of the 80s (Güney & Tepetaş Cengiz, 2016). Storyline, as a learning and teaching method, enables the teacher and students to design the curriculum together and uses the structure of a story; It provides a cross-curricular, subject-based teaching method. The storyline method asks key questions that require students to make each part of the process relevant and control what happens in the stories (Bell & Harkness, 2006).

1.1. Problem Solving Skill

Students use problem solving skills in solving the problem situations in the stories in the storyline method. The problem-solving approach directs the student to find a solution to the problem he encounters. This skill is the process of overcoming difficulties encountered in reaching a goal. Problem solving is a skill that can be learned and attained. It takes time, effort and energy. An individual's past experiences, values, grasping power and attitude are the forces that really affect problem solving skills (Bingham, 1971).

1.2. Decision Making Skill

Decision-making skill is included as a basic life skill in the Primary School Life Studies Curriculum (MEB, 2018). Decision-making and problem-solving skills are affected by the educational status of the individual. These educational situations are affected by the arrangements to be made in the educational environments (Köseoğlu, 2014). The storyline method compares the student with problem situations that will improve their thinking skills during the lesson. The ability to make decisions appropriate to the situations faced by the individual can be defined as a factor that eliminates the confusion when there are many ways to solve the problem when needed (Kuzgun, 1993, cited in Esen, 2019).

2. METHOD

In this section, the research model, study group and data collection techniques are explained.

2.1. Model of the Research

Action research, one of the qualitative research methods, was used in the study. Action research is a research approach that is carried out by a practitioner working in a school, such as a manager, teacher, education specialist, directly or with a researcher (Yıldırım & Şimşek, 2018). Action research is known as teacher research. It improves students' learning by improving the activities that teachers do in and out of the classroom (Beeyhan, 2013).

2.2. Working group

The study group of the research consists of 20 third grade students studying in a private school in Bağcılar, Istanbul. A suitable case study group was used in the study.

2.3. Data Collection Tools

In the research, "Problem Solving Inventory for Children", "Decision-Making Skill Perception Scale for Primary School 3rd and 4th Grade Students", activity papers, teacher and student diaries during the process in which the Storyline method, which is used as an action research in the Life Sciences lesson, was used as data collection tools.

Table 1. Data Collection Tools Used in the Research

Research Question	Data Collection Tools
What is the effect of the activities carried out using the storyline method on the problem solving skill levels of the students?	- İlköğretim Düzeyindeki Çocuklar için Problem Çözme Envanteri (ÇPÇE)
What is the effect of the activities carried out using the storyline method on the students' decision-making skill perception levels?	- İlkokul 3. ve 4. Sınıf Öğrencilere Yönelik Karar Verme Beceri Ölçeği
What is/how is the level of realization of the activities implemented using the Storyline method by the students?	- Student diary - Researcher teacher diary - Student worksheets - Storyline activity sheets - Materials created by students
What are the opinions of the participant students about the implementation of the activities carried out using the Storyline method?	- Storyline Worksheet

2.4. Data Analysis

Scales used in the research, worksheets, student diaries, teacher diary etc. were analyzed by various analysis methods.

The data obtained from the Personal Information Form, the Problem Solving Inventory for Children, and the Decision-Making Skill Perception Scale for Primary School 3rd and 4th Grade Students used in the research were analyzed with the SPSS package program.

Non-Parametric Wilcoxon Signed Orders Test was used for analysis.

Table 2. Analyzes Used in Data Collection Tools in the Research

Data collection tool	Analysis of Data
Personal Information Form	Descriptive analysis processes in SPSS program
Decision Making Skill Scale for 3rd and 4th Grade Primary School Students	Related-sample t-test
Problem Solving Inventory for Children	Related-sample t-test
Activities and Work Examples within the Framework of the Storyline Method	Rubric evaluation, content and descriptive analysis
Researcher (Practicing) Teacher's Diary Analysis	Descriptive analysis

Student Diary Analysis	Descriptive analysis
Student Products Analysis	Rubric evaluation, content and descriptive analysis
Camera and Photo Recordings	Content and descriptive analysis

2.5. Scientific Research and Publication Ethics

In the study, all the rules specified to be followed by the *"Higher Education Institutions Scientific Research and Publication Ethics Directive"* were complied with. None of the actions specified in the 2nd part of the Directive, titled *"Actions Contrary to Scientific Research and Publication Ethics"*, were carried out.

2.5.1. Ethics Committee Approval

Kurul adı = Marmara Üniversitesi Eğitim Bilimleri Enstitüsü Research and Publication Ethics Committee

Karar tarihi = 26/02/2021

Belge sayı numarası = 2100081901

3. FINDING

The findings obtained from the analysis of the data collected during the research are included. In this section, the findings obtained from the research questions are presented in order.

