Metavethics in Higher Education Institutions: Is the Metaverse the Second Forbidden Fruit of Humanity?

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Abstract

The metaverse which is considered as the digital big bang of humanity and the next evolution of the internet is anticipated to offer a living environment for civilization 5.0 and beyond in various domains including education. Each novice technology that enters our daily lives generates also fear, anxiety, and problems as well as hope, benefit, and attraction. The purpose of this research is to investigate what ethical problems the metaverse may cause in higher education institutions and how healthy metaverse universities can be created within the framework of ethics. Interpretative phenomenological research design was employed in the study and data was collected from the field experts and lecturers in higher education. The study indicated thirteen VR/AR/XR experts' and lecturers' visions on the metaverse-based ethical issues and practical implications that could be applied within the scope of five thematic nodes comprising metaverse awareness, security and data, safety and wellness, social equality and diversity, and accessibility. It is expected that the study will contribute to the design of a healthy and good metaverse in the future of higher education institutions pursuant to ethical values.

Keywords: Metavethics, Metaverse, Ethics, Higher Education, Metaversity

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'We used to walk through a dream with our eyes open; we were merely a ghost of a lost age.'

Franz Kafka

'Virtual reality is like dreaming with your eyes open.'

Brennan Spiegel

Introduction

The idea of the metaverse, which expresses a virtual reality space where one can interact with other users through avatars in real time in an environment created with computer technologies, has gained great attention in recent years in parallel with the huge advances in Web 3.0 technologies, the new generation of the of the internet, and artificial intelligence. According to the 2020-2021 report of the Tsinghua University New Media Research Centre (2021), the year 2020 has been considered a turning point in humanity's revolution in virtual universes, and a number of variables, including global epidemics, a rapidly evolving digital economy, groundbreaking technological advancements, the search for secondary life, and rapid and mass migration to online life, have contributed to this threshold, pushing human society over this line. The year 2021, in which many global technology companies made large-scale investments in the metaverse, following Zuckerberg, the founder of the world's largest social networking site, changing the name of his company to Meta, is considered the metaverse year (Li, Wei, & Xu, 2022; Yu & Yu, 2023; Li, 2022). Zuckerberg believes that humanity will eventually leave physical reality behind and migrate to the virtual universes that they created and managed, even taking it one step further and suggesting that a period will come when immersive meta-universes become the primary way humans live and spend their time (Palli, 2022). Similarly, Subin, the founder of the Future Today Institute, predicted that the majority of people will spend most of their waking hours in the metaverse in the 2030s (Edwards, 2022). According to the Metaverse Insider 2023 report, the metaverse market is expected to reach 6 trillion dollars by 2030 (Wazarat, 2023). The metaverse, seen as 'the digital big bang' of cyberspace (Lee et al., 2021, p. 1), has the reformist power to lead a digital transformation in all areas of the current physical world.

As the famous Hugo award-winning science fiction writer Liu (2015) stated, there are two paths before humankind: one out, towards the sea of stars, and the other inward, into virtual universes. Like the first exploration vehicles sent into space, humanity experiences both excitement and curiosity, as well as the unknown and fear of taking their first steps in the metaverse universe. As each new technology enters our living spaces, it creates hope, benefit, and attraction, as well as fear, anxiety, and problems in societies. Moor (1985), considered to be the forefather of the field of computer ethics, argued that while new technologies offer a tantalizing network of new possibilities and opportunities, they actually drag us into previously unexplored, uninhabited lands, bringing with them new questions and problems, and thus new ethical problems that did not exist before. The tantalizing possibilities offered by the technology of virtual reality universes in the field of education have similarly enormous potential. But good and evil, the demon and the sacred, always come in a mixed package (Johnson & Miller, 2008). New technologies create new possibilities; new possibilities create new questions and problems; and new problems create new solutions. Considering the fact that Web 3.0 and blockchain technology are much more advanced and complex compared to Web 2.0 technology, it will be understood that both the opportunities it offers and the possible ethical problems that will arise might be more than past online educational experiences.

Although some international studies in the context of the metaverse have appeared in the literature in recent years, most of these studies focus on the classroom applications of metaverses and games and do not provide answers to the ethical problems and solutions that administrators and teachers may face as a result of this new order. Information technology-based ethical problems are increasing at a rate higher than the production rate of technologies; the strategies that are thought to be valid for the solution of these problems are incomplete, and the way out of the "conceptual mud" that emerges for this reason is digital ethics-based scientific studies centered on new technologies (Moor, 2001). New technologies create new individuals, institutions, and societies with different codes and create the need for new perspectives and new management approaches. On the other hand, humanity is making an effort to organize the technology of tomorrow with the procedures and principles of yesterday (Hoven, 2017).

There are various future scenarios about how and in what direction a digitalized society will transform educational organizations with the new Web 3.0-based, blockchain-based technology. Metaverse schools with meta-universes,

cyber schools, simulation classrooms, and avatarized representations can be counted among these predicted near-future scenarios. Instead of focusing only on the educational applications of metaverse universes, their contributions to the field, and the opportunities and conveniences they will offer from a utopian perspective, it is critical to act with the awareness that the devil and the angel are offered in the same package and to investigate possible digital dystopia scenarios in order to protect the digital safety and health of students, to see the clear picture of the ethical problems that educational practitioners and administrators of universities will face, and to take the necessary measures in the new digital formation process. It is surely beyond doubt that opening a discussion on the ethical norms and codes of this novice digital educational system at higher education will assist in ensuring that our universities are not blindsided by this process.

Metavethics in Higher Education

Higher education institutions are the zones where high technology is both produced and consumed on a large scale. At this point, universities are the 'center of the digital age' and today's university students are 'digital natives' born into computer technology (Wankel & Wankel, 2012, p. 1). While novel technologies make the young generation more creative, entrepreneurial, and freer, this freedom they feel can also make them more callous and insensitive, as well as more prone to unethical behaviors. With evolving technologies, various unethical actions, such as plagiarism (Gilmore, 2008), cyberbullying, cheating (Wankel & Wankel, 2012), identity crises (Yee & Bailenson, 2007), data theft (Li et al., 2022), and cyber identity theft (McNally, 2012), have been observed at universities. Wankel and Wankel (2012) put out that, as a result of cyberbullying, which is common in universities, there are now too many suicide attempts among young people.

It is inevitable that ethical behavior violations will take place at higher education institutions in the metaverse universe if no regulations are made. Web 3.0 technology, on which the metaverse is based, will provide these platforms with data flow in quality and quantity that has not been seen in previous technologies such as biometric data and behavioral data (Zallio & Clarkson, 2023). Li et al. (2022) asserted that educational metaverse platforms, including artificial intelligence, and their core technology are completely based on big data, and this will bring serious privacy problems, emphasizing that during the design process of these platforms, a lot of private data is extracted from real people and physical environments through data mining and analysis. The authors underlined that the people who built instructional metaverse platforms are also software experts working for some companies, and that even though the platforms are designed for educational institutions, countless personal data and private information will be in the hands of these companies. From this perspective, privacy and personal data are critical issues that need to be considered for higher education institutions in the age of the metaverse.

Avatars are another issue that may cause a crisis in terms of higher education in the metaverse, which has to be discussed. With the advancement of technology, avatars will be able to travel seamlessly between platforms, and it will become inevitable for everyone to have at least one avatar (Moor, 2001). Avatars are a subject that may jeopardize the professional and formal process in higher education and may require regulations. Whether the users behind the avatars are really the persons they claim to be, whether the avatars correspond to their real physical appearances, the existence of half-human and half-animal avatars, and even the clothes that avatars wear may cause problems and frivolity in higher education. For instance, the fact that individuals prefer avatars that are far from their physical reality will both manipulate their interlocutors and cause the users themselves to be in an identity confusion (Arıcak, 2015), or the fact that people prefer clothes that offend political, religious, or ethnical values for avatars may drag the higher education institution into another crisis. In addition to all these, the real crisis of humanity will perhaps begin with the fact that young people can become the person they want to be in their dreams via the avatars they create and lose their sense of reality completely, getting lost in virtual universes and disconnecting from the physical world.

