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Investigation of Pre-school and Classroom Teachers' Views on the Concept of Metaverse in Terms of Various Variables

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Abstract

Human beings witness many changes and developments throughout their lives. Considering today's conditions, these changes occur rapidly, especially in technology. This rapid change and transformation of technology affects almost every field, from education to health. Individuals serving in these sectors also have to adapt to these changes. However, adaptation may take place slower than changes. For this to happen, providing the necessary infrastructure conditions and informing the relevant individuals is important. This study aims to reveal the views of pre-school and primary school teachers on the concept of metaverse. In this context, interviews were conducted with 125 pre-school and classroom teachers. As a result of the findings obtained from the study, it was concluded that there were significant differences in the views on the metaverse concept in favor of women, pre-school teachers, and teachers with 10 years or less of professional seniority. As a result, awareness can be raised with support practices and in-service training specific to pre-school and classroom teachers for metaverse practices; it can be ensured to take a more active role in educational practices.

Keywords: Metaverse, education, preschool teacher, classroom teacher.

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Okul Öncesi ve Sınıf Öğretmenlerinin Metaverse Kavramına İlişkin Görüşlerinin Çeşitli Değişkenler Açısından İncelenmesi

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Öz

İnsan, yaşamı boyunca pek çok değişime ve gelişmeye tanıklık etmektedir. Günümüz koşulları göz önünde bulundurulduğu zaman bu değişimler, özellikle de teknoloji alanında çok hızlı gerçekleşmektedir. Teknolojinin bu hızlı değişim ve dönüşümü eğitimden sağlığa hemen hemen her alana etki etmektedir. Bu sektörlerde hizmet veren bireyler de ilgili değişikliklere uyum sağlamak durumundadır. Fakat uyum sağlama, her zaman, değişimlerde olduğu kadar hızlı gerçekleşmeyebilir. Bunun gerçekleşebilmesi için gerekli alt yapı koşullarının sağlanması ve ilgili bireylerin bilgilendirilmesi büyük önem arz etmektedir. Bu çalışmanın amacı da okul öncesi ve sınıf öğretmenlerinin metaverse kavramına yönelik görüşlerini ortaya çıkarmaktır. Bu kapsamda 125 okul öncesi ve sınıf öğretmeni ile görüşmeler gerçekleştirilmiştir. Çalışmadan elde edilen bulgular neticesinde kadınlar, okul öncesi öğretmenleri ve 10 yıl ve daha az mesleki kıdemi olan öğretmenler lehine metaverse kavramına ilişkin görüşlerde anlamlı farklılıkların olduğu sonucuna ulaşılmıştır. Elde edilen bu sonuçlar neticesinde metaverse uygulamalarına yönelik okul öncesi ve sınıf öğretmenleri özelinde destek uygulamalar ve hizmet içi eğitimler ile farkındalık artırılabilir; eğitim uygulamalarında daha aktif yer alması sağlanabilir.

Anahtar Sözcükler: Metaverse, eğitim, okul öncesi öğretmeni, sınıf öğretmeni.

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Introduction

New technologies have updated traditional education (Lin et al., 2022). Before the 1960s, education progressed as knowledge-centered. By the 1970s and 1980s, a global focus on students' abilities became widespread, and education became more learner-centered. During this period, technological developments in the world continued unabated. With the 2022 World Economic Forum initiative, "Education 4.0: Learner-Centered" was defined. With this transformation, human-centered personalized learning has replaced the traditional knowledge-based teaching model (Tsai, 2015). This has led to the development and widespread use of technology in education by integrating education and technology applications. With the development of technology, it is seen that digital applications have become widespread in all areas of life, from banking to the entertainment sector, from education to health. It is necessary to adapt to various technologies (Collins, 2008). One of these is the use of the metaverse. Although the metaverse seems to be a relatively new concept, it was introduced in 1992 by Neal Stephenson in a science fiction novel called "Snow Crash." When Mark Zuckerberg renamed Facebook to Meta, it became apparent. It was made possible in 2021 by the "Roblox" gaming platform. A virtual environment with a strong connection to reality is the Metaverse notion (Kim et al., 2022; Lin et al., 2022; Süleymanoğulları et al., 2022; Zhou, 2022). A virtual environment that permits socioeconomic activities akin to those in the real world is known as the "metaverse." Productions that provide 3D surroundings in a real or virtual environment are examples of augmented reality applications, which also include mixed reality (Göçen, 2022). To put it briefly, the digital components of modern communication media and technology are all combined into the metaverse (Çelik, 2022). Another way to describe the metaverse is as a three-dimensional virtual reality representation of the real world.

