Examination on 21st -Century Skills of Preschool Teachers

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Abstract

In the developing and changing world, new technologies, a virtual reality world, and new forms of communication are produced every day. All these developments create the need to develop new skills, not only to exist in the digital world but also to exist in social life and social systems. Preschool education, which consists of sensitive years of an individual's life, is a period that affects the present and future life of the individual. Education, in such an important period, and the teacher providing this education have great importance Therefore preschool teachers are one of the most important contributors in raising generations that can adapt to the changing and developing world. This research aimed to examine the 21st-century skills of preschool teachers. The research was planned with a mixed method and data were collected from 216 preschool teachers in the quantitative dimension and 20 preschool teachers in the qualitative dimension. Data were collected with a teacher demographic information form, a 21st-century learner skills scale, and semi-structured interview questions. As the quantitative results of the research, it was seen that preschool teachers have 21st-century skills such as cognitive skills, cooperation and flexibility skills, autonomous skills, and innovative skills. When the qualitative findings of the study were examined, it was seen that the "creativity" skill was frequently emphasized in 3 themes in the learning-teaching process. These themes are; preschool teachers' views on 21st-century skills they have, their views on 21st-century skills that preschool teachers should have, and their views on 21st-century skills they have. It is seen that the qualitative and quantitative results of the research support each other and it can be said that preschool teachers are good at 21st-century skills.

Keywords: *Preschool education. Preschool teacher, 21st Century Skills, Early childhood education*

INTRODUCTION

21st-century skills are one of the most striking issues of the present day. With the rapid increase in population, the development of industry, urbanization, and the advancement of technology, it is necessary to develop some skills to adapt to life. The skills required for the 21st-century are quite different from previous centuries in terms of many skills such as technological literacy, adaptation to technological business life, respect for differences in multicultural societies, cooperation, effective communication, and being open to developments. These changes in society affect all institutions and people as well as education (Toprakçı, 2017). According to Trilling and Fadel (2009), education has four universal roles in the evolution of society. These roles can be summarized as providing individuals with the opportunity to practice participating in business and social life, developing personal skills, fulfilling civic responsibilities, and carrying traditions and values to the future. Toprakçı (2012; 88) added "the ability to live in other societies" to this list with his definition of education as "education is the process of making the child an effective human being, a qualified individual for the society/nation and world (or universe) in which he lives". Therefore, the education system should support the program, educator, school, and student dimensions, and 21st-century skills.

There are different classifications in the literature on 21st-century skills. Wagner (2008) determined 21st-century skills as 1) Collaboration Across Networks and Leading by Influence, (2) Critical Thinking and Problem-Solving; 3) Agility and Adaptability, 4) Accessing and Analyzing Information, 5) Effective Oral and Written Communication, 6) Initiative and Entrepreneurialism, and 7) Curiosity and Imagination. According to Binkley et al. (2012), 21st-century skills are discussed under 4 headings: 1) Ways of Thinking (Critical thinking, creativity, innovation, metacognition, etc.), 2) Ways of working (communication, collaboration), 3) Tools for working (information literacy, ICT literacy), and 4) Living in the World (Life and career, citizenship – local and global, etc.). One of the most accepted classifications in terms of 21st-century competencies and skills, especially in terms of the education system, is the P21 classification. In America, different associations and companies came together and explained the competencies and characteristics required by children in their professions and lives. In this framework, the basic competencies that students should have from preschool to the last year of secondary education are determined as P21 skills (Partnership for 21st-Century Skills, 2009). In these skills, world languages, mathematics, science, history, geography, arts, government, reading, and civics were determined as key concepts. Along with these key concepts, 21st-century skills are discussed under 3 main headings: 1) Learning & innovation skills (critical thinking and problem solving, creativity and innovation, communication, etc.), 2) Information, media & technology skills (media literacy, information literacy, etc.), and 3) Life & Career Skills (flexibility and adaptability, social and cross-cultural skills, initiative, and self-direction, etc.).

Starting from preschool education, which is the first level of the education system, all educators, especially preschool teachers, should be competent in 21st-century skills to support children's 21st-century skills. Preschool education, which consists of sensitive years of an individual's life, is a period that affects the present and future life of the individual (Toprakçı, 2010). Education, in such an important period, and the teacher providing this education have great importance (Abazaoğlu et al., 2015). A preschool teacher is a person who provides education for the healthy progress of physical, cognitive, social-emotional, and language development of children who are not at the age of starting primary school and continue to preschool education institutions (Hayber, 2022). The teacher has an important role in the concept of adaptation to school in the preschool period. As the conflicting relationship between the child and the teacher increases, it is seen that the child's adaptation to school decreases and that the children who have conventional relationships with their teachers are more successful in enjoying and adapting to school (Erbay & Durmuşoğlu Saltalı, 2020). In preschool education, the teacher constitutes the building block of the learning process and takes responsibility for the education and training activities in the school (Körükçü, 2014). It can be said that the quality of the educational work provided to children has a direct relationship with the quality and equipment of the teacher who provides this education (Mercan Uzun, 2021). Teachers are among the individuals with whom the child

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interacts the most after their parents (Körükçü, 2014). At the same time, the preschool teacher is of particular importance because it is the first teacher figure with whom the child experiences school for the first time (Oktay, 2000). In this context, children observe all of the attitudes and behaviors of the teacher, and through this, lay the foundation of the behaviors that they will show to their friends. (Özyürek et al. 2014).