Considering all possible problems, there are two scenarios in front of higher education institutions. The first is to exclude universities from these platforms, ignoring all the positive, innovative, inclusive, transformative, and immensely facilitating possibilities that the metaverse universes offer. According to Brunnbauer (2022), this scenario is the least realistic because our daily lives are already heavily covered by internet technologies. To the author, if individuals or institutions try to stay out of this system, it actually means that they are excluded from society, the economy, and intellectuality. Just as today, all public and private institutions such as banks, government institutions, educational organizations, shops, and entertainment centers have moved to the internet environment of Web 2.0 technology, and those who fail to do this are described as being behind the times. The same situation will also be in question for Web 3.0 technology and the metaverse in the near future. For this reason,

it is neither a realistic nor a possible scenario for higher education institutions, which are actually the locomotive of society, to stay out of the new generation internet formation.

The only option for higher education to successfully navigate the metaverse-based crisis is to analyze the situation well and develop strategies, regulations, and guidelines for metaverse platforms. Moor (2001, p. 1) has pointed out that 'policy gaps' occur with every new technology that enters our lives, and we need good policies, new regulations, and new principles supported by reasonable justifications. In other words, every comprehensive innovation and transformation brought about by computing technology creates its own new field of applied ethics and ethical debates (Aslan, 2022).

In a similar route, ethical debates on the metaverse were discarded following the naming of Stephenson in 1992 and the birth of platforms such as Second Life and Minecraft, which were the first metaverse universes as of the 2000s, and many researchers agreed on the destructions that a metaverse age without regulations, principles, values, and ethical standards would cause on humanity (Bibri & Allam, 2022; Spence, 2008; Brunnbauer, 2022; Dayarathna, 2022; Fernandez & Hui, 2022; Kaddoura & Al Husseiny, 2023; Kshetri, 2022; Li et al., 2022; Zallio & Clarkson, 2022; 2023). As an outcome of these discussions, two researchers from Cambridge University, Zallio and Clarkson (2022), conducted a pioneering study in which they determined the ethical codes and principles of the metaverse based on the results of the interviews they conducted with leading people working in high-tech companies such as Meta, Google, HTC, and Panasonic and specialized in the basic technology fields on which the metaverse is reposed, including AR, VR, and MR. Following their studies, they proposed the concept of 'metavethics', which emerged from the words 'metaverse' and 'ethics' and was shaped on designing a healthy and responsible metaverse within the framework of moral values, as a novice and specialized, interdisciplinary field of study (Zallio & Clarkson, 2023). Analyzing the etymology and evolution of the words metaverse and ethics with a semantic approach, the authors suggested that it is possible to envision a new concept that bridges the existing gap between the advance of immersive virtual environments and the sociological, anthropological, and philosophical implications that may affect the safety, access, and participation of those using this technology. With this pioneering study, in which the term metavethics was used for the first time, it could be stated that a new field of applied ethics was born. Stating that metavethics focuses on human behaviors related to the metaverse, the authors emphasized that one of the main issues examined by this new discipline is to what extent the metaverse will create a reliable, egalitarian, libertarian, inclusive, accessible, moral, and honest virtual environment for individuals.

Conceptual Framework
In the study, Zallio and Clarkson's (2022; 2023) metavethics doctrines were employed as a conceptual framework since, in the age of the metaverse, this new discipline has the potential to shed light on the designers, administrators, and users of educational metaverse platforms for higher education institutions to carry out a healthy, safe, and ethically-based service approach and to protect the mental and physical health of students and lecturers. Zallio and Clarkson (2022, p. 4) clustered the basic codes for designing a healthy metaverse into five groups, embracing'metaverse awareness, safety and health of users, personalization, data privacy and integrity, social equality and diversity, and accessibility'.

This new field will open up many pain points and solution proposals for the construction of virtual universes that are far from dystopia and beneficial to humanity in higher education. The priority of these is what kind of responsibilities universities should undertake in order for society to understand the metaverse correctly and for young people to acquire metaverse literacy and awareness. Many misunderstandings and myths pervade society towards the metaverse, and it will not be possible to place ethical values on a phenomenon that is not properly comprehended.

Another significant issue that must be discussed within the framework of metavethics for higher education institutions is the risks that the metaverse would create in terms of security. Universities have to ensure the safety and health of their students and lecturers while stepping into virtual universes. In addition, taking into account that individuals in the university may be not only victims of security vulnerabilities, but the perpetrators of cyberbullying, harassment, and cyber-attacks causing physical and mental problems and all kinds of security threats that may arise based on the metaverse are also people themselves, universities should make plans and develop strategies accordingly.

Possibly, one of the most controversial issues on the basis of metavethics is data privacy. The core technology of the metaverse is based on a continuous recording of all events, conversations, biometric data, private data, and behavioral data that occur in these virtual universes, regardless of time, place, or social class (Joye, 2016; Li et al., 2022). In this case, what kind of policy the universities should follow, the ethical issues and measures that can be taken in terms of the violation of personal rights and freedoms, and the right to privacy when a data flow of this quantity and quality gets into the hands of private institutions are issues that need to be carefully filtered by experts. To Zallio and Clarkson (2023), another sub-field of metavethics is the debate of the metaverse in terms of social equality and justice, and the construction of institutions in virtual universes where equality, justice, and inclusiveness are ensured, and cultural richness and diversities are preserved. The metaverse is not supposed to mean a cauldron in which cultural differences disappear and individuals from different ethnicities of the world become uniform. At this point, higher education institutions should be able to provide social equality and justice while preserving different textures and cultural diversity in their metaverse universes. In particular, disadvantaged groups in terms of accessing the metaverse such as lack of digital literacy skills or inadequacy of economic conditions should not be forgotten, and obstacles to the accessibility of the metaverse by all segments of society must be removed.

In a word, the metavethics discipline field, which creates an academic ground for discussion of awareness, security, privacy, honesty, morality, social justice, inclusiveness, and accessibility, has a tension area that could contribute to the healthy, science- and ethics-based design of metaverse universities of the future. A metaverse age, which is not under the control of science and which is shaped without critically filtering digital ethical problems that affect society widely, in which necessary regulations are not made and strong strategies are not developed, can be carnage in realms of higher education and can lead problems such as discrimination, bullying, and mental illness, which are already known to be based on social media and informatics (Schonning et al., 2020), to increase in unavoidable dimensions. When viewed on a large scale, it will be realized that it is an obligation to base the metaverse universes on ethical principles with a conscious and collective effort in higher education. At this point, Zallio and Clarkson (2022, p. 9) mentioned the ten basic principles of a good metaverse: 'It is open and accessible; honest and understandable; safe; social equality and inclusiveness prevail; sustainable; gives importance to confidentiality; morality and truth; committed to data saving and privacy; strengthens differences with individual freedom of expression; and complementary to the physical world'.

The digital utopias of the actual world will be put into the service of the future meta-human; nevertheless, the digital higher education institutions of the metaverse age can be created and operated in accordance with these ethical standards. Otherwise, it will not be a utopia waiting for society, but a digital dystopia of the youth lost in the meta dump.

The Research Questions
The study draws on Zallio and Clarkson's (2022; 2023) pioneering studies on metavethics as a conceptual framework. This frame was applied as a guide in three different phases of the study, including developing the interview protocol, deductive data analysis, and discussing the findings.

1. What are the ethical issues based on the metaverse in higher education institutions?

2. How can healthy metaverse universities be designed within the framework of ethics?

Methodology
Research Approach and the Study Group
The interpretative phenomenological design, which is a product of a cognition-oriented approach and social cognitive paradigm, was constructed as the research design and was deemed appropriate for the nature of the research in the context of focusing on phenomena that are known but lack in-depth comprehension. In interpretive phenomenological studies, the researchers work with participants who have experienced a phenomenon or have knowledge, views, or perceptions about that phenomenon, not focusing on confirming or disproving the hypotheses in the literature but creating a questioning-rich ground that can be re-discussed in future research on that phenomenon (Seggie & Bayyurt, 2015). One of the strengths of this design is that, although it contradicts the positivist perspective, it provides a flexible research facility in order to work in newly shaped areas while providing the opportunity to feed on existing theoretical frameworks without attempting to prove theories (Brocki & Warden, 2006).