The Ancient Greek word "meta" implies "after/beyond" according to its etymology. The word "verse," which comes from the word "universe," is synonymous with the idea of the "universe." "After/beyond the universe" is how this viewpoint interprets the term "metaverse" (Çelik, 2022). The term "metaverse" also describes a digital environment that blends digital virtuality and physical reality. It is characterized as a perpetual, multi-user, post-reality universe where users can communicate with avatars from the virtual world. Through three-dimensional virtual or augmented applications, it is an environment in which the avatar, digital identity, or the individual and other users communicate and interact. The most well-known virtual environments are Second Life, Zepeto, Roblox, Minecraft, GatherTown, and Fortnite (Alkan & Bolat, 2022; Göçen, 2022; Sarıtaş & Topraklıkoğlu, 2022; Tas & Bolat, 2022).

Metaverse, which we can call the virtual interpretation of reality, brings along many issues that need to be explained and understood correctly in education (Alkan & Bolat, 2022). Despite the abundance of studies conducted abroad, it is seen that the studies on metaverse in our country are relatively limited and mainly conducted with university students or different teaching branches (Ağgül, Altun Yalçın, & Yalçın, 2023; Çakır, Gönen, & Ceyhan, 2022; Savaş, Karababa, & Turan, 2022; Turan et al., 2023). Our country has no study explicitly conducted for pre-school and classroom teachers. In addition, it can be said that studies on the metaverse originate from China, Japan, the USA, and South Korea (Çelik, 2022).

Metaverse and Education

With each passing year, the impact and comprehensiveness of technology on the world is visibly increasing. According to the place that technology has acquired in daily life, individuals born in the relevant years are characterized as different generations, and it is seen that each generation has more technological equipment and knowledge than the previous generation. To adapt to the innovations offered by the developing and changing world, it is necessary to take rapid steps against the "problem of rapid technology and late educational integration" (Göçen, 2022). The most concrete necessity of this was seen during the COVID-19 pandemic and with the Kahramanmaraş-based earthquakes that directly and deeply affected 11 provinces in our country on 06.02.2023. Because educational activities cannot be carried out physically in schools, it has become necessary to turn to virtual education applications to eliminate the disruptions experienced in students' education. This necessity has also

made it possible to see how many deficiencies there are in technology infrastructure facilities in education.

The metaverse, one of the new generation internet technologies and is defined as a 3D virtual ecology, is also known as an "abstract universe, the 3D universe, the transcendental universe, another world" (Kanematsu et al., 2014). The metaverse, a combination of next-generation internet technology, combines the real and virtual universe in terms of environment and location. Metaverse virtual spaces create a unique artificial ecosystem where avatars, learning environments, living spaces, different technological tool connections, and various interpretations of real life represent users. The most distinctive feature of the metaverse, which includes a vibrant technological ecosystem, is that it consists of the individual in the virtual environment that transcends physical and temporal barriers through their avatar, which they create as a screen personality beyond being a viewer. This ecosystem creates an entirely different learning dimension in education with teachers, students, learning environments, teaching tools, assessment and evaluation approaches, and educational programs (Akpınar & Akyıldız, 2022; Alkan & Bolat, 2022). Today, those born after 1995, also called Generation Z or the "digital generation," are the primary users of metaverse applications and use communication technologies more than many previous age groups (Göçen, 2022; Somyürek, 2014; Turner, 2015).