In summary, raising individuals with 21st-century skills is among the primary goals of all countries that want to develop. Teachers educating these individuals must first have their 21st-century skills. In the literature, there are various studies examining the 21st-century skills of teachers (Gürültü et al., 2018; Kozikoğlu and Özcanlı, 2020; Yalçın İncik, 2020; Nuhoğlu and Seçkin, 2021; Uyar and Çiçek, 2021; Arslan, 2022) and pre-service teachers (Kozikoğlu and Altunova, 2018; Murat, 2018; Aydın, 2019; Erdoğan and Eker, 2020; Uyar and Çicek, 2021) in different branches. However, in the literature review, no studies examining the 21st-century skills of preschool teachers were found. It is extremely important to determine the 21st-century skills and opinions of preschool teachers, who are one of the cornerstones of the education system, about 21st-century skills. It has a comprehensive framework that includes many different skills within 21st-century skills. As it has been revealed in the researches, skills can vary according to age, gender, educational background, and years of service in the profession. Therefore, it is important to examine according to demographic characteristics. Therefore, this research aimed to determine the 21st-century learner skills of preschool teachers. The answers to the following questions were sought in the study:

1. What is the usage level of 21st-century learner skills by preschool teachers? Is there any significant difference in the 21st-century learner skill scores of preschool teachers according to gender, age, educational background and years of service in the profession?
2. What are the views of preschool teachers about 21st-century skills?
3. What are the 21st-century skills that preschool teachers believe they have within the framework of the "learner teacher" and what are the examples of these skills in practice?

METHOD

1. Research Model

This research was planned in a parallel design converging from mixed-method research. The convergent parallel design is a design in which the researcher applies the qualitative and quantitative stages simultaneously by giving equal priority and the results are combined while interpreting (Dede & Demir, 2015). In the quantitative aspect of the research, the 21st-century Learner Skills Usage Scale developed by Orhan-Göksun (2016) was used to determine the 21st-century skills of preschool teachers. In the qualitative dimension of the research, the semi-structured interview technique, one of the qualitative research methods, was used. A semi-structured interview is a communication process in which the questions are predetermined by the researchers, aiming to obtain in-depth information from the interviewee with open-ended questions (Büyüköztürk, et al., 2012). In the research, the scale items were carried out through an online form, and the interviews were carried out with applications that allowed online video conversation (such as Skype, Zoom, and Google Meet). In the analysis of the research, IBM SPSS Statistics for Windows 22.0 (IBM Corp., Armonk, NY, USA) supported the quantitative dimension, and content analysis was made by the researchers for the qualitative dimension.

2. Sample

The sample of the study consisted of 216 preschool teachers who were determined by the easily accessible sampling method for the quantitative dimension. Convenience sampling is a sampling method that provides economy in time and other issues to the researcher by preventing the loss of time, money, and labor (Büyüköztürk et al., 2012). The qualitative dimension of the study consisted of 20 teachers who were determined by a random selection method based on voluntariness among the teachers in the quantitative dimension. Random sampling is a sampling method in which all units in the universe have an equal chance of being selected (Büyüköztürk et al., 2012). Participation in the research

was based on the principle of voluntariness, and the necessary ethical approval was obtained from the ethics committee of a state university. Of the interviewed teachers, 3 were male and 17 were female; 6 were in the age range of 26–30, 9 were 31–35, 4 were 36–40, and 1 was 41–45. Moreover, 2 had been working as preschool teachers for less than 5 years, 6 for 6–10 years, 10 for 11–15 years, and 2 for more than 21 years. The demographic information of the 216 teachers included in the sample in the quantitative dimension of the study was 94% female and 6% male. The distribution of the teachers according to their age was determined as 26–30 years old (37%), 36 years old and over (25.5%), 20–25 years old (20.8%), and 31–35 years old (16.7%). According to their years of service, 46.8% of the teachers had been working for 1–5 years, 34.7% for 11–15 years, and 18.5% for 6–10 years.

3. Data Collection Tools

3.1. Demographic Information Form: This is a form created by the researchers to learn information such as the gender, age, and educational background of the teachers, and their number of years of service in the profession.

3.2. Teacher Interview Form: This form consists of 4 questions developed by the researchers, and was designed to learn the views of teachers about 21st-century skills, the 21st-century skills that a preschool teacher should have, and the use of these skills, in-depth. Interview questions were sent to 3 preschool education domain experts and were arranged after the feedback from the field experts. Before starting the research, a pilot application was made with 3 teachers from outside the research, and the questions were finalized.

3.3. 21st-Century Learner Skills Usage Scale. The 21st-century Learner Skills Usage Scale was developed by Orhan and Kurt (2015) and prepared as a 5-point Likert-type (1 = never, 5 = always), and consists of 31 items and 4 sub-dimensions. The sub-dimensions of the scale are cognitive skills (17 items), autonomous skills (6 items), cooperation and flexibility skills (6 items), and innovative skills (2 items). Cronbach's alpha reliability coefficients for the scale: The scale was calculated as 0.89 in total, cognitive skills 0.87, autonomous skills 0.70, cooperation and flexibility skills 0.67, and innovation skills 0.81. The lowest score that can be obtained from each item on the scale is 1, and the highest score is 5, and considering that the middle point is 3, it is interpreted that the use of each skill increases from 1 to 5 (Orhan Göksun, 2016).

4. Ethic

Ethical permission was obtained from the Ethics Committee of a university for the research. Participation in the research was carried out on a voluntary basis. Participants were given a voluntary participation certificate, which included explanations about the research and the researcher's contact address.