The participants of the study were determined by applying the criterion sampling technique and the snowball technique to purposive sampling methods. While recruiting the participants, it was intended to incorporate the experiences and views of all possible stakeholders in shaping new facts about the problem. In this study, the opinions of lecturers and subject-matter experts were taken into account, and strict attention was paid to ensuring that the participants were representatives of their particular areas in order to provide diverse perspectives and a wider, deeper, and richer vision.

A criterion sampling technique was employed to determine the most suitable group for the purpose of the study (Patton, 2014). Due to the nature of the research, the sample included in the study group should have knowledge and experience of metaverse universes and ethical issues that could emerge. In this context, the epistemological ground of the study depends on authoritative knowledge (Kivunja & Kuyuni, 2017). The study incorporated experts with five years or more experience in metaverse technologies such as VR, AR, MR/XR who were also lecturers and/or academics, and an ideal group of thirteen representatives was obtained. As the expert people specialized in this relatively novice field are sparse and it is quite hard to find and reach them, the snowball technique was also applied in order to contact the key people.

After online research to find experts and lecturers in the fields of metaverse and ethics, the participants were contacted through personal e-mail addresses or social media accounts in order to ask whether they would be interested in joining the research or not. Table 1 delineates the demographic information of thirteen participants who agreed to participate in the research.

Table 1. Participants' demographic information.

Participants' code	Age	Job/Expertise/Role	Experience in their jobs (years)
p1	37	Electronic and Communication Engineer, Academic, Tech Industry Expert (VR-AR), Tech Entrepreneur, and Founding Manager of a Tech Firm	15
p2	36	Software Engineer, Academic, Tech Industry Expert, 3D Modeling, VR-AR, Project Manager for Metaverse Platforms	9
p3	42	Lecturer, Academic (AI), VR-AI, CEO of an Educational Metaverse Platform, Co-Leaders of Educators in VR	18
p4	32	Lecturer/Academic (computer sciences), Technical, Tech Industry Expert (VR, AR), Blockchain, and NFT	8
p5	35	Lecturer, Academic (Computer Sciences), Technical Tech Expert—VR-AR	10
p6	34	Lecturer, Academic (Software Engineer), VR-AR-AI, Project Manager for Metaverse Platforms	10
p7	45	Lecturer, Academic (Educational Sciences), VR-AR-Metaverse & Ethics Specialist	12
p8	35	Advisor, Academic (VR), VR-AR -XR Ethics, Consultant & Educator on AR-VR, Data Visualization, Specialist in Data & Ethics in the Metaverse	8
p9	33	Doctor, Academic (Digital Health), VR-AR-Tech Ethics, Bio Ethics-Digital Health, Tech Entrepreneur, Founding Manager of a Digital Health Company	9
p10	59	Advisor, Academic (Digital Health), VR-AR-Tech Expert-Digital Health, Founding Manager of a Digital Health Company, Consultant & Educator on Digital Health, Digitalization Humanist & Activist	30
P11	53	Lecturer, Academic (Psychology), Cyber Health -Cyber Psychology-Cyber Bullying-Digital Gaming-Educational, Head of Basic Education Department	28
P12	48	Lecturer, Academic (Media & Creative Industries), Posthumanism-Context Engineering-Metaverse & Hybrid	24

		Technologies, Director of the Learning Technology Research	
P13	51	Lecturer, Academic (Immersive Arts), Distance Learning-XR- Digital Gaming, Associate Dean-Head of Immersive Arts and Culture Hub and XR and Gaming Lab	26

Data Collection Tools and Procedures
The semi-structured interview protocol, in which the questions were clustered in five dimensions, including metaverse awareness, safety and wellness, security, data privacy and private life, social equality and diversity, and accessibility, was prepared within the framework of metavethics principles. When the interview questions were prepared, they were sent to four experts for revision and advice, comprising two XR experts, a higher education expert, and a language expert.

During the data collection process, the day, the time, and the place of the interview were scheduled together with the voluntary participants, and the interviews were recorded in order to avoid data loss after obtaining the consent of the participants. Most of the interviews were conducted through Zoom meetings, which usually lasted between one and two hours since some of the participants were from different countries and some others were from far-off locations from the researchers despite residing in the same country.

Data Analysis
Qualitative data analysis is the process of making sense of the collected verbal data sets in a non-mechanical but systematic and dynamic way (Gibbs, 2007; Glesne, 2015). The analysis of the research data started with the transfer of all the voice recording files collected from the participants to the written environment via computer without any changes or loss of data. The total length of the written documents obtained from the video interviews with 13 participants was calculated at 167 pages. For the initial analysis of the data, a deductive approach was applied based on Zallio and Clarkson's (2022–2023) principles of metavethics. The codes were clustered under five thematic nodes extracted from the semi-structured interview questions, which were previously prepared in the context of metavethics and adapted to higher education. The Nvivo 14 qualitative data analysis program was applied for open-coding and axial-coding of the data. The open coding phase for content analysis was carried out by dividing the data into manageable parts and placing all the connected parts into appropriate codes. The open coding process can be seen as an analytical process in which the data are divided into smaller and more meaningful pieces, carefully examined and compared in terms of similarities and differences, and placed in an appropriate category accordingly (Strauss & Corbin, 1990; Auerbach & Silverstein, 2003).

In the axial coding process of the study, unlike the initial analysis process, a more deductive approach was followed in the data pool, which was divided into small pieces in the open coding process, and in this way, the researcher followed a path open to the emergence of new categories and themes and new theoretical foundations in this context. While the deductive reasoning approach is considered an important strategy in terms of testing the accuracy and validity of existing theories and categories, constantly reviewing and re-evaluating them, the deductive approach is also important in terms of explaining research findings, establishing causal relationships, and forming new theoretical foundations (Williams & Moser, 2019). In both open coding and axial coding processes, the analyst continued to ask all kinds of generative questions, constantly made theoretical comparisons, and conceptualized existing codes using a systematic method and analytical tools (Williams & Moser, 2019; Moghaddam, 2006).

Results and Discussion
A deductive method based on the metavethics principles of Zallio and Clarkson (2022–2023) was applied for the analysis of the data collected through the interviews. The codes were clustered under five thematic nodes, which were taken from semi-structured interview questions previously prepared within the scope of metavethics. The main nodes are as follows: (1) metaverse awareness and the sphere of influence of the metaverse on higher education; (2) security, data privacy, and private life in higher education; (3) safety and wellness of students and lecturers; (4) social equality and diversity; and (5) accessibility of the metaverse in higher education.