The virtual world's extension of reality is crucial for metaverse applications. This expansion shouldn't be viewed as a simplification, but rather as a setting for interaction between the real and virtual worlds. In this context, computers and mobile devices are utilized to access relatively new technologies like mixed reality (MR), augmented reality (AR), virtual reality (VR), and extended reality (or cross reality) (Alkan & Bolat, 2022).

The majority of VR apps use visuals that may be seen on a 3D or computer screen. Users can now communicate with the virtual world thanks to this. Today, it's simpler to deliver these experiences to children in particular thanks to apps created by gaming content creators. It will make it possible to deploy expensive applications—like flight simulators—at a lesser cost and with reduced risks. It will enable faster and simpler problem-solving processes. With digital applications, the lines separating the real and virtual worlds will eventually vanish. Augmented Reality (AR) is an application that uses different technologies, such webcams and smartphone cameras, to blend the real and virtual worlds. Using these apps, one can view photographs as though they were real. Users acquire the idea that they are taking part in a "real" activity because of this. Users can use the educational effect of augmented reality to learn via AR technology. Additionally, they are urged to use interactive writing and reading exercises to construct captivating experiences. A more broad phrase for merging many items is extended reality, or cross reality. VR and AR technologies work together to create this kind of technology content for digital, communication, and electronic applications. This allows for the interaction with all or part of the artificial digital environment that the corresponding technologies have built. On the other hand, mixed reality builds upon the advantages of both virtual reality and augmented reality technology by enabling users to engage with visualizations in an environment. With one foot in the real world and one foot in the virtual world, users can use their hands to experience the environment thanks to this program (Phakamach, Senarith, & Wachirawongpaisarn, 2022). Ignoring the enormous possibilities of the metaverse environment could result from viewing it as a 3D video game or restricted to electronic entertainment (Guo & Gao, 2022). After reviewing the literature, it is clear that the use of virtual tools in instructional technology applications enhances learning for students in primary school to higher education (Suh & Ahn, 2022; Şahandar, 2019; Şahin, 2016). Furthermore, it should not be forgotten that providing comprehensive auditory, tactile, and kinesthetic support for learning processes in the metaverse setting, particularly for young children in preschool and primary school, will facilitate practical learning (Lee & Hwang, 2022).

The most common application of technology used in education is augmented reality (AR). It is a field of study that combines the natural world and computer-generated data such as audio, video, graphics, and GPS. The rapid developments in AR studies and its popularity in many fields have triggered the idea of using AR technology in education (Soylu, 2019). Using this technology in education can provide many benefits, such as innovation in learning, reinforcing spatial concepts, and

providing interaction opportunities. It also offers intuitive information to better perceive the natural world (Somyürek, 2014; Yen et al., 2013). The number of both online and artificial intelligence-supported educational applications is increasing day by day (Alkayış, 2020; Aydın, 2023; Villalonga-Gómez, Ortega-Fernández, & Borau-Boira, 2023; Zhang et al., 2022).

In addition to augmented reality, virtual reality is frequently used in educational applications. Virtual reality, also called "virtual environment," is defined as three-dimensional computer simulations that provide the ability to be anywhere through stimuli such as light and sound to the sensory organs. It is also one way people visualize and interact with complex computer systems and data (Çavaş et al., 2004).

