THERE IS A VERSE FAR AWAY: TEACHERS' COGNITIVE STRUCTURES ABOUT THE METAVERSE

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Abstract. *The main purpose of this research is to determine teachers' cognitive structures about the Metaverse. It is a descriptive research in a survey model. The research participants consist of 93 teachers working in public schools in the 2023-2024 academic year in Malatya, Türkiye. First, a stratified purposive sampling method was used to identify the types of schools according to the research questions. Then, convenience and snowball sampling methods were used to select the participants. The research data was collected using the word association test. Content analysis was used to analyse the research data. As a result, the themes of "form of Metaverse", "economic order", "evolution of the Internet", "Metaverse technology", "education", "possible dangers", "space", "social Metaverse" and "fallacy" were found. At the end of the research, it is recommended that studies be carried out to eliminate teachers' misconceptions and that Metaverse technologies be introduced into the education system in small steps.*

Keywords: *Educational technologies, Metaverse, Metaverse in education, Virtual reality*

1. INTRODUCTION

The accelerated digital transformation occurring within the information society continues to profoundly reshape educational systems (Baltacı, 2022). Within the context of this transformation, the term 'Metaverse' has emerged as a concept of growing interest, often described as 'beyond-universe' and 'beyond-virtual universe' (Lee, 2021; Mystakidis, 2022; Çelik, 2022). It is perceived as a potential future form of the Internet (Suh & Ahn, 2022). The Metaverse comes into being as a result of an interaction between real and virtual worlds, leveraging digital technologies to create a virtual society (Turner, 2015; Bakır, 2022).

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Metaverse also offers three-dimensional environments where users interact through avatars (Duan et al., 2021; Suh & Ahn, 2022).

The literature about the Metaverse has emerged in recent years regarding the utilisation of virtual reality (VR) and augmented reality (AR) technologies within this domain (Erkılıç & Dönmez, 2020; Jost et al., 2019). VR engenders an immersive virtual space wherein learners can interact with the aid of specific equipment (İpek, 2020; Azuma, 1997). Conversely, AR superimposes digital content onto physical surroundings (İpek, 2020; Azuma, 1997). The enhanced motivation and engagement of learners, the concretization of educational content facilitate a more immersive and enjoyable learning experience thanks to the Metaverse (Aydın & Şahin, 2021; Ersöz & Bülbül, 2022; Tokgöz & Karabatak, 2022). Moreover, it has been inferred that AR enhances student success and promotes effective knowledge formation in learning (Kye et al., 2021), contributing to more enduring learning outcomes by appealing to multiple senses (Sırakaya & Alsancak Sırakaya, 2018; Ersoy et al., 2016). Furthermore, the term "extended reality" (XR) has emerged as a concept in the extant literature (Mystakidis, 2022). XR has a multifaceted impact of the Metaverse on education and has a conducive environment for educational activities (Díaz, et al., 2020; Damar, 2021; Lin, et al., 2022).

In view of the aforementioned possibilities, the Metaverse has the capacity to be especially efficacious in the context of distance learning (Duan et al., 2021). The Metaverse can be integrated into nearly all fields and levels of education due to its ability to digitalise information, provide learners with digital identities, and transform educators into technology managers (Akkaya & Şengül, 2022; Bayer, 2022; Şentürk et al., 2022; Wangid et al., 2020).

The capacity of this technology to deliver realistic, interactive 3-D experiences has been demonstrated to support skill development in a range of fields, including medicine (Bayer, 2022) and engineering (Şentürk et al., 2022). Furthermore, it has the potential to individualise instruction (Akpınar & Akyıldız, 2022; Ersöz & Bülbül, 2022). Furthermore, the Metaverse has been shown to facilitate language learning by providing immersive environments that support speaking practice (Akkaya & Şengül, 2022).

The Metaverse, by virtue of its provision of time and place flexibility, facilitates exploration of content in ways that are not always possible in conventional classroom settings (Gökçe Narin, 2021; Mystakidis, 2022; Lee, et al., 2022; Lee, et al., 2021; Díaz, et al., 2020), including those situations where real-world training is risky or costly (Suh & Ahn, 2022; Kalınkara & Özdemir, 2022; Tokgöz & Karabatak, 2022; Hwang & Chien, 2022; Kye, et al., 2021). The incorporation of gamification elements within the Metaverse has been shown to enhance student attention and active participation (Kalınkara & Özdemir, 2022; Tokgöz & Karabatak, 2022).