This part of the study, which also includes some underlying quotes from the participants, holds forth the findings of the research under these five main nodes, together with the sub-themes that cluster under each node, as demonstrated in Figure 1.
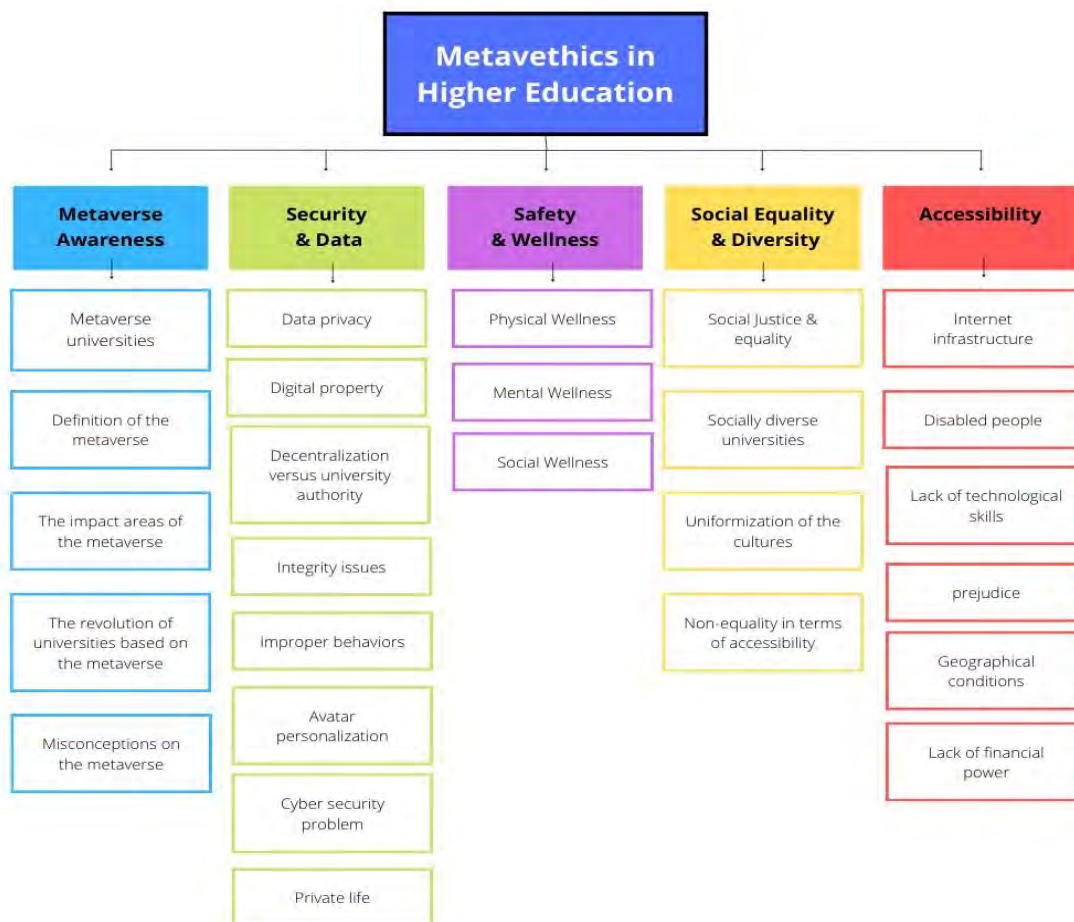
Figure. 1. The main nodes and sub-themes of the metavethics in higher education based on the data

Metaverse Awareness and the Sphere of Influence of the Metaverse on Higher Education

It is worth noting that the metaverse, as a concept that just entered our lives and is still developing, does not have a single universally accepted definition, and different descriptions are made by different institutions and organizations in line with their own perspectives, comments, and visions. Similarly, different academic circles have not reached a consensus yet, and the definitions and meanings they assign to the metaverse change depending on whether they look from a technological or philosophical perspective (Li, 2022; Cho et al., 2022; Lee et al., 2021; Clemens, 2022). Metaverse does not have a single definition—an owner or a founder—and can be considered a technological space roughly similar to the World Wide Web (Ball, 2022). The uncertainty and obscurity in precisely defining the metaverse could also create confusion on how to utilize it as a service, on how great the potential of it is for creating the future, and most importantly, on how ethical implications and precautions could be applied for a healthy metaverse organization (Zallio & Clarkson, 2022).

The sub-themes that were created under the node related to metaverse awareness are: definition of the metaverse; misconceptions about the metaverse; impact areas of the metaverse; metaverse universities; and the revolution of universities based on the metaverse. The participants clarified that although it is tough to reach a consensus on the universal definition of the metaverse, it could be highlighted what the metaverse is not and what the misconceptions are in order to create awareness in society about the metaverse. Here are some different definitions of the metaverse made by the experts in the study and some misconceptions about the metaverse they thought were very common myths in society:

'In fact, it can be considered what the transition from the radio to the internet means—humanity is the transition from the internet to the metaverse.' (p. 1)

It is an interconnected environment, or virtual world. There is actually a framework like interpretability and the other stuff; it is not controlled by someone or by a company, and it is open, which means probability. I mean, the metaverse is like a network—the internet. It is not Facebook. They think everything in VR is the metaverse. No, from my own perspective, the metaverse is something like a platform where you create communities, which you have control over; it is not a VR game. (p. 3)

So, what does it mean? A vision is something that is not necessarily implemented. It's something that's coming. It's a trend in computing and very important. It's ubiquitous. It surrounds us. … it's seamless. it's immersive. (p. 8)

Let me put it this way: the metaverse is like a forbidden apple that has just been promised to humanity. A parallel universe is promised to humans, so they promise an environment where you can do everything and experience the emotions you feel in daily life with the equipment you wear. You know, you can earn money there, you can get an education there, you can continue your business life there, you can have a virtual office, and people can come there. They offer you an alternative to the real world.(p. 6)

The respondents also emphasized that when the metaverse is fully achieved, it will impact nearly all areas of human life, including education, health, the military, entertainment, and so on, as one of the interviewees asserted, 'It will eventually take the place of our mobile phones and the internet' (p. 8). Despite the fact that they mentioned many different areas that the metaverse will influence in the future, all the participants agreed that the biggest impact of it will be on education. That is why they underlined the significance of the studies, which must focus more on the educational metaverse. The participants also indicated that there will be huge transformations and revolutions at universities due to the metaverse, as indicated in the following sample statements:

In the long run, as a matter of fact, we may get back to the times when there were no universities in the past. In other words, we will be out of the universities as we know them now, and we will switch to the learning-by-doing model as in the past. Because the metaverse will allow it. (p. 1)

The campuses may disappear, or they will have to evolve, although they do not vanish completely. They may evolve into hubs for accessing the metaverse by providing high-speed internet, wearable technology, emotionally stimulating clothes, headsets, tactile sleeves, and so on. (p. 5)
So, one of the things in terms of universities is: do the administrators and teachers understand what the metaverse is and how to teach in it? Because the thing is that in this book chapter that I wrote about, Zoom has a transmissive nature where we can't engage students effectively in the classroom, whereas VR or AR has a more interactive nature, and if we understand it well, we can engage students in meaningful learning. So, there will be more interaction and engagement in the virtual classroom with, I mean, the help of VR and AR technologies. (p. 3)

A correct vision of the metaverse will allow us to see how this new technology, which has already taken its first steps, will surround our lives and involve all areas of human activity over time. According to the participants, the metaverse will lead to major transformations and revolutions in universities, eventually moving all education and training activities into the metaverse. Physical buildings will be replaced by VR campuses, books and teaching materials will be replaced by digital materials, classical and traditional assessment and evaluation methods will be replaced by personalized, individualized, and practice-based VR methods, and students in classrooms will be replaced by avatars. After a period of time, we will stop calling a higher education institution a university in the metaverse era, just as the terms academia and madrasa were replaced by university, and we will start calling it a metaversity. The term 'metaversity', which is a newly introduced concept in the literature and is thought to have already influenced teaching paradigms, is defined as digital campuses that copy physical classroom environments and physical buildings, metaverse-based higher education institutions that allow us to live XR experiences in the classroom environment, and are created by configuring digital twins of real environments in virtual environments (Sun et al., 2021; Sutikno & Aisyahrani, 2022; Ruwodo et al., 2022; Hassanzadeh 2022). Sutikno and Aisyahrani (2022) interpret the metaversity as the first step in a higher education iteration that will eventually become part of a full, global metaverse and see it as the next generation of universities where physical boundaries are completely

removed, teaching is personalized, and students experience immersive XR technologies that enable more effective and lasting learning. Metaversities have the potential to immerse the world's students in the same learning environment, transforming the entire world into a single virtual classroom.