There is an obvious usability connection between the metaverse and education. In contrast to traditional education, teachers may improve their education and students can engage more fully in the classroom in the metaverse environment (Yue, 2022). By stimulating students' curiosity and encouraging them to study, apply, and interact with the information, using metaverse applications as a teaching tool can foster innovative learning processes (Merchant et al., 2014; Tas & Bolat, 2022). Rich perceptual cues and multidirectional feedback offered by virtual settings help students seamlessly interact with real situations, facilitating learning (Hwang & Chien, 2022). This way, it is possible to access information anywhere in the world. It can also be used as a support application for distance education by providing students with a flexible learning environment. In particular, the Ministry of National Education's use of metaverse applications from the pre-school level will allow each stage of education to be meticulously monitored in an artificial intelligence-supported manner so that any learning deficiency can be intervened immediately. In addition, the development of students from pre-school onwards can be taken into account to determine which areas they are more predisposed to (İşler & Kılıç, 2021). In addition, using metaverse technology in primary education offers significant potential for an interactive learning environment (Tlili et al., 2022). Although metaverse provides convenience in educational applications, it can also cause difficulties in the processes of cost, technical skills, educational materials, security (Aydın, 2023), giving feedback to students, monitoring student behavior, evaluation, and guidance (Koçak, Yılmaz & Göktaş, 2018). The findings obtained from the study by Mustafa (2022) indicate that the educators who constitute the study group have heard of the metaverse concept. Still, their knowledge of the subject is low. Furthermore, the qualitative study carried out by Saad, Gedikbey, and Bayrakçı (2023) revealed that teachers had concerns regarding the metaverse, lacked the necessary tools and training to adjust to this novel setting and incorporate it into their curricula, and had worries regarding potential risks, sustainability over the long term, and moral dilemmas. Accordingly, in order to increase the use of the metaverse in the classroom by teachers, it is imperative to create educational materials based on the metaverse, offer funding to support the implementation of this content in learning environments, and incorporate metaverse courses into the pre-school and pre-service classroom teacher curricula (Lee, 2021). In addition, in-service training should be provided to current teachers to ensure they catch up with the innovations of the age. From this point of view, it is believed that the more comprehensive and useful knowledge there is regarding the metaverse—a novel idea to many of us—the more it will enhance educational outcomes. Regardless of their prior knowledge on the topic, this study aims to investigate teachers' perspectives on the concept of the metaverse at the pre-school and primary school levels, which form the basic foundation of education, and to generate recommendations for the current state. Preschool and primary school teachers' metaverse views were analyzed based on this scenario, taking into account factors like age, gender, branch, professional seniority, and time spent using digital media tools. Teachers' perspectives on the metaverse were ascertained based on the data collected, and recommendations were created in response. In line with this purpose, answers to the following questions were sought:

1. Do teachers' views on the metaverse concept differ according to age?
2. Do teachers' views on the metaverse concept differ according to the time spent with digital media tools?
3. Do teachers' views on the metaverse concept differ according to gender?
4. Do teachers' views on the metaverse concept differ according to branches?
5. Do teachers' views on the metaverse concept differ according to their professional seniority?

Method

Research Model

The research was designed with a cross-sectional approach in the single survey model, one of the general survey models. In this model, in a population consisting of many elements, survey applications are carried out to determine the variables one by one in a part of the population to make a general judgment about the population (Karasar, 2016). In this context, the study examined the metaverse views of pre-school and classroom teachers.

Study Group

In this study, since teachers who could be reached and who agreed to participate were included in the sample, convenience sampling, one of the non-probability-based sampling methods, was used. The main point of this technique, which is widely used, is the participation of volunteers in the research. The most easily reached participant is the most appropriate, and the research is continued until the required size is reached (Coşkun, Altunışık & Yıldırım, 2017). In this context, data were collected from 125 pre-school and classroom teachers working in the center of Karaman province. Demographic information of the participants is given in Table 1.

