

Jungmi Lee*

A study on the intention and experience of using the metaverse

SUMMARY

Due to the acceleration of information and communication technology in the Fourth Industrial Revolution, artificial intelligence technology has had a large impact on politics, economy, culture, and art industries. During the COVID-19 pandemic, as face-to-face activities declined and video conferencing expanded, a new platform, called the metaverse, appeared. The metaverse is a digital communication technology, that become known to the public through games and entertainment, and it is gradually expanding. The metaverse also provides new education methods. For high value-added industries, the metaverse is used to foster skilled experts in a shortened training period. In the education field, the metaverse platform is being used in convergence with information technology (IT) companies. Examples include the entrance ceremony, graduation ceremony, job fair, museum experiential learning, and graduation work exhibition of the virtual world through the metaverse. In this paper, college students' experience of using the metaverse was studied to determine their awareness of and experience with the metaverse. Based on the potential of the metaverse platform, the MZ (Millennials and Generation Z) generation's intention to use the metaverse, and their experience with it, it is expected that this study will aid the development of the metaverse.

Keywords: metaverse, online education, virtual reality, augmented reality, artificial intelligence.

Introduction

The metaverse, a term used to denote the development of the Internet, is spearheading a new culture in the COVID-19 environment. Additionally, various new platforms and contents that utilize the metaverse are being introduced. Leading metaverse companies have built and provided support platforms for various services to realize economies of scale. *Metaverse* is a new word that combines *meta*, meaning virtual and

*Correspondence Address: Jungmi Lee, Department of Software, Kookmin University, Seongbuk-gu, Seoul 02707, Korea. E-mail: kook906@kookmin.ac.kr.

transcendent, and *universe*. It was first used in Neil Stevenson's novel *Snow Crash*, published in 1992 (Han, 2021). The metaverse is a superordinate concept of virtual reality (VR) and augmented reality (AR). In other words, it is a system that expands reality into a digital-based virtual world so that all activities can be performed in a virtual space. Specifically, in terms of politics, economy, society, and culture in general, it is widely used to represent a living-type and game-type virtual world in which the real and the unreal coexist.

The metaverse platform serves as a base system for supporting various real services or businesses in the virtual world. It also provides new business opportunities by fusing technologies such as AR, VR, 3D web technology, block chain, and non-fungible tokens (NFTs) in the virtual world for an avatar that replaces itself. It is also used as a software for games and education through VR and AR technology. Relevant companies are trying to integrate and converge these technologies to build an ecosystem through connection with various services. The metaverse platform provides realistic and precise images through the expansion of smartphones and internet networks and it allows the real world to move to the virtual world by recreating the feeling of the real world.

This metaverse platform is speeding up the provision of VR convergence services because of the development of extended reality (XR) technology, which promotes AR and VR convergence. Additionally, Roblox is supporting game development through block-type technology on the platform and is building a new ecosystem by providing in-game purchases through virtual currency. To understand the industry surrounding the metaverse, I will review the definition of the metaverse platform and its various technical elements.

Metaverse platform changes

The metaverse roadmap was announced at the 2007 Acceleration Studies Foundation (ASF). In this study, the four major metaverse components that were defined are augmentation techniques, simulations, techniques that familiarize individuals or objects, and external techniques. Augmented technology is a control system that expresses the physical environment as a virtual world and immerses its users into it. Simulation is a technology that mirrors the real world in a virtual one through interaction. The metaverse can be expressed in four scenarios — the virtual world, the mirror world, AR, and lifelogging — through the four main factors (ASF, 2007).