In many ways, these digital campuses are the next step in higher education, creating an immersive education that is different from universities. It is thought that metaversities will become a mainstream worldwide in the 1930s (Price & Price, 2023). In brief, the interviewees revealed their confusion about the term metaverse in society and asserted that it is important to understand what the metaverse and metaversities mean for humanity in order to increase the positive sphere of influence on higher education. It is not possible to keep control of phenomena that we do not know or cannot make sense of correctly and whose dynamics we cannot master. In particular, a misunderstanding or incomplete understanding of an innovation such as the metaverse, which will radically affect humanity, has deep meanings not only in technological but also in philosophical, sociological, and psychological aspects, and has reformist power, will make the preparations to be made in this framework superficial and ineffective. Any innovation for which we are unprepared is a threat, especially when it comes to the education of a generation, and a misunderstood or underestimated technology can be devastating for humanity. This is why metaverse awareness and a proper understanding of the metaverse are at the heart of metavethics. Only when there is a full awareness of the metaverse in a society, when the metaverse is understood correctly by both the public and the policymakers who will guide the public, can we talk about the shaping of an ethical educational metaverse in that society.

Security, Data Privacy, and Private Life in Higher Education
Nearly all the participants believe that security issues will be the most controversial and crucial matter in designing a metaverse university. In terms of the security of metaverse universities, the interviewees focused on: data privacy; digital property; private life; cyber security problems; decentralization of the metaverse platforms versus university authority; avatar personalization; integrity issues; and students' and lecturers' improper behaviors that could emerge in metaverse universes. Some of the participants declared their worries about security, private life, and data privacy with the words as follows:

> Now, when you set up a system like the metaverse, how will you protect a school's evaluation system, management system, and information system? Secondly, how will you prevent your students from copying their identity information, fingerprints, habits, physical shapes, and retinas at school? There are thousands of problems. Can these also be prevented? I think it is hard right now. (p. 1)

> They have determined full control over people and a new management philosophy, so to speak. And in this philosophy, human beings are given new tools and are offered new ideologies sociologically, economically, and administratively, so the metaverse is a part of it. And here, as security risks, in the world of the future, personal information of people will be everywhere, like a sheet, and people will be expected to consent to this voluntarily for the safety of society. This is how they come to mankind. You know, human beings are faced with such a situation because they have a mentality—for humans, despite humans. (p. 6)

> By only looking at your mobile phone signals and credit cards, I can follow where your average home is, where your workplace is, which roads you use, what you wear, where you eat, what you do, and so on. For me, it is easy to do this with even Web 2.0 technology. The metaverse will allow you to have much more detailed information in a much faster time. In other words, if we take a 4-year education period at a university as a basis, we will be able to predict everything about the students that we have followed for 4 years. That means the limitation and prohibition of freedom. You know, we are fighting many wars in the name of freedom today. This will make all the wars go to waste. (p. 5)

The most highlighted issue, which is one of the biggest and most significant dangers that will impact the metaverse and its users, is cyber security and privacy. It is claimed that advanced blockchain technologies currently take many precautions to safeguard users' security and privacy by instituting authentication within the metaverse; however, because cyberattacks and threats are becoming increasingly complex and swiftly evolving, it is anticipated that they will continue to be significant (Saraçoğlu, 2022). Because of this, it is stressed that robust privacy and security measures ought to be incorporated into the system right from the start for a metaverse

institution, and privacy and security are among the most prominent topics as the core concepts of the metaverse (Abbate et al, 2022).

Participants support the idea the idea that the web 3 technology on which the metaverse is based and the equipment needed to access the metaverse will make data security and privacy more fragile and increase vulnerabilities. Nevertheless, no security or privacy policies apply to higher education's metaverse. Because the metaverse offers enhanced and tailored experiences, it is necessary to acquire private data, and users frequently aren't aware of the type of data they are giving the system; for instance, a twenty-minute virtual reality headset activity is thought to provide about 2 million data points from a person's body language, which includes head and hand gestures, facial expressions, and behavioral traits associated with both mental and physical health (Saraçoğlu, 2022).

All actions, social interactions, biometric data, and behavioral metrics that occur in these virtual worlds are perpetually kept track of, having no regard for the user's location, time, or social standing. Which means that educational metaverse platforms are building their systems on big data, and the metaverse's core Web 3.0 technology will give these platforms access to a broad range and volume of data flow that weren't possible with earlier technologies (Joye, 2016; Li et al., 2022). Participants consented that all conversations, tutorials, activities, research, and views made by students' and lecturers' avatars would be captured on the metaverse platforms, giving some private companies access to their personal information and, more significantly, their intellectual property. There is no protection stopping the employees of certain commercial companies that set up the teaching metaverse platforms from exploiting or selling these intellectual rights. As a result, there would be a significant risk involved. According to this reasoning, in the age of the metaverse, academic institutions ought to take intellectual property and privacy seriously. In the near future, data security and privacy will eventually play an important role in individuals' university choices.

According to the participants, there are various security and data privacy problems emerging from the metaverse in higher education. The matters that the interviewees emphasized and the possible solutions or issues that must be taken into consideration while designing a healthy metaverse university can be summarized as follows:

(1) Private companies that would provide the service to higher education are the biggest risk in terms of the fact the fact that these private companies or persons working there can sell the data of the students and lecturers to big companies. In other words, big data is the new petrol of the world (Lee, 2018). That is why, if it is possible, universities must constitute their own software developer teams who are specialized in VR/AR/XR and 3D modeling for designing and managing the virtual campuses. If it is not possible, universities must assuredly sign very strict contracts, including the items that embrace the sanctions in case of selling or leaking the data.

(2) The danger is not just out of the university; students and lecturers can also steal or sell the data in the metaverse. Severe sanctions must be determined and the students and lecturers must sign before they are allowed to participate in the virtual campuses.

(3) Since wearable technologies like headsets make biometric data of individuals reachable and trackable (Rich et al., 2019), university management needs to take precautions to prevent spyware and hackers and preserve the students and lecturers.

(4) Also, some misbehaviors may take place on metaverse platforms that can risk the safety and privacy of the students and lecturers, such as cyberbullying, cyber harassment, or disclosure videos, since it is easier for people to hide their identity in a virtual environment compared to a physical environment. That is why, at the beginning of the fresh year, each student must be given a preparatory course for the metaverse in order to teach them how to behave and act in a metaverse environment and the consequences or sanctions in an otherwise normal condition.

(5) Decentralization is another important issue that must be taken into consideration in a metaverse environment since the decentralized internet is one of the basic technologies of the metaverse. Although most of the participants believe that a fully decentralized metaverse platform may not work in higher education and may increase the problems without a university authority, some of the participants claimed that decentralization is something we need for a more democratized internet and a more democratized university, and it is something

that we should not give up for a seeking of traditional authority. A good and strict metaverse policy for the university can help overcome the problems emerging due to the lack of authority.

(6) In a metaverse community, there will be personalized avatars or metahumans representing real people, and in a university environment having virtual classes through the metaverse, several ethical issues can arise due to the use of avatars. Most of the participants had a consensus that there must be an avatar policy determined by the university in line with the philosophy, perspective, and purposes of the higher education organizations for avoiding avatar-based problems.

(7) Some of the experts in the study proposed a bunch of useful precautions for dishonesty problems in higher education, which are having a very strong three-stage encryption system like in banks and finance companies for blocking foreign people out of the university, choosing the educational platforms very carefully, adding an eye retina reader password program to the headsets of the students, and recording the real images of the students every five to ten seconds during the classes with their permission for preventing manipulation and providing verification as it is difficult to understand whether it is the true person behind the avatar. However, they also had a consensus that it is not likely to continue with the current testing and teaching methods in a metaverse world, so it will create a system in which cheating has no more significance while manipulating can have bigger importance.

Safety and Wellness of Students and Lecturers
The safety and well-being of the students and lecturers in a metaverse environment can be evaluated in three dimensions, which are: physical wellness; mental wellness; and social wellness.