5. Data Collection Process

In the quantitative dimension of the research, data were collected by transferring the scale items to the online form. At the end of the form, 20 teachers were determined by the random drawing method among the teachers who wanted to participate in the study by asking them whether they would like to participate if a possible interview was held to obtain detailed information about the subject. The quantitative data collection process of the research started in January 2022 and was completed at the end of March 2022. Interviews were conducted by the researcher with a teacher for an average of 20–30 min, using the face-to-face interview method, in the same city, and online video calls with those in different cities. In the qualitative dimension of the research, numbers such as T1, T2, T3, etc., were given to each teacher.

6. Data Analysis

The IBM SPSS Statistics for Windows 22.0 was used in the analysis of the quantitative dimension of the research. The data were checked and no missing or incorrect data were found. Extreme value control for the scale scores and the z-standard score conversion of each score was made. Z standard values outside the range of ±3.29 were extreme values (Tabachnick & Fidell, 2013). Of the participants,

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2 in the innovative behavior sub-dimension were excluded for this reason. For the normality of the scale scores, skewness and kurtosis values were checked. If the skewness and kurtosis values were in the range of ±1, the data distribution was specified as normal (Tabachnick & Fidell, 2013). Descriptive statistics on 21st-century skill scale scores with distribution according to demographic variables were obtained primarily. In the data analysis, the Mann-Whitney U test and 1-way analysis of variance (ANOVA) was used to compare the 21st-century skill scores by group. In the ANOVA, the statistical difference between the groups was examined by the least significant difference (Bonferroni) test, which is one of the multiple comparison tests. Statistical significance was accepted as P < 0.05.

Content analysis was performed in the analysis of the qualitative dimension of the research. The interviews were recorded with a voice recorder and the transcripts of the interview recordings were made. In the content analysis, first, the codes were determined by a different domain expert and then the coder reliability was calculated. Coder reliability was calculated as 0.89. According to Miles and Huberman (1994), the inter-coder reliability should be above 0.80.

FINDINGS

Findings regarding the sub-problems of the research were offered by considering the sub-problem order.

Table 1. *Descriptive statistics, the 21st-century learner skill scores of the teachers.*

Scale Scores	Lowest	Highest	Average	SD	Skewness	Kurtosis
21st-Century Skills	103	151	126.35	10.44	0.019	–0.461
Cognitive Skills	55	80	68.90	5.91	0.098	–0.662
Autonomous Skills	11	30	20.63	3.08	–0.35	0.477
Cooperation/Flexibility skills	16	30	24.30	2.84	–0.371	–0.308
Innovative Skills	5	10	8.20	1.20	–0.087	–0.198

As can be seen in Table 1, the data distribution was normal since the skewness and kurtosis values, which are statistics that give information about the normality of the data distribution for each continuous score, were in the range of ±1. As it can be understood from the table, the 21st-century skill total scores of the teachers ranged between 103 and 151 and the average was 126.35. In the 21st-century learner skills sub-dimensions, the lowest average score of the teachers were for the innovation skill (8.20) and the highest score was for the cognitive skill (68.90). As can be seen, it is understood that teachers' scores in all of the sub-dimensions and total scores were high.

Table 2. *Mann-whitney u analysis, among the 21st-century learner skill scores of the teachers by gender.*

Scale Scores	Gender	N	Average	SD	Average Rank	MWU	Z	P-value
21st-Century Skills	Female	203	126.30	10.52	108.28	1274.5	–0.206	0.837
	Male	13	127.15	9.30	111.96			
Cognitive Skills	Female	203	68.82	5.91	107.87	1192	-0.585	0.559
	Male	13	70.15	6.03	118.31			
Autonomous Skills	Female	203	20.72	3.10	110.48	918	–1.849	0.064
	Male	13	19.31	2.50	77.62			
Cooperation/Flexibility skills	Female	203	24.31	2.87	108.83	1253.5	–0.304	0.761
	Male	13	24.15	2.51	103.42			
Innovative Skills	Female	203	8.15	1.19	105.72	756	–2.833	**0.005***
	Male	13	9.08	0.95	151.85			

MWU: Mann-Whitney U, *P < 0.05

As can be seen from Table 2, a statistically significant difference was obtained between the innovative skill scores of teachers according to gender. The males' average rank in innovation skill scores was higher than that of the females. In other words, the males had more innovative skills than the females. There was no statistically significant difference between 21st-century skills and cognitive, autonomous, and cooperation/flexibility skills scores of the teachers according to gender (P > 0.05).

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Table 3. *ANOVA, the 21st-century learner skill scores of the teachers by age.*

Scale Scores	Age	N	Average	SD	F	P-value	Bonferroni Difference
21st-Century Skills	20–25	45	123.64	11.06	1.854	0.138	
	26–30	80	127.23	9.22			
	31–35	36	125.19	10.99			
	36 and above	55	128.05	10.97			
Cognitive Skills	20–25	45	67.78	6.04	1.48	0.221	
	26–30	80	69.69	5.50			
	31–35	36	67.89	6.56			
	36 and above	55	69.35	5.85			
Autonomous Skills	20–25	45	19.67	2.66	2.859	**0.038***	1 and 4
	26–30	80	20.75	3.16			
	31–35	36	20.39	3.54			
	36 and above	55	21.42	2.78			
Cooperation/Flexibility skills	20–25	45	23.60	3.35	1.875	0.135	
	26–30	80	24.18	2.44			
	31–35	36	24.56	2.69			
	36 and above	55	24.89	2.97			
Innovative Skills	20–25	45	8.22	1.24	0.194	0.901	
	26–30	80	8.26	1.24			
	31–35	36	8.08	1.11			
	36 and above	55	8.18	1.17			

1: 20–25; 2: 26–30; 3: 31–35; 4: 36 and above, *P < 0.05

As seen in Table 3, a statistically significant difference was found between the average scores of the autonomous skills according to the age of the teachers (F(3.212) = 2.859, P < 0.05). For the difference between the groups, the Bonferroni test was used and the groups that differed between which groups are indicated in the table. Accordingly, there was a statistically significant difference between those aged 20–25 years and those aged 36 years and over (P < 0.05), and the average autonomous skills of the participants aged 36 and over were higher than the participants aged 20–25 years. There was no difference in the autonomous skills of the teachers among the other age groups (P > 0.05). There was no statistically significant difference between the 21st-century skills, cognitive skills, cooperation/flexibility, and innovative skills of the teachers according to their age (P > 0.05).