Despite the numerous advantages highlighted by researchers, there are also potential limitations and ethical concerns about the Metaverse. The main drawbacks include security and privacy issues, as well as the risk of users being exposed to various online crimes (Akpınar & Akyıldız, 2022; Alkan & Bolat, 2022; Falchuk et al., 2018; Kalınkara & Özdemir, 2022; Kuş, 2021; Bakır, 2022; Singh et al., 2022). In addition, using virtual environments can result in health problems, including overuse (Pellas et al., 2021; Keskin & Bayram, 2023; Fahad, 2012). Furthermore, concerns have been raised about the potential loss of social function in educational institutions if educational activities are excessively

transitioned to digital platforms (Duan et al., 2021). Additionally, the decentralised structure inherent in the Metaverse has the potential to weaken the efficacy of national education systems (Park & Kim, 2022; Lee et al., 2021; Baltacı, 2022). Finally, the traditional economic models upon which physical school systems are currently built could experience adverse impacts (Duan et al., 2021).

Notwithstanding such drawbacks, the Metaverse has the potential to assist individuals in acquiring 21st-century competencies within the context of the information society (Duan et al., 2021; Akpınar & Akyıldız, 2022), provided that educational stakeholders develop the requisite technological competencies (Uyar & Şan, 2022; Orhan Karsak, 2017). The extant literature encompasses systematic reviews of Metaverse utilisation and studies investigating its impact on academic achievement. However, there is a gap in research addressing teachers' perceptions of the Metaverse, particularly concerning cognitive structures and conceptual misconceptions. Cognitive structures refer to the mental frameworks that people use to organise and interpret knowledge (Bahar et al., 1999); if these frameworks differ from scientifically accepted meanings, misconceptions can occur (Yağbasan & Gülçiçek, 2003). Therefore, it is essential to understand how teachers conceptualize the Metaverse so that appropriate curricula can be developed and potential misconceptions can be avoided to ensure effective classroom implementation (Senemoğlu, 2021; Çaycı, 2007).

Herewith, this study aimed to reveal teachers' cognitive structures in relation to the Metaverse. Concordantly, misconceptions, if any, will also be identified. In order to reveal the cognitive structures of the teachers in relation to the Metaverse, the following questions were asked.

1. What are the cognitive structures of middle school teachers in relation to the Metaverse?

2. What are the cognitive structures of high school teachers in relation to the Metaverse?

2. METHODS

Research Design

This research adopts a descriptive approach, utilising a survey design to elicit information from participants regarding their perspectives and attitudes concerning the subject matter (Büyüköztürk et al., 2020; Karasar, 2020; Creswell, 2018). This research was conducted using a descriptive survey design. Descriptive survey designs are among the quantitative research approaches that aim to describe the current situation at a particular time (Karasar, 2020; Creswell, 2018). The research design should not be confused with qualitative research designs such as the phenomenological approach, because the main purpose of the study is not to focus deeply on the experiences of individuals, but to describe the views on certain variables in a general framework. The substantial number of participants ensures a comprehensive representation of educators' cognitive associations with the Metaverse, thereby facilitating a robust and informative investigation.

Participants of the Research

A total of 93 middle and high school teachers in the province of Malatya, Turkey, participated in the study during the 2023-2024 academic year. Participants were recruited voluntarily, and they were informed about the purpose of the study. They were assured confidentiality and explicitly told that they could withdraw at any stage without penalty.

A stratified purposive sampling method was initially employed in order to ensure representation from both secondary and high school categories (Büyüköztürk et al., 2020; Creswell, 2018). However, due to logistical challenges caused by the earthquake in February, the number of teachers and schools affected was greatly reduced. This resulted in the application of convenience sampling within these strata. The application of this sampling method was deemed appropriate in order to efficiently reach the requisite sample size within the time and cost constraints imposed (Yıldırım & Şimşek, 2018; Büyüköztürk et al., 2020). Subsequent to this, a snowball sampling technique was employed to expand the sample. In this instance, teachers were invited to recommend additional participants who met the study's inclusion criteria (Yıldırım & Şimşek, 2018).

Research Instruments and Procedures

A word association test constituted the primary data collection instrument to investigate teachers' cognitive structures and conceptual associations with the Metaverse. The effectiveness of this tool in revealing concept networks and potential misconceptions has been demonstrated in several studies (Taşdere & Kaya, 2016; Hovardas & Korfiatis, 2006; Bahar et al., 1999). The test requires participants to list five words that come to mind in relation to the term "Metaverse". Participants were allocated a time limit of 30 seconds for completion of this task, as has been previously recommended in related studies (Bahar et al., 1999).