In terms of the physical wellness of students and lecturers, the participants clarified that the main problem is mostly the headsets for now that can cause physical harm and injuries, not the metaverse platforms themselves. Some of the interviewees asserted that if one is not accustomed to using a headset, unfortunately, it takes only one or two hours to bear or tolerate the headset without getting sick or getting symptoms like vomiting or being dizzy. That is why, firstly, the students and the lecturers must be trained before they use the headset, and they must also get gradually accustomed to it. For the participants, even though they are accustomed to VR headsets, there still must be a time limit for using them, and that means virtual classes need to be limited to much less time compared to traditional classes. As we currently stand, using the metaverse requires particular gadgets like VR goggles and headsets. Students will feel a range of physiological discomfort if they use these devices for extended periods of time, which could be harmful to their individual well-being. There have been some studies showing numerous youngsters in the United States have had symptoms like nausea, vertigo, disorientation, or a lack of spatial awareness subsequent to wearing virtual reality headsets (Liu, 2022).

On the other hand, the mental and social harms of the metaverse to students and lecturers can outnumber the physical harms. To the participants, the leading ethical problems of social and mental origin based on the metaverse comprise addiction problems, identity confusion, losing the reality phenomenon, depression, isolation problems, inadaptability to physical society, rejecting the identity, double personality, numbing, and some others. A metaverse world without ethical implications could generate more disenfranchised, isolated, and addicted persons with low social and communication skills and with more anxieties and damaged brains (Rich & Miah, 2014; Greenfield, 2011).

Using the human mental sense as a starting point, the utilization of multidimensional media, algorithmic graphics, installation art, extending interactive features, and other innovations offers people an authentic moment that is engaging and highly addictive (Li, 2022). Li asserts that if this keeps on, people won't be able to tell the difference between reality and virtuality and will start misusing the virtual world's norms in the actual world, and eventually value distortion, utilizing technology to escape reality, engaging in virtual world indulgence, declining societal duties in the actual world, and dealing with various identity, emotional, and cognitive crises will be among the issues we have to deal with.

In order to prevent these physical, mental, and social harms of the metaverse, the participants suggested some implications for the universities, such as not giving up the physical classes completely, having some kinds of social meetings on the physical campus, and making the psychology department of the universities stronger. However, they also asserted that the definite solution to these harms can be possible only when the technology develops more, like having lighter and healthier-safe headsets, transferring all the emotions to the metaverse, and making a

way in post-humanism to have the same experiences in the metaverse worlds that we have in the physical worlds as a result of the more advanced, human-like avatars taking the place of current clunky avatars.

Social Equality and Diversity

The sub-themes that were created under the node social equality and diversity are: socially diverse universities; uniformization of cultures; social equality and justice; and inequality in terms of accessibility.

To most of the participants, the social equality and diversity dimension of the ethical frame will be the least problematic area, as the metaverse itself creates a world on average where every user is equal after they have accessed the metaverse, and it mostly does not convey the illusional differences and privileges between people in the real world, such as financial power or physical superiority. The only superiority in a metaverse platform in higher education can be intellectual and academic superiority, which in general do not cause an unethical situation. Nevertheless, a couple of participants disagreed with that opinion, claiming that, even on metaverse platforms, some kinds of privileges are granted to overly rich people, as in the example of CryptoPunk avatars:

> CryptoPunks are the most famous avatars in Web 3.0 technology, and they are the most expensive. And also the mutants, the apes, and there was something else; these are very expensive. They are well known for it because they are like the oligarch, for very rich people in different countries. So, when they want to go to the metaverse, they have these CryptoPunk faces. So that they can be identified from one metaverse to another. And so, others who had less expensive avatars are going to change between these avatars, and that's fine. (p. 3)

So, in order not to spoil the equal nature of an ethical metaverse at universities, it should not be permitted for the students or the lecturers to use these kinds of overly expensive avatars or NFTs.

Another point of crucial importance in an ethical metaverse is preserving cultural diversity and not allowing the uniformization of communities. With metaverse technologies, it will be possible for higher education institutions to embrace more universal students from different countries, cultures, religions, and ethnicities.

Basing its philosophy on the idea the idea that the metaverse ought to prioritize human welfare and diversity above all else, a diverse group of creators with shared innovation skills is necessary for the metaverse to thrive, and participation in this new universe must be open to everybody (Clemens, 2022). The metaverse of higher education ought to be a space that respects cultural diversity and richness while advancing social justice, inclusiveness, and equality. The metaverse shouldn't turn into a place of melting pots where people from different countries all blend with one another and lose their unique cultural identities. In order to advance social justice and equity, higher education institutions must be able to maintain the broad spectrum and different cultural backgrounds of their metaverse universes.

Accessibility of the Metaverse

The respondents asserted that one of the biggest obstacles in front of an ethical metaverse university will be the accessing problem for the students in terms of the fact the fact that not every segment of society will have an equal opportunity to reach the metaverse, which would lead the educational administrators of the higher education institutions to think twice before they initiate a metaverse project for their organizations. The social equality inside the metaverse and the social equality for accessing the metaverse are oxymoronic issues. We are as unequal outside as we are equal inside the metaverse due to numerous paramount issues, which are: lack of financial power; internet infrastructure; geographical conditions; lack of technological skills; disabled people; and prejudice.

All the participants arrived at a consensus that the lack of internet infrastructure for metaverse platforms, which usually need 5G with a very strong infrastructure, and the sumptuousness of the devices to access the metaverse, such as wearable technologies and high-tech computers, are the two biggest problems for now because most of the students, especially in the underdeveloped countries, do not have the necessary economic power to participate in the virtual classes in a metaverse university. Costly infrastructure: not only are XR technologies more expensive than conventional learning aids like computers and books, but they also often require a fast internet connection like 5G, and as it takes specialized equipment and expertise to create the interactive simulated settings, educational content creation is more expensive (Pimentel et al., 2022). When it comes to challenges with accessibility and usability, the XR technologies that currently exist can be troublesome for many individuals to use, including

financially disadvantaged groups of society and disabled students like someone with limited hand movement to operate controls (Kaddoura, S., & Al Husseiny, F., 2023).

On that point, it is considered by the respondents that the governments and universities are responsible for providing the necessary facilities to access the metaverse technology to the students and lecturers, besides enabling the metaverse education by training them on how to use immersive technologies and by breaking the prejudices, myths, and misconceptions about the metaverse.

> *'And the Lord God commanded the man, saying, "You may surely eat of every tree of the garden, but of the tree of the knowledge of good and evil you shall not eat, for in the day that you eat of it you shall surely die."*
>
> *Genesis 2:16-17*

Conclusion and Future Implications

'Science that philosophy does not feed is lame; technology that is not surrounded by universal morality and ethics is blind; science that is not at the table of curiosity and doubt is hungry.' (Aydın, 2022, p. 112). Blind technology and science, without a doubt, would lead humanity and implicitly the universities, which are the catalysts of humanity, to chaos. We must consider that the ethical and social consequences of new technologies such as XR would be grievous, as would the opportunities they provide. The quickest solution to prevent disappointing results is to make legal regulations in the short run while working on more comprehensive solutions in the long run, such as improving digital literacy on XR and developing new technologies to deal with the vicious use of the technology (Lee & Quifan, 2021). However, the crucial point is perceiving that it is not possible to regulate the technology of tomorrow with the policies of yesterday (Hoven, 2017). Based on the visions of the experts in the study, a policy of metaverse in higher education must be framed within the following ethical principles:

The principles for a healthy metaverse university:

(1) All the stakeholders, including lecturers, students, and employees, must have high digital literacy in the metaverse.
(2) The data privacy and private lives of individuals in the metaverse must be protected by the university and government legislation.
(3) A metaverse university must be safe physically, mentally, and socially.
(4) A democratic and strong avatar policy must be designed and implemented, depending on the philosophy of the university.
(5) A metaverse university must ensure a process based on morality, honesty, and integrity.
(6) A metaverse university must develop a sense of responsibility among the individuals behind the avatars for the actions they take in virtual environments.
(7) The sanctions to be applied for digital offenses and online misbehaviors must be determined by university policy.
(8) An educational environment where social equality is ensured and cultural diversity is preserved must be provided.
(9) A metaverse university must guarantee accessibility for all students and lecturers from all segments of society.

