


Investigation of The Attitudes of Generation Z Toward Metaverse Technology

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Abstract

The research aims to evaluate the attitudes of Generation Z and Generation X educators towards the emerging field of the Metaverse, utilizing qualitative research methods through a case study approach. Semi-structured interview forms were employed to gather insights from participants, with 10 prepared questions refined through expert input. Findings indicated participants' familiarity with the Metaverse primarily through platforms like Roblox, reflecting their digital native status and heightened technology integration. Mark Zuckerberg's conceptualization of the Metaverse as a 3D space for interaction resonated with participants, albeit with concerns regarding privacy and disconnection from reality. Despite apprehensions, there was a shared interest in experiencing the Metaverse for its potential to offer unique opportunities not feasible in real life. The study highlighted potential advantages of Metaverse technology in facilitating simultaneous activities and overcoming spatial constraints, although privacy and social disconnect emerged as significant concerns. Additionally, there were apprehensions about the impact of the Metaverse on individuals' self-perceptions and social interactions. While participants expressed reservations about the novelty of the Metaverse and potential privacy issues, there was a collective interest in exploring its possibilities. The research underscores the evolving nature of the Metaverse and the diverse perspectives surrounding its adoption, suggesting a need for further exploration to understand its implications fully.

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INTRODUCTION

With the developing technology, it is evolving in different directions in the world, and these effects are systematically observed in the order of the society. For many people, technology has become an area where the desire to meet their needs is nurtured rather than necessary. Although human beings have progressed in the shadow of the beneficial and harmful discussions of various environments explicitly created for the individual to spend time or the tools offered for sale based on a need, rather than just the facilitating effect of their daily life, they have not been able to reject technology and have closely watched its inclusion in their lives for generations. The technology we call Metaverse is also a virtual world formation that has recently entered our agenda. This research was conducted on the perceptions of Metaverse technology between generations and how these perceptions can shape society. It is a fact that the introduction of Metaverse technology into our lives, especially with the effects of the COVID-19 pandemic process that surrounds the world, has accelerated and attracted the attention of Generation Z (Lee, 2021; pg.3). What can be done or used with the Metaverse area, which has become an exciting platform;

- Virtual walks
- Online shopping, concerts, events
- Host and join digital meetings
- Gaming experiences
- You can experience skills that are still being experienced in many areas, such as buying and investing.

The fact that people can experience the natural world in a virtual environment at any time and place provides freedom to present this experience to the individual's preference. Although the concept we call Metaverse is a concept that manifests itself quite often in the game world for those born after 2000, the generation we describe as Generation Z is very familiar with internalizing and using this concept. In the game industry, platforms such as Roblox make severe investments in the virtual environment and simultaneously appeal to many users (Roblox, 2021). The event organized by famous rapper Travis Scott on the Fortnite platform in April 2020 with a concert in the metaverse area with 12.3 million users shows that the interest of internet users in this area is intense (Lee, 2021; pg 2). Although it has recently started attracting attention as a concept, it has advanced considerably in the metaverse game industry, which already exists in our lives. Generation Z is in the middle of the digital world and is very familiar with highly interactive games, but their understanding of virtual environments and their derivatives, which diversify with the development of technology, is also relatively high. The linear development of these areas with the interests of people also causes an increase in the budgets and market shares spent on these areas in a linear direction. With Facebook's acquisition of Oculus in 2014, Microsoft CEO Nadella said that a "corporate metaverse" was created within the company, Epic Games made a serious investment in this field, and Nvidia and Roblox game platforms focused on this field in their R&D studies and were among the important technology companies that showed their interest in the Metaverse field (washingtonpost.com).

1.1. HISTORICAL PROCESS OF THE METAVERSE

As a result of the interaction of processes such as virtual reality, augmented reality, and mixed reality, the metaverse virtual world has been shaped by changes. It would be wrong to think of the metaverse independently of these concepts. In the Metaverse environment, people can communicate with other people with their avatars that they can create and edit themselves, and they do this in a way that goes beyond technologies such as AR/VR or holograms (Lee et

al., 2021, p. 3). Although the concept of avatar is a concept that we are familiar with from games, when the Metaverse process is examined, it will be a different expression in defining the field to say that there is a process intertwined with games and that the game culture feeds this area.

METHOD

RESEARCH DESIGN

This research aims to measure the attitudes of Generation Z and Generation X educators towards the Metaverse field. A case study using qualitative research methods was used in the study. The knowledge and opinions of the X and Z generations about the Metaverse field were collected and compiled with semi-structured interview forms.