In order to verify the practical viability of the test, a pilot study was undertaken with a group of 15 teachers. It was confirmed as a consequence of this study that the stipulated 30-second time frame was adequate for completion. To clarify the data collection process, participants were asked to list five words they associated with the concept under investigation. This instruction was given both verbally and in written form.

Teachers were provided with a paper on which they wrote down their responses. No further guidance or examples were given to avoid influencing their word choices. All responses were collected and transcribed for analysis. The findings from this pilot study were subsequently incorporated into the final analysis to enhance the study's overall robustness. The study's participants were provided with a standardised set of instructions, and the subsequent data collection process adhered to rigorous procedures that had been reviewed by the relevant experts.

Data Analysis

The words collected were then processed using a word processing program, after which content analysis was applied to categorise and analyse the resulting associations. The frequency of word occurrences was examined, after which themes were identified (Yıldırım & Şimşek, 2018). To enhance the validity of the study, the data were reviewed and categorised

by two experts in Curriculum and Instruction who specialised in Metaverse studies. This process was continued until a consensus was reached between the two experts.

The breakpoint technique was applied to establish the relationships between concepts in the cognitive structure (Bahar et al., 1999). The establishment of breakpoints involved the consultation of expert opinion, with the arithmetic mean and standard deviation of the coded elements being calculated to determine breakpoints. The resulting concept networks were then visualised through the implementation of a colour-coded scheme. The scheme utilised dark blue to denote intermediate values within one standard deviation, red to represent values that exceeded this range, and orange to indicate values that fell below this range.

Ethical Procedures

The study received ethical approval on 30th November 2023 (Approval No: 2023/15-9) from the Scientific Research and Publication Ethics Committee of İnönü University, which is responsible for overseeing scientific research in the Social and Human Sciences at the university. Furthermore, the necessary research permissions were formally granted by the Malatya Provincial Directorate of National Education on 03.01.2024 (Permission No: E-34259660-605.01-93512698). Prior to the commencement of data collection, the participants were apprised of the objectives of the study, the voluntariness of their participation, the confidentiality of their contributions, and their prerogative to withdraw at any time.

3. RESULTS

Findings in Relation to the Cognitive Structure of Middle School Teachers About the Metaverse

In response to the initial research question, secondary school teachers associated the Metaverse with a total of 239 keywords. In order to interpret the data more clearly, frequency information was added next to each connotation word, indicating how many different participants expressed it. These terms were then categorised into nine themes: "form of Metaverse", "possible dangers", "Metaverse technology", "evolution of the Internet", "economic order", "education", "social Metaverse", "space", and "fallacy".