3.1. What is the Effect of the Activities Developed Using the Storyline Method on the Problem Solving Skill Levels of the Students?

In the research, the analyzes made to determine the differences between the sub-dimensions and the total of the "Problem Solving Inventory for Primary Education Level Children" applied in order to determine the problem solving skill perception of the students during the implementation process and the mean scores were presented.

Table 3. Study Group "Sub-Dimensions of the Problem Solving Inventory for Children at Primary Education Level, Results of Non-Parametric Wilcoxon Signed Orders Test Analysis Conducted to Determine the Difference Between Pre-Application and Post-Application Mean Scores

Sub-Dimensions	Point	Groups	N	\bar{X}	\bar{X} line	\sum line	z	P
Confidence	Before Application	Descendants	10					
		Increments	9	47,7	7,25	72,50		
	Application Post	Equal	1	52,2	13,06	117,50	,906	,365
		Total	20					
Self-control	Before Application	Descendants	4					
		Increments	15	25,9	9,13	36,50		
	Application Post	Equal	1	28,8	10,23	153,50	-2,365	,018
		Total	20					
Avoidance	Before Application	Descendants	1					
		Increments	12	21,35	7,00	7,00		
	Application Post	Equal	7	23,9	7,00	84,00	-2,706	,007
		Total	20					

3.2. What is the Effect of the Activities Developed Using the Storyline Method on the Decision Making Skill Perception Levels of the Students?

In this section, to analyzes to identify the differences between the pre-application and post-application mean scores of the sub-dimensions and total of the `` Decision Making Skill Perception Scale for 3rd and 4th Grade Students' 'applied before and after the application in order to determine the perception of students' decision-making skills during the implementation process of the research are presented.

Table 4. As a result of the Non-Parametric Wilcoxon Marked Orders Test conducted for the study group of the research, the Decision Making Skill Perception Scale for Primary School 3rd and 4th Grade Students was "feeling the problem, limiting and defining", "gathering information", "alternative solution, creating options", "decision making", "implementation and evaluation of the decision" sub-dimension scores show statistical significance

Sub-Dimensions	Point	Groups	N	\bar{X}	\bar{X} line	\sum line	z	P
Feeling the Problem Limitation and Identification	Before Application	Descendants	3					
		Increments	13	12,4	9,00	23,00		
	Application Post	Equal	4	14,00	8,38	109,00	-2,137	,033
		Total	20					
Information Collection	Before Application	Descendants	5					
		Increments	8	13,4	3,80	19,00		
	Application Post	Equal	7	14,5	9,00	32,00	-1,868	,062
		Total	20					
Alternative Solution Options Creation	Before Application	Descendants	3					
		Increments	8	13,75	5,67	17,00		
	Application Post	Equal	9	14,3	6,13	63,00	-1,431	,152
		Total	20					
Decision Giving	Before Application	Descendants	6					
		Increments	7	10,4	5,17	31,00		
	Application Post	Equal	7	11,5	8,57	60,00	-1,021	,307
		Total	20					
Implementing the Decision and Evaluation	Before Application	Descendants	7					
		Increments	7	6,75	8,50	59,50	,444	,657
	Application Post	Equal	6	6,45	6,50	45,50		
		Total	20					

3.3. What is/how is the Level of Realization of the Activities Carried Out Using the Storyline Method by the Students?

During the storyline method, students used group work, station technique, drama, etc. After the lesson, students could produce products such as models, poems, pictures, brochures, etc. In this section, the students' and teachers' interpretations of the activities performed by the students are included.

In addition, the studies of the students were evaluated according to the rubrics prepared by the researcher teacher.

Student named Ö11: Life science lesson; today our teacher introduced Gizem to us.

So we listened to the teacher and made and painted family members of the Gizem four by four.

I was very happy, I'm glad. It's a good thing there's a life science lesson in life.

Researcher's diary: “As we do in every lesson, we started our lesson by repeating our previous lesson.”

Today I read a story about "Precautions to be Taken Against Accidents" to my students.

I created a group where they would find the problem situation and solution suggestions in the story.

I also asked the students in this group to create posters.

Students loved making posters.

Some wrote, some painted the poster and added pictures.

At the end of the lesson, the children made a daily assessment.

The sample statements above are the evaluations in the diaries written by the researcher teacher and some students in the research group at the end of each lesson. After doing various activities and group work at the end of each lesson, the students stated what they did in the lesson and their feelings towards the lesson.

Table 5. Analysis of the "Fishbone of Traffic Rules" Worksheet

Multi Qualified	Qualified	Average	Should be improved	Insufficient	Not coming	Total
9	9	1	1	0	0	20

3.4. What are the Opinions of the Participant Students about the Implementation of the Activities Carried Out Using the Storyline Method?

The researcher teacher gave the students a Storyline Evaluation Form at the end of each lesson.

The findings regarding the content analysis of the answers given by the students to the Storyline Evaluation Form are given below.