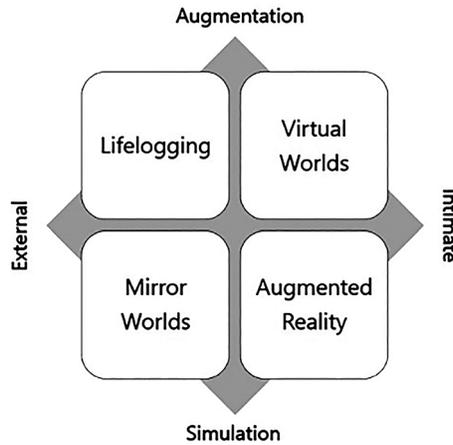


Figure 1. Metaverse scenarios(ASF, 2007)

AR refers to an interactive environment through virtual overlapping objects expressed in 2D or 3D in real space. It reduces objections to the virtual world and provides a high sense of immersion (Kim et al., 2021). As an example of AR, when a user takes a picture of the traces of the present ruins with the terminal camera, a scene where the digitally constructed building of the past is superimposed on the user terminal appears (Kim, 2021). Another example of AR is its use in the “protech” industry, which refers to the convergence of real estate and digital technology (Kim et al., 2021). Major services include Pokémon Go (Niantic), ZEPETO (Naver Z), and furniture placement simulations (IKEA).

Lifelogging (or daily recording) is a technology that captures, stores, and depicts everyday experiences of and information about objects and people (Seo, 2008). Users capture every moment of their day-to-day life via text, video, and sound after which the contents are stored on the server, organized, and shared with other users (Bae, 2008, p. 3). Live logging is the act of using sensor-attached sportswear in conjunction with an MP3 player that can be connected to a network to store and share information such as distance run, calories burned, and music selection (Bae, 2008, p. 3). Major services that utilize this include wearable devices (Apple) and Facebook 360 (Facebook).

Mirror worlds are “informatively expanded” (John et al., 2007) to reflect the real world as realistically as possible. A typical example is Google Earth, which collects satellite images from all over the world and updates the photos in regular intervals to reflect the ever-changing appearance of the real world (Bae, 2008, p. 5). As technological development continues, the mirror world will gradually become more similar to the real world, which will make VR more immersive in the future (Kwon, 2011, p. 18). A mirror world user obtains information about the real world by viewing the virtual

world. Virtual worlds are alternative worlds similar to reality or completely different from it. In the virtual world, users perform activities similar to economic and social activities in the real world through avatars (Bae, 2008, p. 2). The virtual world is the most familiar form of the metaverse. Examples include online role-playing games such as Lineage and life-style virtual worlds like Second Life. It collectively refers to a community implemented in a 3D computer graphic environment (Seo, 2008, p. 1451). Major virtual world services include Roblox, Animal Crossing, Fortnite, and Soft Mesh.

Technical elements of the metaverse platform

As a technical element of the metaverse, it can appear to operate akin to the real world through the recognition of images and behaviors in the virtual world accessed by the user. This is an immersive display of technology that allows humans to perceive the environment and utilize the abilities of their five senses. Among metaverse motion platform technologies, interaction technology is a content-authoring technology that provides live-action image technology through real-time graphic image generation. There is also a metaverse system technology that supports various physical interactions in the virtual world with the users' motion recognition sensor. Another technology relieves eye fatigue due to inconsistency between eye focus control and convergence action and allows the entire body to feel sensations from the metaverse (Nam, 2021, p. 24). Seven technology layers are applied to metaverse. The first is infrastructure, an environment that allows 5G, Wi-Fi, 6G, the Cloud, and graphics processing units (GPUs) in the metaverse to run. The second is smart devices, wearable devices, and motion recognition technologies that act as human interfaces to support interaction with the metaverse. The third is the non-centralization support layer. If various people access the metaverse across time and space and access all cloud services, the availability of the server may decrease and the quality of the service may decrease. Edge computing, artificial intelligence (AI) agents, microservice architecture (MSA), and blockchain technologies are included in this layer as technologies to solve these problems. The fourth layer is spatial computing that supports 3D graphics. In this study, 3D engine supporting 3D graphic environment, VR/AR/XR and user interface (UI), and technologies that support spatial mapping were included (Azuma, 1997). The fifth layer is the creator economy, i.e. an environment where businesses can be created. It includes business tools, workflows and markets. The sixth layer is the discovery layer, which includes advertising-supported networks, service ratings, and stores. The seventh layer is comprised of contents that provide experiences, such as games, virtual sports, virtual theaters, and shopping (Jon, 2021). The technical elements for constructing the metaverse platform include visual technical elements that create immersion in the virtual world, which means that a device to support