DATA COLLECTION TOOLS

Semi-structured interview forms were preferred and used in collecting data. For the research process, 10 questions were prepared, and expert opinion was sought. The research questions were finalized and ready for application with the feedback received after the expert opinion. The questions in the research are presented in Annex.

PARTICIPANTS

In the study the study group consists of students studying at Şanlıurfa Science High School. Random selection was made in determining the students in the participants. Table 1 gives information about the characteristics of the Generation Z working group to be examined. Although the students' information in the study remained confidential, they were named Z1, Z2, Z3,..., and Z8. Demographic information of the participants is given in Table 1. Although the ages and grade levels of the students participating in the study were the same, a total of 8 students, 2 female, and 6 male, were studied in terms of gender.

Table 1. Demographic Characteristics of Respondents

Participant	Gender	Age	Class
Z1	E	15	9
Z2	E	15	9
Z3	E	15	9
Z4	E	15	9
Z5	E	15	9
Z6	E	15	9
Z7	B	16	10
Z8	B	16	10

DATA COLLECTION PROCESS

A semi-structured interview form was used in the data collection process. Generation Z, studying at Şanlıurfa Science High School affiliated with the Ministry of National Education, was selected as the

sample. Semi-structured interviews were conducted to measure the perceptions and attitudes of Generation Z towards the Metaverse field, and the results were tried to be shared. The interviews with the students were conducted between 24.05.2022 and 10.06.2022 due to the random selection of the students. The voice recordings of the students who participated in the study were taken over the phone. After the study, the sound recordings were graded for coding and themes, and tables with data were created. In terms of the validity and reliability of the study, the students who participated in the study were asked about the grades that emerged after the interview and asked to give feedback.

DATA ANALYSIS

In this study, the data collected using a semi-structured interview form were analyzed with the help of thematic codes as required by qualitative research. After the data were collected for the internal validity of the research, the answers were redistributed by the participants to ensure their control. Two researchers worked on the coding to ensure the reliability and control of the data. The study arranged codes and themes that reached common ideas as a result of coding controls (Miles and Huberman, 1994).

FINDINGS/RESULTS

The views of Generation Z against Metaverse technology are grouped and presented in tables. Each of the questions determined and asked for the interview was made a separate table, and the opinions expressed by the participants in the tables were conveyed in the form of common themes and codes.

Table 2. What is the Metaverse? What do you think about the Metaverse?

Theme: <i>What is Metaverse? Findings on the Theme</i>		
Codes	Students	Example quote
Virtual world	(5) Z1,Z2,Z5,Z6,Z7	Z1: "An artificial space formed in the virtual world." Z6: "The metaverse is a platform that will make it easier for people to do things in a virtual universe that they cannot do in real life."
Virtual reality	(2) Z2, Z4	Z4: "When we look at the meaning of the metaverse today, I see the term virtual reality."
Augmented Reality	(2) Z1, Z3	Z3: "I think it is an augmented reality."

When Table 2 is examined, the participants commented on the virtual world, virtual reality, and augmented reality of Metaverse technology. Although this technology is new, it is seen that the participants have different views in terms of definition. Although Generation Z is a generation that is technologically familiar with the metaverse environment, with the innovation of the field, some ideas are conceptually both from the internet environment and to the extent that people can experience themselves.

Table 3. Participants' answers to the question, "Have you had any experience with the metaverse field?".

Theme: <i>Findings on the Metaverse Experience Theme</i>		
Codes	Students	Example quote

Game	(4) Z1,Z2,Z3,Z6	Z1: "...Even though Roblox is a gaming platform, I think it is one of the most well-known examples of the metaverse. "
Shopping	(2) Z4, Z5	Z5: <i>"I bought and sold land, and I still do."</i>
Project Studies	(1) Z2	Z2: <i>"Normally, when we need to be next to each other, we can complete our projects thanks to the internet sharing feature, which is just a few examples of the limitless world that the metaverse offers us."</i>

When Table 3 is examined, most participants talked about their experiences with the game and the Metaverse experience. While the Z3 participant stated, "I have generally had experience in games in the metaverse space.", other users also expressed their opinions in the parallel direction. Users who mentioned having experience with "Roblox" as a game stated that they experienced the games on the computer and wanted to try them with VR glasses. Some participants stated they had shopping experiences related to the metaverse and were interested in virtual money and land business. While talking about the "Sandbox" platform, the Z6 participant also talked about the relationship of the metaverse with the playground.

Table 4. Respondents' answers to the question, "What do you think about the advantages of the metaverse?".