Table 4. *ANOVA, the 21st-century learner skill scores of the teachers by years of service*

Scale Scores	Years of Service	N	Average	SD	F	P-value	Bonferroni Difference
21st-Century Skills	1–5 years	101	125.18	10.00	1.255	0.287	
	6–10 years	40	126.95	10.60			
	11 years and above	75	127.61	10.88			
Cognitive Skills	1–5 years	101	68.80	5.78	0.387	0.68	
	6–10 years	40	68.35	6.04			
	11 years and above	75	69.33	6.05			
Autonomous Skills	1–5 years	101	19.98	3.05	5.45	**0.005***	1 and 2
	6–10 years	40	21.75	2.61			1 and 3
	11 years and above	75	20.92	3.17			
Cooperation/Flexibility skills	1–5 years	101	23.87	2.81	2.917	0.056	
	6–10 years	40	24.25	2.73			
	11 years and above	75	24.91	2.87			
Innovative Skills	1–5 years	101	8.11	1.19	0.87	0.42	
	6–10 years	40	8.40	1.30			
	11 years and above	75	8.23	1.15			

1: 1–5 years; 2: 6–10 years; 3: 11 years and above, *P < 0.05

As can be seen from Table 4, a statistically significant difference was found between the average scores of autonomous skills according to their years of service in the profession (F(2.213) = 5.45, P < 0.05). There was a statistically significant difference between the participants with 1–5 years of experience and those with 6 years or more (P < 0.05). The autonomous skill average of the participants with 6–10 years of service and 11 years of service and above was higher than the teachers with 1–5 years of service. There was no difference between the average autonomous skills of the participants with 6–10 years of service and 11 years of service or more (P > 0.05). There was no statistically significant difference between

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21st-century skills, cognitive, cooperation/flexibility, and innovative skills of teachers according to their years of service (P > 0.05).

Table 5. *Teachers' views on their 21st-century skills*

21st-century skills of teachers	f
Creativity	11
Critical thinking and problem-solving	8
Productivity	1
Communication and cooperation	6
Leadership	1
The use of innovative technology	11
Analytical thinking	1
Multiculturalism	1
Media literacy	1
I don't think I have 21st-century skills	1
Total	**41**

When the opinions of the teachers about their 21st-century skills in Table 5 were examined, it was understood that 11 teachers expressed the skills of "creativity" and "use of innovative technology". Eight of the teachers stated that they had the skills of "Critical thinking and problem-solving", 6 stated "Communication and cooperation", and 1 teacher stated that they had the skills of "productivity", "leadership", "analytical thinking", "multiculturalism", and "media literacy". In addition, 1 teacher thought that they did not have 21st-century skills.

Table 6. *Teachers' views on 21st-century skills that preschool teachers should have*

21st-Century Skills Teachers Should Have	f
Creativity	14
Critical thinking and problem solving	9
Communication and cooperation	11
Entrepreneurship	1
The use of innovative technology	8
Leadership	2
Adaptation	5
Productivity	3
Learning and self-development	3
Responsibility	2
Self-confidence	10
Total	**67**

As seen in Table 6, when the opinions of the teachers on the 21st-century skills that they think a preschool teacher should have been examined, it was seen that 14 teachers stated the "creativity" skill. Moreover, 11 of the teachers stated the need for "communication and cooperation", 10 stated "self-confidence", 9 stated "critical thinking and problem-solving", 8 stated "use of innovative technology", 5 stated "adaptation", 3 stated "productivity" and "learning and self-development", 2 stated "responsibility", and 1 stated "entrepreneurship" as the must-have skills for every preschool teacher.

Table 7. *Teachers' views on 21st-century skills used in the learning and teaching process*

21st-century skills used in the learning and teaching process	f
Creativity	9
Critical thinking and problem-solving	5
Communication and cooperation	7
Adaptation	2
Coding STEM	1
Analytical thinking	1
Productivity	1
The use of innovative technology	8
Leadership	2
Learning	3
Responsibility	1
Total	**38**

As seen in Table 7, when the opinions of the teachers on 21st-century skills they use in the learning and teaching process were examined, 9 teachers stated that they use "creativity", 8 stated "use of

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innovative technology", 7 stated "communication and cooperation", 5 stated "critical thinking and problem solving", and 3 stated that they use "learning" skills. In addition, 2 teachers stated that they should have "adaptation" and "leadership", and 1 teacher stated "coding, STEM", "analytical thinking", productivity, and "responsibility" skills.