3D graphic technology and VR and AR is required. The ultimate technology utilizes brain–computer interface (BCI) technology to create a natural interface through human–computer connection. In addition, Internet of Things (IoT) technology is required for building a virtual world, and digital twin technology is required for projecting the real world into the virtual world. Broadband network technology 5G are required to render the real world to build the metaverse. Additionally, computing resources and GPUs are required as infrastructure and graphics technology for building the virtual world. Various models of cloud services can be utilized to support these technologies. It is possible to provide services smoothly by distributing centralized services through edge computing.

Metaverse and its content

Various contents are being produced using the characteristics of the metaverse. In the education field of metaverse contents, students experience digital human utilization, AR/VR, and non-face-to-face education for educational contents, seminars, job fairs, entrance ceremonies, graduation ceremonies, and educational training. The entertainment field provides brand launches, concerts, and fan signings in the metaverse space through avatars, virtual humans, and digital goods (Kim et al., 2021). In the field of culture and art, users can experience orchestra performances and art works using VR and AR. In the medical field, users can experience simulations of difficult surgeries and games for the treatment of depression to practice for surgeries and treatment (Dong, 2021). In the public relations field, users can experience the release of avatar fashion items, play games, make purchases, and view content in the metaverse space through space creation. In the manufacturing field, the metaverse plays a role in enhancing the completeness, accuracy, and efficiency of prototypes through 3D modeling and designing parts and products using VR. Currently, the metaverse shows the potential for infinite growth of platforms in each field. Facebook CEO Mark Zuckerberg changed Facebook’s name to Meta in 2021. He emphasized that: “the metaverse will become the successor of the mobile Internet,” and made the development of the metaverse the main goal of the company. The representative metaverse platform in Korea is ZEPETO (Naver Z). The world’s most famous metaverses include Roblox, SKT’s new metaverse platform Ifland, Nvidia Omnibus Enterprise, Facebook’s VR-based Horizon, Google’s 3D video conversation application Starline, Microsoft’s Messi, and Nintendo’s Gather Dreamland. In particular, Roblox, the representative metaverse platform in the United States, has recorded a market cap of \$42.429 billion since March 10, 2021. The size of the metaverse market is expected to differ by KRW 1.1 trillion in 2030.

I will now focus on examples of usage in domestic and international fields such as education, events, entertainment, culture and arts, medical care, public relations, and manufacturing. Firstly, looking at the educational field as a case study by field in Korea, Korea Polytechnic University conducted its Electromagnetics class at the Future VR Lab, an engineering education practice in the metaverse in 2021. Soonchunhyang University, in cooperation with Iland SK Telecom, held a metaverse freshman entrance ceremony through the Jump VR platform. Additionally, Korea University and many other universities held metaverse entrance ceremonies. The metaverse can thus be said to be an efficient platform that reflects the era of COVID-19 (Ting et al., 2020), in which classes and events cannot be attended in person.

In the event field, Iland's conference, supervised by the Korea Intelligent Information Society Promotion Agency and the Ministry of Science and ICT, opened the 2021 Metaverse Alliance Open Conference, and the Korea Communications Commission held the Meta Era Digital Civil Society Growth Strategy conference (Kim, 2021). In the entertainment field, there were concerns about the unnaturalness of the convergence of information technology (IT) and entertainment in the early days. However, starting with SM Entertainment's girl group Espo, Blackpink's virtual autograph session, and BTS's AR 2020 MAMA stage, it has become very popular (Kim et al., 2021). Other entertainment companies are also working hard to utilize and develop the metaverse platform. With accessibility beyond the physical environment, the convergence of the metaverse and Hallyu is affecting the rapid growth of Hallyu cultural content. In the field of public relations, Naver Z collaborated with global apparel company Gucci to promote Gucci-related items on ZEPETO, a metaverse platform that is being developed to focus on avatar-based brand promotion and item production, such as the sale of collaboration products with convenience stores (CUs) and ZEPETO.