Theme : Findings on the Advantages of the Metaverse Theme

Codes	Students	Example quote
Remote interviews, project productions, teaching of courses	(5) Z1,Z2,Z3,Z5,Z7	Z1: <i>"Even if it is far away, a friend can meet there, play games, and have fun."</i>
A platform where people with disabilities are free	(3) Z1,Z6,Z7	Z1: <i>"Something can be done that people with disabilities feel comfortable with; you can make your avatar the way you want."</i>
Meeting	(2) Z1, Z5	Z1: <i>"... It can be used not only for gaming purposes but also for meetings."</i>
Experiencing situations that are difficult to experience in real life	(4) Z3,Z4,Z5,Z6	Z3: <i>"To be able to feel something in the metaverse that I cannot do in real life or something I cannot feel."</i> Z4: <i>"First of all, I believe that by detaching us from the concrete world we live in, we can now live fictional lives in the universes we see in books and movies, where we can make our own choices and be the protagonists ourselves."</i>
To be able to make costly experiences	(2) Z3, Z4	Z4: <i>"I am very excited that we will be able to go and see many places without</i>

		<i>legal restrictions, passport problems, and economic problems."</i>
To be able to do dangerous situations in the virtual world	(2) Z3, Z4	Z4: <i>"Humanity has many passions, especially in the adrenaline passion. Accidents can happen while people do the sports they want, but in the virtual world, it will affect health, at least by satisfying it a little, even if it is not as much as the real thing."</i>

When Table 4 is examined, the participants mentioned that the advantages of the metaverse are an environment that enables remote communication between individuals and that it is an environment where dangerous environments, costly experiences, and situations that are difficult to experience in real life can be tried. Some participants stated that the metaverse is an area where disabled people can be provided with an accessible environment and where meetings can be held through the metaverse. In addition, Z1 from the participants said: *"...You can buy certain funds through Amazon and invest in the metaverse."* He talked about the commercial aspect of the metaverse.

Table 5. Respondents' answers to the question, "What do you think about the disadvantages of the metaverse?".

Theme: Disadvantages of the Metaverse Findings on the Theme		
Codes	Students	Example quote
Detachment from the social environment, asociality	(3) Z3,Z6,Z7	Z3: <i>"I think that if the metaverse develops a lot in the future, it will be like no one leaving the house and just talking to your avatar in the metaverse and living with your avatar, or whatever your avatar is doing, we will not do it in real life and experience it there, and this is a big disadvantage."</i>
Counterfeiting	(3) Z1,Z2,Z4	Z2: <i>"Some of them are anonymous people we do not know, and they can anonymously threaten us or take our information and do different things with it, which is a big threat, which needs to be prevented, for example, identity...."</i> Z4: <i>"... We see much fraud; I think people's accounts can be manipulated for privacy."</i>

Looking at Table 5, the participants mentioned the disadvantages of the metaverse that can lead to asociality and fraud. One of the participants, Z3, said that the metaverse *"...has a harm in the deterioration of the eyes"* and the disadvantage of the metaverse in terms of health, and the same Z3 participant said, *"Not being able to feel or being able to feel emotions that you cannot feel?"* He mentioned that the metaverse will lead to emotional turmoil. The Z1 participant said, *"Some people*

may pretend to be people they are not; for example, you may be a bad person, but you can make yourself look like a good person." He stated that people can show themselves as different than they are by using the metaverse.

Table 6. Respondents' responses to the question "Do you know about the metaverse?"

Theme: Findings on the Metaverse Theme		
Codes	Students	Example quote
Convergence of multiple Metaverses	(5) Z1,Z3,Z4,Z6, Z7	Z6: <i>"In short, it is a community of metaverses, that is, a multi-metaverse."</i> Z3: <i>"....because the metaverse has to be a convergence of multiple metaverses."</i>

When Table 6 is examined, the participants said the metaverse is a multi-metaverse by connecting metaverses.

Table 7: "Can the metaverse change and affect people's self-perceptions? What do you think?" The participants give answers to the questions.

Theme: Findings on the Metaverse and Self-Perception Theme		
Codes	Students	Example quote
Breaks from real life	(3) Z1,Z4,Z6	Z4: <i>"....and there is also the risk of detaching people from their concrete state, and I think this is one of the biggest fears of people going forward."</i> Z6: <i>"While people continue to do something they are not there, after a while, they will break away from real life and turn to that metaverse."</i>

When Table 7 is examined, the participants said that the metaverse could detach people from real life by changing the self-perceptions of the people of the metaverse. Z2, one of the participants, said, *"People can turn into people who they would not normally be, that is, they cannot be in real life, in 1 way online, for example, people who we normally see as innocent can try to monetize some of people's information by blackmailing them on the internet, so because of such things, yes, people can change me, they can see and learn things that they should not normally learn from the actions of some people in the metaverse, such things are actually yes It can affect your self in a bad way and in a good way."* It has expressed the positive and negative self-perception of the metaverse. Z3, one of the participants, said, *"I think that a person who does not have self-confidence can go and apply for a job; for example, he cannot do such a thing, he cannot give sharp answers, but he can do it because he knows that no harm will come to him."* He expressed the impact of the metaverse on human self-confidence.