Table 1. *Demographic information*

		Pre-School Teacher		Classroom Teacher		TOTAL	
		n	**%**	**n**	**%**	**n**	**%**
Age	39 years and below	40	57,1	21	38,2	61	48,8
	40 years and older	30	42,9	34	61,8	64	51,2
Gender	Female	64	91,4	28	50,9	92	73,6
	Male	6	8,6	27	49,1	33	26,4
Professional Seniority	0-10 years	17	24,2	4	7,2	21	16,8
	11-20 years	44	62,9	31	56,4	75	60,0
	21 years and above	9	12,9	20	36,4	29	23,2
Title	Paid Teacher	6	8,6	2	3,6	8	6,4
	Teacher	16	22,8	6	10,9	22	17,6
	Expert Teacher	48	68,6	41	74,6	89	71,2
	Head Teacher	0	0	6	10,9	6	4,8
Institution Type	Independent Kindergarten	60	85,7	0	0	60	48,0
	Primary School	10	14,3	55	100	65	52,0
Last Graduated Education Level	Associate Degree	5	7,1	0	0	5	4,0
	Bachelor's degree	48	68,6	41	74,5	89	71,2
	Master's Degree	17	24,3	14	25,5	31	24,8
Average Daily Digital Media Usage	Less than 1 hour	5	7,1	9	16,3	14	11,2
	1-2 hours	24	34,3	26	47,3	50	40,0
	2-4 hours	35	50	15	27,3	50	40,0
	More than 4 hours	6	8,6	5	9,1	11	8,8
	Total	70	100	55	100	125	100

When Table 1 is examined, it is seen that 51.2% of the participants are 40 years of age or older (minimum 25, maximum 56, average 39.43), 73.6% are female, 60% have 11-20 years of seniority, 71.2% are expert teachers, 56% are pre-school teachers, 52% work in primary schools, 71.2% have bachelor's degrees, and 40% have an average daily digital tool usage time in the range of 1-2 hours or 2-4 hours.

Table 2. *Purpose of digital media use*

	Pre-School Teacher		Classroom Teacher		TOTAL	
	n	**%**	**n**	**%**	**n**	**%**
News	43	61,4	38	69,1	81	64,8
Education	48	68,6	29	52,7	77	61,6
Personal Development	36	51,4	16	29,1	52	41,6
Entertainment	31	44,3	16	29,1	47	37,6
Chat	26	37,1	11	20,0	37	29,6
Finance	9	12,9	10	18,2	19	15,2
Other	11	15,7	2	3,6	13	10,4

Table 2 shows that 64.8% of the participants use digital media (computers, phones, tablets, TVs, etc.) for news, 61.6% for education, 41.6% for personal development, 37.6% for entertainment, 29.6% for chat, 15.2% for finance and 10.4% for other purposes. It is also seen that pre-school teachers use digital media tools primarily for educational purposes (68.6%), while classroom teachers use them primarily for news purposes (69.1%).

Data Collection Tools

Personal Information Form: This form, prepared by the researchers, includes information on the participants' age, gender, professional seniority, title, branch, type of institution, level of education last graduated from, the average duration of digital media use per day, and purpose of digital media use.

Metaverse Scale: The scale, which was developed by Süleymanoğulları et al. (2022) after the validity and reliability studies were completed, consists of 4 sub-factors: technology, digitalization, social and lifestyle, and a total of 15 items. The scale was developed as a 5-point Likert-type scale ranging from "Disagree (1)" to "Agree (5)", with a minimum score of 15 and a maximum score of 75. The higher the score obtained from the scale, the higher the knowledge, attitude, and awareness of the metaverse concept. The Cronbach Alpha coefficients of the developer and research reliability analysis of the scale, for which the necessary permission was obtained for use within the scope of the research, are given in Table 3.

Table 3. *Metaverse scale cronbach alpha values*

	Number of Articles	Developer Data (α)	Research Data (α)
Technology	7	,805	,852
Digitalization	3	,732	,789
Social	2	,705	,819
Lifestyle	3	,713	,841
Total	15	,813	,895

Data Collection Process

Within the scope of the research, the data were collected by face-to-face interviews with pre-school and classroom teachers working in the city center of Karaman at the beginning of the spring semester of the 2022-2023 academic year.