CONCLUSION AND DISCUSSION

According to the quantitative findings of the study, preschool teachers have a high level of cognitive skills such as utilizing 21st-century skills suitable for their interests, using what they have learned in different problem solutions, using critical thinking skills; cooperation, and flexibility skills, such as taking a role in group work and participating in cooperative activities; autonomous skills such as developing new research ideas; innovative skills such as using new technologies. Findings supporting these results were obtained in the qualitative findings of the study. The preschool teachers often stated that they had creativity, innovative technology use, critical thinking and problem-solving, communication, and cooperation skills. As a result of the research, it was understood that preschool teachers have a high level of 21st-century skills in all of the sub-dimensions and total scores, and they stated that they have and use 21st-century skills according to their views. In another study conducted with the data collection tool used in this research, it was stated that the sub-factor with the highest average among the 21st-century learning skills of teachers is cognitive skills, while the lowest average is autonomous skills (Nuhoğlu & Seçkin, 2021). When the literature was examined, no studies examining the 21st-century skills of preschool teachers were found, but studies on teachers in different branches were frequently encountered. In parallel with the results of the research, it was stated that the 21st-century skills of teachers (Kozikoğlu & Özcanlı, 2020; Uyar & Çiçek, 2021), high school teachers (Yalçın İncik, 2020), and primary school teachers (Gürültü et al., 2018) are high. Contrary to these findings, in a study conducted by Gürültü et al. (2020), it was found that the 21st-century skills of teachers working in high schools were at a moderate level.

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Along with the studies examining the 21st-century skills of teachers in the literature, there are many studies examining the 21st-century skills of pre-service teachers. Arslan (2022) found in his study with pre-service preschool teachers that the 21st-century self-efficacy of pre-service teachers was at medium and above-average levels. When the studies conducted with pre-service teachers were examined, it was found that some studies stated that pre-service teachers had a high level in some 21st-century skills and a low level in others. It was concluded that 21st-century skills, such as learning and renewal skills (Kozikoğlu and Altunova, 2018; Murat, 2018; Aydın, 2019; Erdoğan and Eker, 2020; Uyar and Çicek, 2021), life and career skills (Kozikoğlu and Altunova, 2018; Aydın, 2019), knowledge, media, and technology skills (Kozikoğlu and Altunova, 2018; Cemaloğlu et al., 2019) are high, as in the current research. In addition, Aydın (2019) found, as a different finding, in his study with senior pre-service English language teachers, that they felt that they were the most competent in "intercultural skills". However, it was concluded that they were weak or undecided in the skills of using thinking techniques and using time effectively (Erdoğan & Eker, 2020), which are among the 21st-century skills. In a study conducted by Valtonen et al. (2021), by collecting longitudinal data with pre-service teachers, it was revealed that the 21st-century skills of pre-service teachers focused on 3 basic areas: learning skills, collaboration tendencies, and ICT use skills. The use of technology literacy was also emphasized in other studies in the literature (Clark, 2008; Aldred, 2020). In a study conducted with pre-service teachers to develop and model 21st-century skills, it was found that pre-service teachers achieved the most effective learning through cooperative learning (Urbani, 2017). As can be seen, in the literature, there are differences in the distribution of studies conducted with teachers and pre-service teachers according to the skills and sample group related to 21st-century skills. In general, it has been understood that teachers and pre-service teachers from different branches have high 21st-century skills according to the different sub-dimensions and/or total scores of 21st-century skills.

In this study, it was found that the male teachers had statistically significantly higher scores than the female teachers in terms of the teachers' innovative technology use skill scores according to gender. It was seen that the male preschool teachers were better at innovative skills, such as using new technologies than the female preschool teachers. There was no statistically significant difference

between the total score of the 21st-century skills, cognitive, autonomous, and cooperation/flexibility skill scores of the preschool teachers according to gender. In many studies in the literature examining the 21st-century skills of teachers by gender, no significant difference was found according to gender (Gürültü et al., 2018; Gürültü et al., 2020; Kozikoğlu & Özcanlı, 2020; Yalçın İncik, 2020; Uyar & Çiçek, 2021; Arslan, 2022). Similarly, in a study conducted with pre-service Turkish teachers, it was found that 21st-century skills did not differ according to gender (Erdoğan & Eker, 2020). Unlike the findings of this research, in some studies conducted with pre-service teachers, it was concluded that pre-service female teachers in different sub-dimensions of the 21st-century skills had higher 21st-century skills than the male teacher candidates (Orhan-Göksun, 2016; Murat, 2018). Despite the results of the current research that the male teachers had better use of innovative technology than the female teachers, there was no significant gender difference in the other sub-dimensions and 21st-century skills total score. It is thought that the different findings obtained according to gender in the literature may have been due to the characteristics of the sample group.

A statistically significant difference was found between the average scores of the autonomous skills of the preschool teachers according to their age, only between 20–25 years old and 36 years old and above, in favor of 36 years old and above. There was no statistically significant difference between the 21st-century skills, cognitive, cooperation/flexibility, and innovative skills of preschool teachers according to their age. In addition, a statistically significant difference was found between the autonomous skill average scores of the preschool teachers according to their service in the profession. The autonomous skill average of the participants with 6–10 years of service and 11 years of service and above was higher than that of the teachers with 1–5 years of service. There was no statistically significant difference between the 21st-century skills, cognitive, cooperation/flexibility, and innovative skills of the preschool teachers according to their years of service. As a result of the research, it was seen that there was no difference in the 21st-century skills, except for the autonomous skills, such as developing new research ideas according to the age and years of service of the preschool teachers. In many studies reviewed in the literature, it was stated that in parallel with the research findings, the 21st-century skills of the teachers did not show a significant difference according to their years of service (Gürültü et al., 2018; Erdoğan and Eker, 2020; Gürültü et al., 2020; Yalçın Incik, 2020). Contrary to the literature, it was revealed that the age and years of service of the preschool teachers, only in autonomous skills, were against the teachers who were 20–25 years old and working as a teacher for 1–5 years. This can be interpreted as a difference in autonomous skills, such as developing new research ideas arising from the teachers' limited professional experience in the first years of their profession.