Table 8. Respondents' answers to "What are your thoughts on the metaverse and personal space privacy?"

Theme: *Findings on the Metaverse and Privacy Theme*

Codes	Students	Example quote
Unauthorized receipt or theft of information	(5) Z1,Z4,Z5,Z6,Z7	Z6: "..... <i>We may encounter people we do not know in an unfamiliar environment, and our information is more likely to be stolen.</i> " Z1: " <i>... In the metaverse, it will be the same as what you say: whatever you share, there is the name of the avatar used by the player you call the most nickname to be shared, your nickname appears, and you already share that nickname because you wrote it there.</i> "
No secrecy, privacy, and security must be improved	(3) Z2,Z3,Z5	Z2: " <i>It needs to be improved; I think it is almost close to zero; most of these security vulnerabilities can be found quickly by hacker groups, and the goals of these hacker groups are already clear, so I cannot say that I trust meteor very much.</i> "

When Table 8 is examined, the participants stated that information about the metaverse's personal space privacy (privacy) will be taken or stolen without permission, there is no privacy in the metaverse, and privacy and security levels should be developed in the metaverse.

Table 9: Participants' answers to the question "What are the effects of the metaverse on social life?".

Theme: *Findings on the Theme of Metaverse and Its Effects on Social Life*

Codes	Students	Example quote
Asociality	(4) Z6,Z2,Z3,Z4	Z6: " <i>Since people will start to be addicted to the metaverse, their relations with society will decrease a lot, and asociality will increase, and there will be a decrease in social areas because everyone will turn there.</i> "
A free space for people with disabilities	(2) Z1, Z7	Z1: " <i>Environments where disabled people feel more normal...</i> "

When Table 9 is examined, the participants stated that the effects of the metaverse on social life would make individuals asocial and that the metaverse can create a free space for people with disabilities. In addition, Z4, one of the participants, stated the adverse effects of the metaverse in terms of health, saying, "*I think it is dangerous for people to be exposed to glasses for long periods or to be exposed to electric current and radiation.*" Z1, one of the participants, said, "*I can see my friends on the weekends and play games.*" He talked about the entertainment aspect of the metaverse.

Table 10. Participants' answers to the question "Can Metaverse offer people an alternative living environment?".

Theme: *Findings on the Metaverse and Alternative Life Theme*

Codes	Students	Example quote
Do not look different than you are	(2) Z1, Z6	Z6: <i>"The metaverse is something that's built on. You can pretend to be another character in any universe as if you weren't yourself."</i>
Not being able to live the truth entirely, detachment from real life	(2) Z2, Z7	Z7: <i>"When you can smell the truth of something, touch it, for example, smell a flower, we cannot go and smell the fake and the virtual there, we cannot protect it, it seems ridiculous to touch it once, it feels a little dreamy."</i> Z3: <i>"... In that mind, as I said, it would be very blurry, so I think it cannot think, even if we can feel what the avatar feels, even if we experience what it touches, what it experiences by touch, it will not have a very lasting effect because it will not affect the host body."</i>

When Table 10 is examined, the participants stated that they think that people may look different from what they are with the metaverse in terms of offering alternative life in the metaverse and that people will not fully live real life with the metaverse and may be detached from real life.

Table 11. Participants' answers to the question, "If you were a Metaverse user, what would you like to experience that you would not be able to do in real life, that you would have difficulty doing?"

Theme: *Findings on the Theme of What You Want to Experience as a Metaverse User*

Codes	Students	Example quote
Experiencing the Past	(3) Z3, Z4,Z6	Z6: <i>"I would like to see events that happened in the past but are impossible to happen now."</i> Z3: <i>"... I would love to experience that action inside a battle scene."</i>
Trip	(3) Z1,Z6,Z7	Z7: <i>"My dream is actually to go to the Poles, but I cannot go because they are freezing and far away and require much money. I can do this virtually."</i>
Experiencing courageous activities with high-adrenaline	(3) Z1,Z3,Z4	Z1: <i>"...There is bat diving, for example, I want to do it very much, but unfortunately, I am afraid because of the adrenaline, so I will not be able to do it, but I know that even if it is VR, for example, even if there is a problem, even if you crash to the ground, I will not die."</i>

Z3: "I gave an example in the first question, you know, parachuting cannot be done out of fear of people, maybe because of the fear of heights, but here the host body will not be harmed..."