Data Analysis

Frequency, percentage distributions, and statistical methods were used to analyze the data. The mean, standard deviation, minimum and maximum values, kurtosis, and skewness coefficients were all analyzed in the normality test. When reviewing Table 4, it becomes evident that the participants' total score on the scale has kurtosis and skewness values ranging from -2 to +2. The data was analyzed using parametric tests, as the distribution of the data is normal (George & Mallery, 2010). Thus, in the tests based on branch, gender, and age variables, the Independent Sample T-test was applied. When there was a significant difference between the averages in the analyses, the effect size in the T-test results was determined using Cohen's d effect size. According to Cohen (1988), the interpretation of Cohen's d coefficients is as follows: no effect at 0-0.1, low effect between 0.2-0.4, medium effect between 0.5-0.7, and large effect at 0.8 and above. The test that was administered in

accordance with the professional seniority variable used one-way analysis of variance. The direction of the difference that resulted from the test was examined using the Bonferroni Post Hoc test.

Table 4. *Information about the scale*

Sub Dimensions	$\overline{X}$	S	Min.	Max.	Skewness	Kurtosis
Technology	23,26	6,66	7	34	-,509	-,423
Digitalization	7,95	3,48	3	15	-,027	-1,162
Social	8,11	2,07	2	10	-1,019	,379
Lifestyle	11,68	3,02	3	15	-,941	,364
Total	51,01	12,14	15	71	-,738	,197

Ethical Procedures

Ethics committee approval was obtained from Karamanoğlu Mehmetbey University Social and Human Sciences Scientific Research and Publication Ethics Committee with decision number 277 on 06.12.2022.

Findings

As a result of the analyses conducted to investigate the change in the participants' scores according to age and time spent with digital media tools, it was seen that the sub and total scores of the Metaverse Scale of the teachers did not differ according to these variables.

Table 5. *T-test results of mean scores of metaverse scale according to gender variable*

Sub Dimensions	Gender	n	$\overline{X}$	S	t	p	Cohen's d
Technology	Female	92	24,34	6,377	3,111	,002*	0,62
	Male	33	20,27	6,611			
Digitalization	Female	92	8,34	3,440	2,094	,038*	0,6
	Male	33	6,88	3,407			
Social	Female	92	7,96	2,091	-1,409	,161	
	Male	33	8,55	1,970			
Lifestyle	Female	92	11,95	2,955	1,652	,101	
	Male	33	10,94	3,132			
Total	Female	92	52,58	11,917	2,460	,015*	0,7
	Male	33	46,64	11,850			

*p<0.05 (sd=123, N=125)

When Table 5 is examined, it is seen that the results differed in favor of women in the Technology and Digitalization sub-dimensions and Total score at the medium effect level.

Table 6. *T-test results of mean scores of metaverse scale according to branch variable*

Sub Dimensions	Branch	n	$\overline{X}$	S	t	p	Cohen's d
Technology	Pre-School Teacher	70	24,96	6,083	3,335	,001*	0,59
	Classroom Teacher	55	21,11	6,792			
Digitalization	Pre-School Teacher	70	8,87	3,353	3,481	,001*	0,63
	Classroom Teacher	55	6,78	3,304			
Social	Pre-School Teacher	70	8,06	2,119	-,333	,739	
	Classroom Teacher	55	8,18	2,019			
Lifestyle	Pre-School Teacher	70	12,10	2,940	1,767	,080	
	Classroom Teacher	55	11,15	3,070			
Total	Pre-School Teacher	70	53,99	11,823	3,208	,002*	0,58
	Classroom Teacher	55	47,22	11,561			

*p<0.01 (sd=123, N=125)

When Table 6 is examined, it is seen that the results differed at the medium effect level in favor of pre-school teachers in the Technology and Digitalization sub-dimensions and Total score.