Table 6. “How do You Think the Life Studies Lesson We Taught with Storyline Went?” Analysis of Students' Answers to the Question in the Storyline Evaluation Form

Student Comments on the Life Studies Lesson Taught with the Storyline Method	
Positive	F
Nice	17
Funny	8
Good	6
Liking	6
Happy	3
Fast	2

Excellent	2
Wonderful	2
Cheerful	1
Pleasant	1
Gorgeous	1
Different	1
TOTAL	50
Negative	F
Sometimes boring	1
Sometimes bad	1
Sometimes naughty	1
TOTAL	3

According to the analysis results of the "Decision Making Skills Perception Scale for Primary School 3rd and 4th Grade Students" applied before and after the research, no significant difference was found in the sub-dimensions of collecting information, creating alternative solution options, making decisions, implementing the decision and evaluating.

Reasons such as the short course period in which the Storyline method is applied, the quality of the activity prepared to improve decision-making skills, etc. can be given as examples for this situation.

It has been determined that the Storyline method, applied in the "Safe Life" unit in the Life Sciences lesson, positively affects the problem-solving and decision-making skills of the students as a result of the activities they have done, the scores they have received from the scales, their diary evaluations, and the analyzes made for the diaries they have kept.

4. RESULT

The results of the analyzes carried out to determine the sub-dimensions of the "Decision-Making Skills Perception Scale for Primary School 3rd and 4th Grade Students" items used in the study and the differences between the pre-application and post-application scores of the sum of the scores in the item are given under this title.

- After the application, there was a significant increase in the students' "feeling, limiting and defining the problem" mean scores,
- After the application, there was a significant increase in the average of the students' "information gathering" scores,
- After the application, the average of the students' "creating alternative solutions, options" scores increased,
- There was an increase in the average of the students' "decision making" scores after the application,
- It was determined that there was no increase in the average of the students' "implementation and evaluation of the decision" scores after the application.

The activities carried out within the framework of the Storyline method during the research process ensured that the students were active in the lesson based on the lesson outcomes at the end of each lesson period.

Students actively participated in the activities in the lesson and selflessly filled the worksheets given to them.

The stories, which form the basis of the storyline method, activated the students' prior knowledge.

The students approached the achievements and situations in the stories in a creative way, evaluated the events in an original way and showed this situation in the activities.

According to the statements of the students in the diary and evaluation form, it was analyzed that they had a lot of fun in the lesson, they were happy, they enjoyed group work with their friends, they liked the Life Science lesson, they liked the activities done in the lesson.

According to the findings obtained in the study, it was concluded that, after the research, an increase was observed in the decision-making and problem-solving skills of the provincial students with the Storyline method applied in the Life Studies course.

It was concluded that the Storyline method applied in the subjects of the "Safe Life" unit in the Life Sciences lesson increased the cognitive and academic skills of the students towards the lesson.

Güney (2019), in her study, aimed to determine the effect of story-based learning approach on academic achievement, permanence of learning and attitudes towards the course in the 4th grade Science course.

The study group of the research consisted of an experimental group of 17 students and a total of 2 groups of 21 students studying in a primary school located on the European side of Istanbul.

As a result of the research, the researcher determined that the students in the group in which the story-based learning approach was used developed more positive attitudes towards the science lesson.

Tozduman Yaralı (2019) conducted her study to investigate the effect of storytelling on the critical thinking skills of five-year-old children. The sample of the study consisted of 43 students attending a pre-school education institution in the center of Kırklareli in the 2017-2018 academic year. 22 of these students are in the experimental group and 21 are in the control group. The research has a mixed design, the Critical Thinking Skills Test for 5-6 Years-Old Children was used in its quantitative dimension. According to the results obtained from the data in the research, the effect of the storytelling method was investigated.

Şekerci (2018) revealed in her study that achieving the targeted achievements by the Storyline method gives effective results. The research group of the study consisted of thirty-four 4th grade students studying at a public school in Diyarbakır. It has been revealed that activities based on the storyline method make the lesson fun and attract students' attention. It has been determined that the storyline method has a positive effect on students' creative thinking skills and learning motivation in the Social Studies course.

Tepetas (2011) examined the effect of the Storyline method, which is used to support the conceptual knowledge of six-year-old children, on the experimental group in increasing children's concept knowledge. The study group of the research consisted of 39 six-year-old children studying in kindergarten in the province of Kırşehir in the 2009-2010 academic year.

5. DISCLOSURE STATEMENT

Scientific Research and Publication Ethics: In the study, all the rules specified to be followed by the "*Higher Education Institutions Scientific Research and Publication Ethics Directive*" were complied with. None of the actions specified in the 2nd part of the Directive, titled "*Actions Contrary to Scientific Research and Publication Ethics*", were carried out.

Ethics Committee Approval:

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