In this study, it was seen that preschool teachers had 21st-century skills and cognitive skills, cooperation and flexibility skills, autonomous skills, and innovative skills among the 21st-century skills. When the qualitative findings of the research, and thus the opinions of the preschool teachers about 21st-century skills, their views on the 21st-century skills that a preschool teacher should have, and their views on the 21st-century skills they use in the learning and teaching process were examined, it was seen that the "creativity" skill was emphasized the most in all 3 themes. The teachers' use of innovative technology, communication and collaboration, critical thinking, and problem-solving skills were also among the codes expressed by most of the teachers. As can be seen, the qualitative and quantitative findings of the study supported each other. It is thought that this result was because the preschool education curriculum and the preschool teacher training program offer flexible and diverse learning opportunities in many subjects.

One of the strengths of this research was that it contributes to the literature as a study on the lack of 21st-century skills of preschool teachers. Another strength was the use of mixed methods and the fact that a large number of teachers were reached, both quantitatively and qualitatively. As in every study, there were some limitations herein. In this research, it was aimed to determine the 21st-century skills of preschool teachers, and the 21st-century learner skills measurement tool was used. However, the evaluation of 21st-century teacher skills together will contribute to the literature. 21st-century skills of preschool teachers can be evaluated in different dimensions by using different measurement tools. As a result of the research, it can be said that preschool teachers generally have 21st-century skills. However, it is recommended to support teachers with practices such as in-service training and seminars in order to develop existing skills and eliminate possible deficiencies.

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Okul Öncesi Öğretmenlerinin 21. Yüzyıl Becerilerinin İncelenmesi

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Özet

Gelişen ve değişen dünyada her geçen gün yeni teknolojiler, sanal gerçeklik dünyası ve yeni iletişim biçimleri üretilmektedir. Tüm bu gelişmeler, sadece dijital dünyada var olmak için değil, sosyal hayatta ve sosyal sistemlerde de var olmak için yeni beceriler geliştirme ihtiyacını doğurmaktadır. Eğitim sisteminin ilk kademesi olan okul öncesi eğitimden itibaren çocukların 21. yy. becerilerinin desteklenmesi için öncelikle okul öncesi öğretmenleri başta olmak üzere tüm eğitimcilerin 21. yy becerileri konusunda yetkin olması gerekmektedir. Bireyin hayatının kritik yıllarından oluşan okul öncesi eğitim, bireyin şimdiki ve gelecek hayatını etkileyen bir dönemdir. Dolayısıyla bu değişen ve gelişen dünyaya uyum sağlayabilecek nesiller yetiştirmede en önemli paydaşlardan biri okul öncesi öğretmenleridir. Bu araştırmanın amacı okul öncesi öğretmenlerinin 21. yy. becerilerinin incelenmesidir. Araştırma karma yöntemle planlanmış olup nicel boyutunda 216, nitel boyutunda 20 okul öncesi öğretmeninden veri toplanmıştır. Veriler öğretmen demografik bilgi formu, 21. yy. öğrenen becerileri ölçeği ve yarı yapılandırılmış görüşme soruları ile toplanmıştır. Araştırmanın nicel sonucunda okul öncesi öğretmenlerinin 21. yy. becerilerinden bilişsel becerilere, iş birliği ve esneklik becerilerine, otonom becerilere, yenilikçi becerilere sahip olduğu görülmektedir. Araştırmanın nitel bulgularında okul öncesi öğretmenlerinin kendilerinde bulunan 21. yy becerilerine ilişkin görüşleri, bir okul öncesi öğretmeninde olması gereken 21. yy becerilerine ilişkin görüşleri, öğrenme ve öğretme sürecinde kullandıkları 21. yy becerilerine ilişkin tüm görüşleri incelendiğinde her üç temada da ortak olarak en fazla "yaratıcılık" becerisine vurgu yapıldığı görülmektedir. Araştırmanın nitel ve nicel sonuçlarının birbirini desteklediği görülmektedir ve okul öncesi öğretmenlerinin 21. yy. becerilerinde iyi oldukları söylenebilir.

Anahtar Kelimeler: *Okulöncesi eğitim. Okulöncesi öğretmeni, 21. YY yeterlikleri, Erken çocukluk eğitimi*

Genişletilmiş Özet

Problem*:* 21.yy becerileri günümüzün en dikkat çekici konularından biridir. Nüfusun hızlı artması, sanayinin gelişmesi, kentleşme, teknolojinin ilerlemesiyle birlikte hayata uyum sağlayabilmek için bazı beceriler geliştirmek gerekmektedir. 21. yy için gerekli olan beceriler; teknolojik okuryazarlık, teknolojik iş yaşamına uyum, çok kültürlü toplumlarda farklılıklara saygı, işbirliği, etkili iletişim, gelişmelere açık olma gibi pek çok beceri açısından önceki yüzyıllara göre oldukça farklılaşmaktadır. Toplumdaki bu değişmeler tüm kurumları ve insanları etkilediği gibi eğitimi de etkilemektedir. Trilling ve Fadel'e (2009) göre eğitim, toplumun evriminde dört evrensel role sahiptir. Bu roller; bireylere iş ve toplumsal yaşantıya katılmak için alıştırma yapma imkânı sağlamak, kişisel yetenekleri geliştirmek, vatandaşlık sorumluluklarını yerine getirmek ve gelenekleri, değerleri geleceğe taşımak olarak özetlenebilir. Toprakçı (2012; 88) yaptığı "eğitim, çocuğun içinde yaşadığı toplum/ulus ve dünya (ya da evren) için etkili bir insan, nitelikli bir birey haline getirilmesi sürecidir" şeklindeki eğitim tanımıyla bu listeye "başka toplumların içinde de yaşayabilmeyi" katmıştır. Dolayısıyla eğitim sisteminin program, eğitimci, okul ve öğrenci boyutları ile 21. yy becerilerini destekler nitelikte olması gerekir.