Table 7. *One-way analysis of variance results of metaverse scale scores according to professional seniority variable*

	Professional Seniority	n	$\overline{X}$	SS	Source of Variance	Sum of Squares	df	Mean Squares	F	p	Significant Difference
Technology	0-10 years	21	27,19	6,080	Between Groups	391,945	2	195,972	4,680	,011*	1>2 1>3
	11-20 years	75	22,57	6,323							
	21 years and above	29	22,21	7,098	Within Group	5108,343	122	41,872			
					Total	5500,288					
Digitalization	0-10 years	21	9,14	2,920	Between Groups	46,035	2	23,018	1,932	,149	
	11-20 years	75	7,91	3,662							
	21 years and above	29	7,21	3,222	Within Group	1453,677	122	11,915			
					Total	1499,712					
Social	0-10 years	21	8,14	1,769	Between Groups	,066	2	,033	,008	,992	
	11-20 years	75	8,09	2,119							
	21 years and above	29	8,14	2,199	Within Group	530,366	122	4,347			
					Total	530,432					
Lifestyle	0-10 years	21	13,24	2,278	Between Groups	62,285	2	31,143	3,548	,032*	1>2
	11-20 years	75	11,43	3,010							
	21 years and above	29	11,21	3,256	Within Group	1070,915	122	8,778			
					Total	1133,200					
Total	0-10 years	21	57,71	10,541	Between Groups	1167,396	2	583,698	4,163	,018*	1>2 1>3
	11-20 years	75	50,00	11,820							
	21 years and above	29	48,76	12,741	Within Group	17105,596	122	140,210			
					Total	18272,992					

*p<0.05

When Table 7 is examined, it is seen that the results are significantly higher for those with 0-10 years of professional seniority than those with 11-20 years of professional seniority in the Lifestyle sub-dimension, than those with 11-20 years of professional seniority in the Lifestyle sub-dimension, and for those with 0-10 years of professional seniority than those with more than 11 years of professional seniority in the Technology sub-dimension and Total score.

Discussion, Conclusion and Recommendations

The results are examined in the context of the literature in this section. The study looked at pre-school and classroom teachers' metaverse perspectives on a range of factors. There was a difference in favor of females and pre-school teachers in the sub-dimensions of Technology and Digitalization when the metaverse opinions of the participants regarding their gender and branches were discussed, and the total score was at a medium effect level. The individuals with 0-10 years of professional seniority exhibited a significantly higher score in the Lifestyle sub-dimension compared to those with 11-20 years of seniority. Similarly, in the Technology sub-dimension and Total score, the individuals with 0-10 years of professional seniority demonstrated a significantly higher score than those with over 11 years of seniority.

Boz (2019) came to the conclusion that female teachers use augmented reality applications more than male teachers in the study he conducted in Turkey. Similarly, in their study on the metaverse perspectives of sports sciences faculty students, Çakır et al. (2022) discovered a significant difference in favor of female students. The outcomes are consistent with the findings of this study. Contrary to the findings of this study, Aburbeian, Owda & Owda (2022) found that males are more interested in metaverse technology than females. The metaverse knowledge levels of male pre-service teachers were found to be substantially greater than those of female pre-service teachers by Savaş et al. (2022) in their research involving physical education and sports teachers. In contrast, there was not a significant change in the sub-dimensions or overall score comparison of the participants' metaverse

levels based on gender in the study conducted by Turan et al. (2023). Furthermore, it was found in the same study that there was no significant difference in the participants' duration of service. These outcomes do not match the findings of this investigation. This situation is thought to be because pre-school and classroom teachers use digital applications to search for examples that can be included in classroom activities. When all these studies are considered together, it is thought that the main reason for the differences in the gender focus regarding the concept of metaverse may be due to the differences in the sample groups in which the studies were conducted.

Within the scope of the study, there was a difference at a medium effect level in favor of pre-school teachers in the Technology and Digitalization sub-dimensions and Total score. On the other hand, Boz (2019) concluded that the branches in his study were similar, including child development and education teachers and classroom teachers. Accordingly, more studies with much broader participation are needed to better understand the differences between branches.

As a result of the results obtained from this study, it was concluded that those with 0-10 years of professional seniority in the Lifestyle sub-dimension were significantly higher than those with 11-20 years of professional seniority, and those with 0-10 years of professional seniority in the Technology sub-dimension and Total score were significantly higher than those with more than 11 years of professional seniority. In the results obtained from the study conducted by Boz (2019), the same was found in seniority. The difference observed in the findings between the studies is believed to stem from the rapid advancements in the concept of the metaverse in our country and globally during the years when the studies were conducted, along with the consequent increase in interest and awareness.