When Table 11 is examined, under the theme of what they want to experience as a metaverse user, the participants said that they want to make a virtual trip with the metaverse, experience the past, and experience activities that require courage with high adrenaline. Z2, one of the participants: *"For example, I cannot build 1 building with my hand right now, but I can imagine a metaphor site 1 building and find the necessary materials to make it happen, and in this way I can test whether my architecture will work or whether it is suitable."* He stated that he wanted to try the architectural experience aspect of the metaverse. Z4, one of the participants, said, *"...we can try a lot of the experiences we want to experience, a lot of the experiences we want to experience in the future, flying vehicles like mars colonies."* He stated that he wanted to try the space experience aspect of the metaverse.

DISCUSSION, CONCLUSION AND IMPLICATIONS

When the data obtained from the research and the findings are examined, participants' views on the metaverse focus on the virtual world, augmented reality, and virtual reality. Alang (2021) commented that the metaverse is the space between facts and individuals. Dionisio et al. (2013) stated that the metaverse, formed by blending virtual and real, will become more widespread, and augmented reality and virtual reality technologies will be discussed more. Facebook founder Mark Zuckerberg has interpreted the metaverse as a different experience, not just in virtual and augmented reality technology, with several statements he made (Hardawar, 2021). Although the concept of Metaverse has just made a name for itself in the field, it would be an incomplete expression in terms of contribution to the field to think and interpret this concept completely independently of virtual reality and augmented reality, the technologies before it.

In the research, when the participants' experiences towards the metaverse were examined, it was seen that they were familiar with the concept of metaverse due to the game called Roblox. Generation Z, also known as digital natives (Prensky, 2001), is more interested in playgrounds, especially the return of technology since they are in an environment intertwined with technology, which explains why they are a generation closer to the metaverse area. Although there are positive and negative comments on the agenda for the time they spend on technological devices in their free time or for entertainment, the adaptation process of this generation to technology takes place faster than that of other generations. Mark Zuckerberg made a statement about the concept of meta that will help in the metaverse process, "a place where we will play and connect in 3D" (Medyabar, 2021). In the concept of Metaverse, a universe is defined that can make it possible to experience real life, emotions, and feelings, which is more than a simulated environment positioned in reality, which is even different from augmented reality. There are many areas where the metaverse is used, such as education, entertainment, healthcare, commerce, military, etc. (TechRepublic, 2021).

When looking at the areas where Metaverse technology is used, the advantages and disadvantages (Chesney, T.; Coyne, I.; Logan, B.; Madden, N. (2009) akt; Azar, T., Barretta, R., and Mystakidis, S. (2022)), although it is not possible to make definitive judgments due to the newness of this field, according to the impressions of those who have experience in the field, in this research, as stated by the participants in their opinions, it may have a high advantage in terms of carrying out activities with high possible simultaneous activities such as interviews and meetings, by saving time and space. By

experiencing disconnections from the social environment, human beings are the largest today. It has been observed that the reasons for this, such as increasing dependence on the screen and technological devices, which are among the problems, and being exposed to counterfeiting due to security vulnerabilities that may occur in this area due to their privacy, are listed among the disadvantages.

Akçay, Türk, and Bayrakçı (2022), when they looked at the effects of the metaverse on self-perceptions in their research, While individuals aim to transform their selves into the idealized selves they want to see, they change in the form of extensions of services and brands that shape their personalities according to the classes they want to belong to by making use of various services. According to the data obtained from the participants, the concern that an order disconnected from real life may occur in the users' social self-perception is a highly agreed item. In addition, the research comments that an alternative living space can be offered for the metaverse. Although the participants in the research had negative thoughts about the metaverse due to the newness of the field, both the directions of the agenda and the suspicion that privacy, which is an essential point for humanity, could be violated, they did not answer no to the question "Would you like to experience it?" and stated that they wanted to try situations that they could not experience in real life for different reasons. We will see and experience this in the future, whether Metaverse technology can do justice to the curious glances directed to it as an area that attracts new and developing attention that every individual who thinks positively or negatively wants to experience.

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AUTHOR CONTRIBUTION (Compulsory)

- First author have made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data
- Second and third authors have been involved in drafting the manuscript or revising it critically for important intellectual content