Looking at the medical field as an industrial field, Locked Labs has developed a technology that analyzes bio-signals such as eye movements and brain waves of VR device users with AI. Seoul National University Bundang Hospital provided a lung cancer surgery demonstration in its smart operating room. Surgical Mind developed a cataract surgery simulator, and platforms that can prevent accidents through prior training have been introduced. The Korea Advanced Institute of Science and Technology (KAIST) Manufacturing AI Big Data Center developed a platform to expedite the plastic bolt production process. Hyundai Motor Company collaborated with ZEPETO to conduct a test drive of the Sonata N Line. The introduction of the virtual process established a virtual car model and driving environment that allowed VR technology to be applied to the entire car production process and actively used in vehicle development and design (Lee & Kim, 2021).

In the field of education, Metaverse Studio is an AR content development app that allows teachers to create game-type educational tools that incorporate location-based technology without coding skills. In Microsoft Ignite for work collaboration, Microsoft Mesh, a mixed reality platform, provides a remote work program that allows remote users to gather and collaborate with each other in a mixed reality room. In the entertainment field, the choreography of BTS's "Dynamite" music video using Fortnite was first released in a virtual space in the game. Many singers, such as Ariana Grande and hip-hop singer Travis Scott, have utilized the virtual space. In the field of culture and art, the Chicago Museum used AR/VR technology to reproduce museum exhibits, such as photos, movies, and audio materials, in the places containing their history. In the medical field, a number of medical metaverse solutions were also unveiled at RSNA 2021, the largest radiology conference in North America. Soroka Medical Center made a 3D model that mimics Siamese twins and succeeded in several Siamese twin separation surgeries by developing a technology based on simulation, MRI, CT, and angiography scan images.

In the field of publicity, the metaverse was used in Joe Biden's US presidential election campaign in Animal Crossing. After the election was confirmed, he held a metaverse party (2020) with his supporters. In Gather Town, an environmental campaign was conducted by showing the entire process of Coca-Cola's recycling program in a virtual world. Geppetto and Gucci collaborated to launch avatar fashion items using Gucci IP and promote the brand (Yoo, 2021). Nike signed a partnership with Fortnite to provide a Nike "skin" to game recipients, drawing attention to the brand. In the field of manufacturing, Lockheed Martin used the HoloLens when collaborating with the National Aeronautics and Space Administration (NASA) to assemble the spacecraft Orion, which will perform a mission to land on the moon in 2024.

Additionally, the metaverse has reduced work that normally took 8 hours to 50 minutes (Lee & Kim, 2021). Looking at the use cases in domestic and international fields, it can be seen that various platforms that add blockchain technology and revenue-generating functions, centered on games and social networking services have been developed. This is expected to be developed indefinitely in the future.

Research method

This study was conducted through a 12-question online questionnaire on metaverse usage intentions and perceptions for non-engineering students at University A in December 2021. The questionnaire was conducted with closed and open-ended questions. Closed questions used the Likert 5-point scale (Strong Neg, Neg, Normal, Pos, Strong Pos) as the standard. Out of the 518 non-scientific students surveyed,

502 questionnaires were filled out, and 16 were excluded due to insincere answers. Based on the responses of a total of 502 people (219 males and 283 females), the study results were derived. Information on the number of students and survey respondents by each department is shown in Table 1, and the survey questions are described in Table 2.

Table 1: Descriptive indicators of variables in the questionnaire

	College	Respondents
Sex	Males	219
	Females	283
College	College of Economics and Commerce	45
	College of Business Administration	139
	College of Liberal Arts	142
	College of Law	74
	College of Social Sciences	44
	College of Liberal Arts	44
	College of Physical Education	14
Total		502