Although the metaverse concept is new, it is frequently found in social media and internet environments. The fact that it has such a place in daily life also affects the time spent on related applications. Çakır et al. (2022) concluded in their study that the daily internet usage of the participants was high and that the possibility of the participants having encountered the concept of metaverse depending on the time spent could effectively increase their awareness of the idea. The metaverse awareness of the participants who spent more time on the Internet daily was high. This situation was interpreted as an increase in the level of information accessed and exposed with the increased time spent on the internet. However, this study found no relationship between the time spent with digital media tools and metaverse views.

After the COVID-19 pandemic that affected the world and the Kahramanmaraş-based earthquakes in our country on 06.02.2022, digital platforms, which have expanded their impact and widespread use network in many areas, have been actively used primarily in education. In this process, different applications such as in-class education, distance education, student experience, art education, music education, English education, virtual laboratories and experiments, virtual classrooms and activities, learning games and simulations, virtual workplace experiences, virtual community building, virtual museum visits, exploring in virtual worlds, communicating in virtual environments, participating in virtual activities, playing virtual games, collaborating in virtual worlds, expressing their creativity in virtual worlds and personalized learning have been included in the field of education all over the world to prevent possible disruptions in education (Aydın, 2023). This situation initially brought some difficulties for students, educators, and parents in adapting to the system. Over time, with the increase in the comprehensibility and widespread use of applications, digital applications have become education itself. In an interview with educators conducted by Mustafa (2022), it was concluded that educators reported that thanks to these applications, they offer simultaneous learning experiences and educational support to students both online and offline. Although the result is positive, it should not be ignored that the teacher has a critical role in this process. Teachers' knowledge and skills about digital applications, active use, prejudices, and thought patterns are effective in using digital applications.

Generation Z is more closely related to technology in line with their age requirements and what it brings. This situation enables them to use digital applications more actively and in a way that takes more place in life. At some point, knowing these characteristics makes it necessary to use digital content actively in the education system. Such applications will enable more effective use by reducing education time, space, and costs (Fitria, Simbolon, & Afdaleni, 2022). However, face-to-face training

methods still need to support the applications to be included in the system. Although these applications facilitate the system, they also have some difficulties and disadvantages. Especially students who do not have technological tools are the most disadvantaged at this point. In addition, infrastructure facilities that cannot be fully provided are also an obstacle to equal opportunity in education. Teachers' lack of practice on this issue can also be counted among the risks.

Humans can adapt to changing situations due to their characteristics. Thanks to these features, they can adjust to the current situation by developing schemes for new situations (Arı, 2018). Rapid technological changes have paved the way for forming a new virtual world. This virtual world is actively involved in every aspect of our daily lives. It expands its sphere of influence day by day. Especially with the pandemic period and the earthquake process, virtual applications in educational areas have become an integral part of education.

In the light of the information provided, the following suggestions can be made:

- Informative and practical workshops can be created for metaverse applications, which entered our lives rapidly, especially during the pandemic, and then quickly developed, starting from pre-school teachers to academics in higher education institutions.
- Workshops on integrating metaverse applications into education programs can be organized to support their active and appropriate use within the system.
- Educational institutions' technical infrastructure and hardware can be organized to accommodate the relevant technologies. They can be made available for the active use of students at all levels of education. Thanks to such an arrangement in institutions, inequality of opportunity in education will be prevented.
- Providing students with learning-by-doing and experiencing environments will facilitate the establishment of links between what is learned and real life and enable the concretization of abstract concepts.
- Similar studies can be conducted to determine educators' views at other levels of the education system.
- In particular, educators addressing Generation Z can guide the interests, needs, and expectations of the changing world of young people in this generation.

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