The metaverse is no longer a speculation or utopian idea but a reality of higher education, with many educational institutions taking their first steps into the global metaverse by creating digital twin campuses and implementing metaverse classrooms. This growing number of digital twin campuses supports the idea the idea that the metaverse will become mainstream in higher education in the next 10 years and will be a natural part of the education of university students in the near future (Price & Price, 2023). Higher education institutions should not be followers or just users of the metaverse, but builders, creators, producers, and pioneers of this work. If we start an infrastructure project for a digital twin of any university today, it will be possible within at least 5 to 10 years with a serious budget and hard work. Changing servers, providing hardware and equipment, finding highly qualified software developers and training them by experts in this field for educational metaverse platforms, establishing a team, creating 3D digital modeling of the university, creating digital course content, developing scenarios, training

professors and staff, establishing laboratories, creating ethical regulations, enacting the necessary laws, making agreements, and training students require a very serious budget, labor, and time. On the other hand, if universities do not take the helm of this work and become dependent on private companies to buy all systems and technological equipment, including VR glasses and sensors, that will mean the higher education institutions will voluntarily hand in the big data (the new petrol) to the capital.

The worst scenario is that the institutions that will shape the metaverse in higher education will not be leading educational organizations but giant technology companies motivated by capital, a threat that could plunge the whole of higher education into a dark chaos. It is therefore an ethical imperative for higher education organizations to be at the command center and steer the ship of the educational metaverse. Barnett (2017) states that the philosophical motivation of higher education institutions is not only to understand and embrace the university but also to constantly change and transform universities so that they can keep pace with the needs of the new world, always a few steps ahead of the changing society. The most important element that should not be ignored at every stage of this continuous transformation process is to move higher education to a more humanist and ethically based position at every step and to be shaped accordingly. The formation and analysis of ethics-centered organizational structures in higher education and the identification of problems and solutions to ethical contradictions and challenges are considered within the scope of the administrative duties of higher education (Karsantık & Çetin, 2020). In this context, the ethical discussions and analyses of the educational metaverse structures that are taking shape in universities are among the issues that should be urgently included in the agenda and focus of attention of higher education administrators before entering a process that cannot be changed or reversed.

In this context, creating its own crew and developing its own digital twin and metaverse platform is a must for each higher education institution that desires to continue its existence and does not want to be dependent on private companies in this era when we are witnessing a rapid digital transformation. The following step should be the rapid enactment and implementation of ethical laws and regulations that are in line with the philosophy and objectives of the organization to protect humans inside the metaverse system. The metaverse is a very relatively novel topic, especially in the social sciences, and we need more and more research on the metaverse in the humanities if we want to create an ethical and moral metaverse that is human-based, transparent, honest, and where human values are inclusive and determinative.

The metaverse is like the second forbidden fruit of humanity cracking the gate of an uncertain and ambiguous world of futuristic, immersive technology, and the point is that we do not know whether the gate is opening to a heaven-like utopian world or a hell-like dystopian world. Possibly, it would be better to delineate the metaverse as neither of those; instead, just like the other samplings of novice technology, we are supposed to consider it as a 'two-sided blade' (p. 6) or a 'double-edged weapon' (p. 3), which has both the potential of reforming educational institutions into more advanced, conscious, honest, equal, diverse, inclusive, and sophisticated communities, and also the potential of setting them back into a scotophase with a lack of ethical norms. If we want to shape metaverse universities of the future within the concept of ethical principles, for tomorrow, we need to perk up our ears to the wise, knowledgeable, and experienced experts of this field who know both the opportunities, possibilities, and also the vulnerabilities and weaknesses of the metaverse system well, for today, since they are like the trees of knowledge of good and evil from the garden of Eden that both produce the forbidden fruit and warn humanity about the possibilities and consequences.

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References

Abbate, S., Centobelli, P., Cerchione, R., Oropallo, E., & Riccio, E. (2022, April). A first bibliometric literature review on Metaverse. In *2022 IEEE Technology and Engineering Management Conference (TEMSCON EUROPE)* (pp. 254-260). IEEE.

Arıcak, T. (2015). *Siber Alemin Avatar Çocukları*. Remzi Yayınevi.

Aslan, A. (2022). *Dijital Etik: Değer Temelli Bir Model Önerisi* [Ph.D. Dissertation, Marmara University]. Turkey National Dissertation Center. https://tez.yok.gov.tr/UlusalTezMerkezi/

Auerbach, C., & Silverstein, L. B. (2003). *Qualitative data: An introduction to coding and analysis.* New York: NYU.

Aydın, İ.H. (2022). *Beyin Sizsiniz 5.0 Metaverse Holistik Çağ*. Girdap Yayınevi.

Ball, M. (2022). *The Metaverse and How It will Revolutionize Everything*. Liveright Publishing Corporation.

Barnett, R. (2017). Constructing the University: Towards a social philosophy of higher education. *Educ Philos Theory, 49(1), 77-88.*

Bibri, S. E., & Allam, Z. (2022). The Metaverse as a virtual form of data-driven smart cities: the ethics of the hyper-connectivity, datafication, algorithmization, and platformization of urban society. *Computational Urban Science*, *2*(1). https://doi.org/10.1007/s43762-022-00050-1

Brocki J. M. & Weardon, A. J. (2006). A Critical evlauation of the use of interpretative phenomenological analysis (IPA) in health psychology. *Psychology and health,* 21-98-101.

Brunnbauer, J. B. (2022). Ethical Challanges for the Metaverse Development. *Proceedings of the National Academy of Sciences of the United States of America*, *119*(8). https://doi.org/10.1073/pnas.2120481119

Cho, Y., Seunghyun, H. Kim., M. & Kim, J. (2022). Dave: Deep Learning-Based Asymmetric Virtual Environment for Immersive Experiential Metaverse Content. *Electronics*, *11*(16), 2604. https://doi.org/10.3390/electronics11162604

Clemens, A. (2022). *Metaverse For Beginners A Guide To Help You Learn About Metaverse, Virtual Reality And Investing In NFTs*.

Dayarathna, R. (2022). Ethics in the Metaverse. *Sri Lanka Association for the Advancement of Science Proceedings of the 78th Annual Sessions 2022-Part II*, 79–86.

Edwards, S. (2022, March). The U.S. Sun. *Zuckerberg Claims Human Will Live in Metaverse One Day and Leave Reality Behind.* https://www.the-sun.com/tech/4808267/mark-zuckerberg-living-in-metaverse/
English Standard Version Bible. (2023). ESV Online. https://esv.literalword.com/

Fernandez, C. B., & Hui, P. (2022). Life, the Metaverse and Everything: An Overview of Privacy, Ethics, and Governance in Metaverse. *Proceedings - 2022 IEEE 42nd International Conference on Distributed Computing Systems Workshops, ICDCSW 2022*, 272–277. https://doi.org/10.1109/ICDCSW56584.2022.00058

Gibbs, G. R. (2007). Thematic coding and categorizing. *Analyzing qualitative data*, 703, 38- 56. doi:10.4135/9781526441867.n4

Gilmore, B. (2008). *Plagiarism: Why It Happens and How to Prevent It.* Heinemann publishing.

Glesne, C. (2015). *Becoming qualitative researchers: An introduction*. New Jersey: Pearson.

Greenfield, S. (2011, August). Computers may be altering our brains. *The Independent*. https://www.independent.co.uk/voices/commentators/susan-greenfield-computers-may-be-altering-our-brains-2336059.html

Hassanzadeh, M. (2022). Metaverse, metaversity, and the future of higher education. *Sciences and Techniques of Information Management*, *8*(2), 7-22.

Hoven, J. (2017). Ethics for the Digital Age: Where are the Moral Specs?. In H. Werthner, & F. Harmelen (Ed.), *Informatics in the Future* (pp.65-77). Springer Open. https://doi.org/10.1007/978-3-319-55735-9_6

Johnson, D. G. (2015). Technology with No Human Responsibility?. *Journal of Business Ethics*, 127(4), 707–715. https://doi.org/10.1007/s10551-014-2180-1

Johnson, D. G., & Miller, K. W. (2008*). Computer Ethics Analyzing Information Technology* . Pearson Education .