Eğitim sisteminin ilk kademesi olan okul öncesi eğitimden itibaren çocukların 21. yy. becerilerinin desteklenmesi için öncelikle okul öncesi öğretmenleri başta olmak üzere tüm eğitimcilerin 21. yy becerileri konusunda yetkin olması gerekmektedir. Bireyin hayatının kritik yıllarından oluşan okul öncesi eğitim, bireyin şimdiki ve gelecek hayatını etkileyen bir dönemdir (Toprakçı, 2010). Bu derece önemli olan bir dönemdeki eğitim ve bu eğitimi veren öğretmen büyük bir önem arz etmektedir (Abazaoğlu ve diğ., 2015). Öğretmenler ebeveynlerden sonra çocuğun en fazla etkileşim kurduğu bireyler arasında yer bulmaktadırlar (Körükçü,2014). Aynı zamanda okul öncesi öğretmeni çocuğun ilk defa okulu tecrübe ettiği yerde onun ilk öğretmen figürü olmasından dolayı da ayrı bir önem arz etmektedir (Oktay, 2000). Bu bağlamda öğretmenin tüm hal ve hareketleri diğer çocuklar tarafından gözlenmekte ve çocukların arkadaşlarına gösterecekleri davranışların da temelini atmaktadır (Özyürek ve ark. 2014).

Özetle 21. yüzyıl becerilerine sahip bireyler yetiştirmek, gelişme göstermek isteyen bütün ülkelerin öncelikli amaçları arasındadır. Bu bireylerin yetişmesini sağlayan öğretmenlerin öncelikle kendi 21. yy becerilerine sahip olması gerekir. Alan yazında farklı branşlardaki öğretmenlerin (Arslan, 2022; Gürültü ve diğ., 2018; Kozikoğlu ve Özcanlı, 2020; Nuhoğlu ve Seçkin, 2021; Uyar ve Çiçek, 2021; Yalçın İncik, 2020) ve öğretmen adaylarının (Aydın, 2019; Erdoğan ve Eker, 2020; Murat, 2018; Kozikoğlu ve Altunova, 2018; Uyar ve Çicek, 2021) 21. yy. becerilerinin incelendiği çeşitli çalışmalara rastlanmaktadır. Ancak yapılan alan yazın taramasında okul öncesi öğretmenlerinin 21. yy. becerilerinin incelendiği bir çalışmaya rastlanmamıştır. Eğitim sisteminin en temel taşlarından biri olan okul öncesi öğretmenlerinin 21. Yy becerilerinin ve 21. Yy becerilerine ilişkin görüşlerinin belirlenmesi son derece önemlidir. Bu nedenle bu araştırmanın amacı okul öncesi öğretmenlerinin 21. Yy öğrenen becerilerinin belirlenmesidir. Araştırmanın amacına yönelik şu sorulara cevap aranmıştır:

1. Okul öncesi öğretmenlerinin 21. yy. öğrenen becerileri kullanım düzeyleri nedir? Okul öncesi öğretmenlerinin 21. yy. öğrenen beceri puanlarında; cinsiyete, yaşa, öğrenim durumuna ve meslekteki hizmet yılına göre anlamlı bir fark var mıdır?
2. Okul öncesi öğretmenlerinin 21. yy. becerilerine ilişkin görüşleri nelerdir?
3. Okul öncesi öğretmenlerinin "öğrenen öğretmen" çerçevesinde kendilerinde var olduğuna inandıkları 21. yy. becerileri ve bu becerilerin uygulamadaki örnekleri nelerdir?

Yöntem: Araştırma karma yöntem araştırmalarından yakınsayan paralel desende planlanmıştır. Yakınsayan paralel desen, araştırmacının, nitel ve nicel aşamaları eşit öncelik vererek eş zamanlı olarak uyguladığı ve yorumlama yaparken sonuçların birleştirildiği desendir (Dede ve Demir, 2015). Araştırmanın nicel boyutunda 216, nitel boyutunda 20 okul öncesi öğretmeninden veri toplanmıştır. Araştırma için bir üniversitenin etik kurulundan etik kurul izni alınarak veri toplama sürecine geçilmiştir. Araştırmaya katılımda gönüllülük esas alınmış ve katılımcılara araştırma ile ilgili açıklamaların, araştırmacının iletişim adresinin yer aldığı gönüllü katılım formu imzalatılmıştır. Veriler öğretmen demografik bilgi formu, 21. yy. öğrenen becerileri kullanım ölçeği (Orhan ve Kurt, 2015) ve yarı yapılandırılmış görüşme soruları ile toplanmıştır. Araştırmada ölçek maddeleri çevrimiçi form aracılığı ile görüşmeler ise çevrimiçi görüntülü konuşma imkânı sağlayan uygulamalar (Skype, zoom, google meets gibi) ile gerçekleştirilmiştir. Araştırmanın analizinde nicel boyut için SPSS 22 paket programından destek

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alınmış nitel boyut için ise araştırmacılar tarafından içerik analizi yapılmıştır. Görüşmeler ses kayıt cihazı ile kaydedilmiş ve görüşme kayıtlarının dökümleri yapılmıştır. İçerik analizinde farklı bir alan uzmanı ile önce kodlar belirlenmiş sonra kodlayıcı güvenirliği hesaplanmıştır. Kodlayıcı güvenirliği .89 olarak hesaplanmıştır. Miles ve Huberman'a (1994) göre kodlayıcılar arası güvenirliğin .80'nin üzerinde olması gerekmektedir.