Table 2. Survey contents

No	Survey Contents
1	I think my major is related to the field of artificial intelligence.
2	I think that artificial intelligence subjects will help me in my career and employment.
3	[AI and the metaverse] I know the metaverse well even though I have not used it.
4	[AI and the metaverse] I am willing to use the metaverse.
5	[AI and the metaverse] I have experience using metaverse apps or platforms.
6	[AI and the metaverse] I have experience participating in metaverse events hosted by schools (metaverse entrance ceremonies) or companies (job fairs).
7	[AI and the metaverse] I think it would be interesting to apply the metaverse platform to classes.
8	[AI and the metaverse] If the metaverse platform is applied to non-face-to-face lectures, what is the quality of education?
9	[AI and the metaverse] What would you most like to use in the virtual world?
10	[AI and the metaverse] What experiences do you have with metaverse apps or platforms?
11	[AI and the metaverse] If the metaverse is applied to education, what type of platform do you want?
12	What are the advantages of Metaverse?

Research Analysis

Before conducting the metaverse survey, I conducted a survey on the relationship between majors and AI among students of various majors. As seen in (Table 3), 41.2% of students thought AI was relevant to their major. In particular, the College of Economics and Commerce, the College of Business, the College of Social Sciences, and the College of Physical Education responded that “the AI field and my major are highly related”. However, the global liberal arts colleges, law colleges, and art colleges indicated little or no relationship between their majors and AI (Table 4). Most of the questions about whether AI subjects can help students’ careers and employment showed high positive results for each department. However, art colleges had more negative research results than positive ones (Table 5).

Table 3. I think my major is related to the field of AI.

Scale	Freq.	Ratio
Strong Neg.	83	34.1%
Neg.	88	
Normal	124	24.7%
Pos.	99	41.2%
Strong Pos.	108	
Total	502	100%

Table 4. I think that AI subjects will help me in my career and employment.

Scale	Freq.	Ratio
Strong Neg.	36	17.1%
Neg.	50	
Normal	117	23.3%
Pos.	167	59.6%
Strong Pos.	132	
Total	502	100%

Table 5. Table 3 results classified by major.

Scale	Strong Neg.	Neg.	Normal	Pos.	Strong Pos.
College of Economics and Commerce	0.8%	1.0%	3.0%	3.0%	1.2%
College of Business Administration	1.2%	2.6%	5.6%	5.2%	13.1%
College of Liberal Arts	7.2%	5.8%	8.6%	4.6%	2.2%
College of Law	3.4%	2.8%	4.2%	2.2%	2.2%
College of Social Sciences	1.6%	1.2%	1.6%	2.8%	1.6%
College of Liberal Arts	2.4%	3.8%	1.2%	1.2%	0.2%
College of Physical Education	0.0%	0.4%	0.6%	0.8%	1.0%

Table 6. [AI and the metaverse] I am familiar with the metaverse even though I have not used it.

Scale	Freq.	Ratio
Strong Neg.	75	179
Neg.	104	
Normal	156	156
Pos.	115	167
Strong Pos.	52	
Total	502	502

Table 7. [AI and Metaverse] I am willing to use metaverse.

Scale	Freq.	Ratio
I haven't used it, but I'm willing to use it.	270	53.8%
I've used it, and I'm going to use it in the future.	121	24.1%
I will not use it in the future.	72	14.3%
I use it a lot.	22	4.4%
Etc.	17	3.4%

Table 8. [AI and the metaverse] I have experience using metaverse apps or platforms.

Scale	Freq.	Ratio
Minecraft	211	42.0%
Animal Forest	203	40.4%
ZEPETO	67	13.3%
Fortnite	23	4.6%
Roblox	21	4.2%
Universe	16	3.2%
Ifland	5	1.0%

Table 9. [AI and the metaverse] What activities do I usually do on the metaverse? (Select several)

Scale	Freq.	Ratio
Games	241	46.5%
Virtual space and avatar decoration	168	32.4%
Movies, Music	92	17.8%
No response	83	10.2%
Fellowship with real acquaintances	74	14.3%
Shopping	73	14.1%
Socializing with virtual friends	53	10.2%
Teaching with the metaverse (education, training)	33	6.4%
TikTok, Reels, etc.	25	4.8%
Other	32	6.2%