Joye, S. R. (2016). *Ethical Implications Of a Virtual Reality Metaverse: The Pribram-Bohm Hypothesis*.

Kaddoura, S., & Al Husseiny, F. (2023). The rising trend of Metaverse in education: challenges, opportunities, and ethical considerations. *PeerJ Computer Science*, *9*, e1252. https://doi.org/10.7717/peerj-cs.1252

Karsantık, İ., & Çetin, M. (2020). Yükseköğretim Kültürü Ölçeğinin Geliştirilmesi: Geçerlik Ve Güvenirlik Çalışması. *Mehmet Akif Ersoy Üniversitesi Eğitim Fakültesi Dergisi*, (54), 258-281.

Kivunja, C., & Kuyini, A. B. (2017). Understanding and applying research paradigms in educational contexts. *International Journal of higher education*, *6*(5), 26- 41. https://doi.org/10.5430/ijhe.v6n5p26

Kshetri, N. (2022). Policy, Ethical, Social, and Environmental Considerations of Web3 and the Metaverse. *IT Professional*, 24 (3), 4–8.

https://doi.org/10.1109/MITP.2022.3178509

Janouch, G. (2000). Kafka ile Söyleşiler (Kamuran Şipal, Trans.). Cem Publishing (Original work published 1951).

Lee, K.F. (2018). *AI Superpowers: China, Silicon Valley, and the New World Order*. Harper Bussiness.

Lee, K.F., & Quifan, C. (2021). *AI 2041: Ten Vissions for Our Future.* Currency Publising.

Lee, L. H., Braud, T., Zhou, P., Wang, L., Xu, D., Lin, Z., & Hui, P. (2021). All One Needs to Know about Metaverse: A Complete Survey on Technological Singularity, Virtual Ecosystem, and Research Agenda. *Journal of Latex Class Files,* 14(8).

Li, X. (2022). Research on the Application and Risk Prevention of Metaverse in Vocational Education. In Liang J.Z. (Ed.) *Metaverse 2022*. Springer. https://doi.org/10.1007/978-3-031-23518-4_4

Li, Y., Wei, W., & Xu, J. (2022). The Exploration on Ethical Problems of Educational Metaverse. In L.-J. Zhang (Ed), *Metaverse,* (pp.29-41). Springer. https://doi.org/10.1007/978-3-031-23518-4

Liu, C. (2015). *Three Body Problem*. Head of Zeus Press.

Liu, X. (2022). The Application of the Metaverse in Ecological Education. In L.-J. Zhang (Ed), *Metaverse,* (pp.29-41). Springer. https://doi.org/10.1007/978-3-031-23518-4

McNally, M. (2012). *Identity Theft In Today's World*. Praeger Publishing.

Moghaddam, A. (2006). Coding issues in grounded theory. *Issues in Educational Research*, 16(1), 52-66.

Moor, J. H. (1985). "What Is Computer Ethics?" *Metaphilosophy,* 16(4), 266–275.

Moor, J. H. (2001). The future of computer ethics: You ain't seen nothin' yet!. *Ethics and Information Technology*, 3, 89-91.

Palli, P. (2022, March). Mashable India. *'Humans Will Live in Metaverse Soon', Claims Mark Zuckerberg, What About Reality?*. https://in.mashable.com/tech/28254/humans-will-live-in-metaverse-soon-claims-mark-zuckerberg-what-about-reality

Patton, M.Q. (2014). *Nitel araştırma ve değerlendirme yöntemleri (M. Bütün, & S.B. Demir, Trans.)*. Pegem Akademi (Original work published 2001).

Pimentel, D., Fauville, G., Frazier, K., McGivney, E., Rosas, S. & Woolsey, E. (2022). An introduction to learning in the Metaverse. Meridian Treehouse Available at https://scholar.harvard.edu/files/mcgivney/files/introductionlearningmetaverse-april2022-meridiantreehouse.pdf.

Price, K., & Price, J. (2023).The Metaverse: Higher Education's Next Frontier. *Journal of Bussiness Administration Online,* 17(1), 10-18.

Rich, E., Miah, A., & Lewis, S. (2019). Is digital health care more equitable? The framing of health inequalities within England's digital health policy 2010–2017. *Sociology of Health & Illness,* 41, 31–49. https://doi: 10.1111/1467-9566.12980

Rich, E., & Miah, A. (2014). Understanding digital health as public pedagogy: A critical framework. *Societies*, *4*(2), 296–315. https://doi.org/10.3390/soc4020296

Ruwodo, V., Pinomaa, A., Vesisenaho, M., Ntinda, M., & Sutinen, E. (2022, October). Enhancing software engineering education in Africa through a metaversity. In *2022 IEEE Frontiers in Education Conference (FIE)* (pp. 1-8). IEEE.

Saraçoğlu, D. (2022). Metaverse ve Yeni Siber Güvenlik Tehditleri. F. S. Esen (Ed), Metaverse Geleceğin Dünyalarını İnşa edecek Teknolojiler Fırsat ve Tehditler içinde (s. 131-159). Nobel.

Schonning V., Hjetland G.J., Aaro L.E., & Skogen J.C. (2020). Social Media Use and Mental Health and Well-Being Among Adolescents – A Scoping Review. *Frontiers in psychology,* 11:1949. https://doi: 10.3389/fpsyg.2020.01949

Seggie, F.N. & Bayyurt, Y. (2015). N*itel araştırma yöntem, teknik, analiz ve yaklaşımları*. Anı yayıncılık.

Spence, E. H. (2008). Meta ethics for the metaverse: The ethics of virtual worlds. *Current Issues in Computing and Philosophy*, *175*(3).

Spiegel, B. (@BrennanSpiegel). (2016, August). *Virtual reality is like dreaming with your eyes open.* Twitter. https://twitter.com/brennanspiegel/status/769348145692102656?lang=en

Stephenson, N. (1992). *Snow Crash*. Bantam Books.

Strauss, A., & Corbin, J. (1990). *Basics of qualitative research*. Sage publications.

Sun, X., Zhang, F., Wang, C., & Lv, B. (2021, June). Application of 5G Mobile Communication Technology in Specific Environment of Power System. In *2021 International Wireless Communications and Mobile Computing (IWCMC)* (pp. 648-651). IEEE.

Sutikno, T., & Aisyahrani, A. I. B. (2023). Non-fungible tokens, decentralized autonomous organizations, Web 3.0, and the metaverse in education: From university to metaversity. *Journal of Education and Learning (EduLearn)*, *17*(1), 1-15.

Tsinghua University: New Media Research Centre 2020-2021 Metaverse Development Research Report. 14-14.

Wazarat, A.H. (2023). Metaverse 2023 Report. *The Metaverse Insider.* https://metaverseinsider.tech/reports/

Wankel, L.A., & Wankel, C. (Eds.). (2012). *Misbehaviour Online in Higher Education: Cutting Edge Technologies in Higher Education.* Emerald Group Publishing.

Williams, M. & Moser, T. (2019). The Art of Coding and Thematic Exploration in Qualitative Research. *International Management Review*, 15 (1).

Yee, N., & Bailenson, J. (2007). The proteus effect: The effect of transformed self-representation on behaviour. *Human Communication Research*, *33*(3), 271–290. https://doi.org/10.1111/j.1468-2958.2007.00299.x

Yu, F.R. ve Yu, A. W. (2022). *A Brief History of Intellıgence From The Big Bang To Metaverse*. Springer.

Zalilo, M., & Clarkson, P.J. (2022). Designing the metaverse: A study on inclusion, diversity, equity, accessibility and safety for digital immersive environments. *Telematics and Informatics, 75*, 101909. https://doi.org/10.1016/j.tele.2022.101909

Zallio, M., & Clarkson, P. J. (2023). Metavethics: Ethical, integrity and social implications of the metaverse. *Intelligent Human Systems Integration*, *69*, 683–691. https://doi.org/10.54941/ahfe1002891