Araştırmaya katılan 216 öğretmenin %94'ü kadın, %6'sı ise erkektir. Yaşlarına göre öğretmenlerin dağılımları sırasıyla 26-30 yaş (%37), 36 yaş ve üzeri (%25.5), 20-25 yaş (%20.8) ve 31-35 yaş (%16.7)dır. Kıdeme göre ise öğretmenlerin %46.8'i 1-5 yıl, %34.7'si 11-15 yıl ve %18.5'i ise 6-10 yıl süredir mesleklerini yapmaktadır.

Sonuçlar: Cinsiyete göre okul öncesi öğretmenlerin 21. yüzyıl becerisi toplam puan ile bilişsel, otonom ve işbirliği/esneklik beceri puanları arasında istatiksel olarak anlamlı fark olmadığı yalnızca yenilikçi beceri puanları arasında erkek öğretmenler lehine anlamlı bir fark olduğu bulunmuştur (p<.05). Okul öncesi öğretmenlerinin yaşlarına göre 21. yüzyıl becerisi toplam puan, bilişsel, işbirliği/esneklik ve yenilikçi becerileri arasında istatiksel olarak anlamlı fark yokken otonom beceri puan ortalamaları arasında istatiksel olarak anlamlı fark elde edilmiştir (p<.05). Gruplar arasında fark için çoklu karşılaştırma testlerinden LSD yöntemi kullanılarak fark çıkan gruplar için farkın hangi gruplar arasında olduğu belirtilmiştir. Buna göre 20-25 yaş ile 36 ve üzeri yaşındakiler arasında istatiksel olarak anlamlı fark vardır (p<.05) ve 36 yaş ve üzerinde olan katılımcıların otonom beceri ortalaması 20-25 yaş aralığındaki katılımcılara göre daha yüksektir. Diğer yaş grupları arasında katılımcıların otonom becerileri arasında fark yoktur (p>.05). Okul öncesi öğretmenlerinin mesleki kıdemlerine göre ise 21. yüzyıl becerisi toplam puan, bilişsel, işbirliği/esneklik ve yenilikçi becerileri arasında istatiksel olarak anlamlı fark olmadığı ancak otonom beceri puan ortalamaları arasında istatiksel olarak anlamlı bir fark olduğu bulunmuştur (p<.05). 1-5 yıl kıdeme sahip katılımcılar ile 6 yıl ve üzerinde yer alan katılımcılar arasında istatiksel olarak anlamlı fark vardır (p<.05). 6-10 yıl ile 11 yıl ve üzeri kıdeme sahip katılımcıların otonom beceri ortalaması 1-5 yıl kıdeme sahip katılımcılara göre daha yüksektir. 6-10 yıl ile 11 yıl ve üzeri kıdeme sahip katılımcıların otonom beceri ortalamaları arasında fark yoktur (p>.05).

Araştırmanın nicel bulgularına göre okul öncesi öğretmenleri, 21. yy becerilerinden ilgi alanlarına uygun fırsatları değerlendirme, öğrendiklerini farklı problem çözümlerinde kullanma, eleştirel düşünme becerilerini kullanma gibi bilişsel becerilerde; grup çalışmalarında rol alma, işbirliğine dayalı etkinliklere dâhil olma gibi işbirliği ve esneklik becerilerinde; yeni araştırma fikirleri geliştirmek gibi otonom becerilerde; yeni teknolojileri kullanma gibi yenilikçi becerilerde yüksek düzeydedir. Araştırmanın nitel bulgularında da bu sonuçları destekleyici bulgular elde edilmiştir. Okul öncesi öğretmenleri sıklıkla yaratıcılık, yenilikçi teknoloji kullanımı, eleştirel düşünme ve problem çözme, iletişim ve iş birliği becerilerine sahip olduklarını belirtmiştir. Araştırma sonucunda okul öncesi öğretmenlerinin 21. yy. becerilerinde tüm alt boyutlarda ve toplam puanda yüksek düzeyde olduğu ve kendi görüşlerine göre de 21 yy becerilerine sahip olduklarını ve bu becerileri kullandıklarını belirtikleri anlaşılmaktadır.

Öneriler: Araştırmanın güçlü yönlerinden biri okul öncesi öğretmenlerinin 21. yy. becerilerine yönelik alan yazındaki eksikliğe yönelik bir çalışma olmasıdır. Bir diğer güçlü yönü ise karma yöntem kullanılmış olması ve hem nicel hem de nitel boyutta çok sayıda öğretmene ulaşılmış olmasıdır. Her araştırmada olduğu gibi bu araştırmada da bazı sınırlılıklar bulunmaktadır. Araştırmada okul öncesi öğretmenlerinin kendi 21. yy. becerilerinin belirlenmesi hedeflenmiş ve 21. yy. öğrenen becerileri ölçme aracı kullanılmıştır. Ancak yapılacak çalışmalarda 21.yy. öğreten becerilerinin de birlikte değerlendirilmesi alan yazına katkı sağlayacaktır. Farklı ölçme araçları kullanılarak okul öncesi öğretmenlerinin 21. yy. becerileri farklı boyutlarda değerlendirilebilir.

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