The question regarding the connection between a major and AI was followed by a question on metaverse recognition. Even if respondents did not use metaverse platforms, the basic perception of the metaverse was 35.7%, 31.1%, and 33.3% by major, which showed similar cognition. However, the College of Economics and Commerce, the Global College of Humanities, and the College of Arts showed somewhat low awareness of the metaverse. Additionally, a relatively high number of 53.8% (270) of participants selected “haven’t tried it but are willing to use it” (Table 7). This question was analyzed to indicate low awareness of the metaverse but high intention to use it. This result is thought to reflect the characteristics of Millennials and Generation Z (MZ generation) of easily accepting and experiencing new cultures. It was judged that the knowledge of necessity or recognition was insufficient because the concept of recognition and intention to use the metaverse has not been established at present. For other opinions, opinions such as “I am willing to use it if it develops to an interesting degree” and “I will use it if it is financially beneficial” were also presented. This is thought to be the result of the growth rate of NFTs. For the question on the experience of using metaverse platforms, Minecraft, Animal Crossing, ZEPETO, and Fortnite had the highest experience rates at 42%, 40.4%, 13.3%, and 4.6%, respectively (Table 8). Analysis of the main activities of users using the platform showed that the highest level of experience was gaming at 46.5%, followed by avatar decorating at 32.4%, movies and music at 17.8%, socializing with real acquaintances at 14.3%, shopping at 14.1%, and friendship with virtual friends at 10.2%, no response at 10.2% (Table 9). The response rate of 10.2% of “no response” in Table 9 is the same as that of 52 students (10.25%) “I am familiar with the metaverse even though I have not used it.” in Table 6. Other activities included TikTok, shooting reels, indirect travel experience, home decor, job experience, and exhibition experience. As shown in Table 7, the participation of non-science and engineering college students in events such as metaverse entrance ceremonies or job fairs was relatively low. When compared to the results regarding experience using the metaverse platform, participation in entrance ceremonies and job fairs using the metaverse was hardly found.

However, despite the lack of experience and lack of information, interest in applying the metaverse to classes was high. As shown in a question in Table 7, 55.6% of respondents stated, “It is interesting to learn by applying the metaverse platform to classes”. As shown in Table 12, for the selection of a platform by students, the “platform specialized for education” had the highest value of 37.8%. The result showed that students preferred a “platform specialized for education,” followed by a “familiar existing platform” at 31.7% and a new platform at 18.1%. As the number of non-face-to-face lectures increased after the pandemic, a positive effect of 47.2% was found (Table 13).

Table 10. [AI and the metaverse] I think it would be interesting to apply the metaverse platform to classes.

Scale	Freq.	Freq.	Ratio
Strong Neg.	345	422	84.1%
Neg.	77		
Normal	51	51	10.2%
Pos.	22	29	5.8%
Strong Pos.	7		

Table 11. [AI and the metaverse] If the metaverse platform is applied to non-face-to-face lectures, what is the quality of education?

Scale	Freq.	Freq.	Ratio
Strong Neg.	49	87	17.3%
Neg.	38		
Normal	136	136	27.1%
Pos.	178	279	55.6%
Strong Pos.	101		

Table 12. [AI and the metaverse] What would you most like to use in the virtual world?

Scale	Freq.	Ratio
A new platform specialized in education	190	37.8%
Familiar Existing Platforms	159	31.7%
I don't know.	114	22.7%
New platform	91	18.1%
The exclusive platform of the affiliated university	80	15.9%

Table 13. [AI and the metaverse] What experiences do you have with the metaverse apps or platforms?

Scale	Freq.	Freq.	Ratio
Strong Neg.	28	74	14.7%
Neg.	46		
Normal	180	180	35.9%
Pos.	164	237	47.2%
Strong Pos.	73		
Etc.	11	11	2.2%

Table 14. [AI and the metaverse] If the metaverse is applied to education, what type of platform do you want?

Scale	Freq.	Ratio
Meeting with friends	28	5.6
Shopping	24	4.8
Trips	22	4.4
Work experience	13	2.6
Job fairs	9	1.8
Home decorating	7	1.4
Games	4	0.8
Festivals	2	0.4
Listen to lectures	1	0.2

The results of the question on the things students wanted to do most in the virtual world were in the following order: meeting friends, shopping, travel, job experience, job fairs, home decorating, and games. Due to a lack of communication with friends since the onset of COVID-19, “meeting with friends” had the highest rate.

Finally, Table 14 shows the results of a question regarding the strengths of the metaverse and what students want to do the most. The answer “I think that it is an advantage to be able to experience various experiences in the indirect experience virtual world” came out with relatively high results. The field students were most interested in the virtual world and thought the biggest advantage was communication, as it could solve the lack of face-to-face communication due to COVID-19.

Of the 518 non-scientific students surveyed, 502 questionnaires were filled out, and 16 were excluded due to insincere answers. Based on the responses of a total of 502 people (219 males and 283 females), the study results were derived. Among them, the sample of physical education students was somewhat small at 14. In the future, we will conduct a reinforcement study through a re-survey.

Conclusion

With the development of science and technology and the acceleration of non-face-to-face communication, the metaverse market is growing rapidly. The influence and scope of the metaverse are growing in education, event organizing, entertainment, arts and culture, medical care, public relations, and manufacturing. Additionally, with the development of virtual asset coins and NFTs, the market economy and contents of the metaverse mimic the real world and create an era in which various services and businesses coexist.

Analysis of metaverse perception through a questionnaire of 502 non-science and engineering students who do not work with computers showed that the basic perception of the metaverse in these students was close to the average.

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The results of a question about what the strengths of the metaverse are and what students want to do the most. The field students were most interested in the virtual world and thought the biggest advantage was communication, as it could solve the lack of face-to-face communication due to COVID-19.

Currently, the metaverse has emerged rapidly in a situation where human encounters are decreasing due to COVID-19 as non-face-to-face conditions continue. In this study, we will be able to find out the metaverse world, a virtual reality world that has shifted the appearance of reality and look at how we should live in the future.

The concept of the metaverse itself has great potential, but there are still many parts to develop and solve in terms of technology, economy, and education, and the risk factors that arise in the future are also considered to be the parts to be considered. The metaverse is evolving and spreading rapidly within the MZ generation. We hope that this paper will help the technological development of the metaverse with the research results on the intention and experience of MZ generation usage of the metaverse.

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Studija o namjeri i iskustvu korištenja metaverzuma

SAŽETAK

Zbog napretka informacijskih i komunikacijskih tehnologija tijekom četvrte industrijske revolucije, umjetna inteligencija imala je veliki utjecaj na politiku, ekonomiju, kulturu i umjetničke industrije. Kako su aktivnosti “licem u lice” opadale tijekom pandemije COVID-19, a video konferencije su se razvijale, pojavila se nova platforma naziva metaverzum. Metaverzum je digitalna komunikacijska tehnologija koja je postala poznata javnosti kroz igre i zabavu, i ista se postepeno širi. Metaverzum nudi i nove obrazovne metode. Za industrije s velikom dodanom vrijednošću, metaverzum služi za smještanje vještih stručnjaka tijekom skraćenog perioda treniranja. U polju obrazovanja, platforma multiverzuma koristi se u skladu s tvrtkama za informacijske tehnologije. Primjeri uključuju ceremoniju dobrodošlice, promociju, sajam zanimanja, iskustveno učenje u muzejima i izložbu diplomskih radova koji prikazuju virtualni svijet kroz metaverzum. U ovom se radu proučavalo iskustvo studenata u korištenju metaverzuma kako bi se ustvrdilo njihovu svijest i iskustvo s metaverzumom. S obzirom na potencijal platforme multiverzuma, namjeru generacije MZ (milenijalci i generacija Z) da ga koristi i njihovo iskustvo s njim, očekuje se da će ova studija doprinijeti razvoju metaverzuma.

Cljučne riječi: metaverzum, *online* obrazovanje, virtualna stvarnost, proširena stvarnost, umjetna inteligencija.