As demonstrated in Figure 1, the most prevalent theme associated with the Metaverse is that of "form of Metaverse," which encompasses the categories of "virtual world," "digital being," "digital world," and "holoport." This finding suggests that teachers primarily conceptualised the Metaverse as a digital environment rather than as a functional tool in educational or economic contexts. Another salient theme pertained to "possible dangers," encompassing concepts such as "digital isolation," "cybersecurity challenges," and "Metaverse experience paradoxes." It is noteworthy that these concerns were frequently mentioned in conjunction with the adoption of the Metaverse, indicating teachers' perceptions of risks associated with this adoption, primarily relating to social disconnection and cybersecurity challenges.
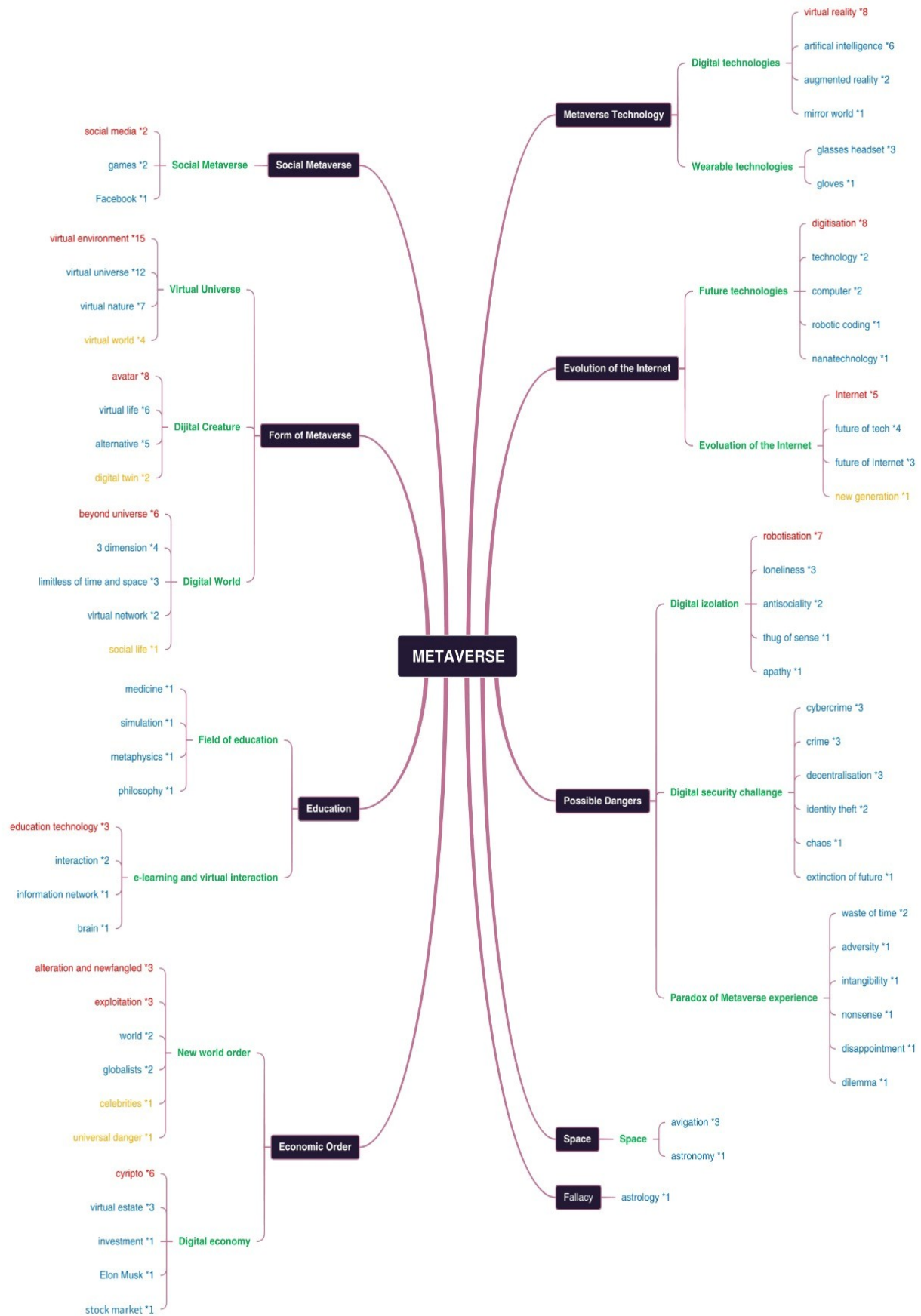
Figure 1. Middle school teachers' cognitive structures about the Metaverse

Nevertheless, these apprehensions remain superficial and require further investigation to ascertain their origin, whether it be personal experience, professional concerns, or broader societal influences. The "Metaverse technology" theme encompassed categories such as "digital technologies" and "wearable technologies," placing significant emphasis on the infrastructural elements that underpin the Metaverse. The "Evolution of the Internet" theme, comprising "Evolution of the Internet", "Future Technologies" and "Digital Innovation," mirrors the conceptualisation of the Metaverse as a progression of prevailing digital trends. A comparable perspective is illustrated by the "economic order" theme, which included such categories as "digital economy" and "new world structure." This suggests that teachers link the Metaverse to transformations in financial and market systems. Within the "Education" theme, the categories identified as the primary focus were "E-learning and Virtual Interaction" and "Activities". This observation suggests that certain teaching staff members may be aware of the Metaverse as a possible educational instrument. However, the "Social Metaverse" theme, encompassing terms like "social media," "Mark Zuckerberg," "Facebook," and "computer games," indicates a predominant focus on existing digital social platforms within the Metaverse discourse. This observation highlights a potential disparity between the perceived value and application of the Metaverse in educational contexts and its current utilisation as a social medium. The "space" theme, meanwhile, contained the terms "space" and "astronomy," thereby reinforcing its associations with the future and the infinite. The thematic focus "Fallacy" emerged from misconceptions surrounding the concept of the Metaverse, with "Astrology" frequently cited within this context. This observation indicates a potential association between the Metaverse and astrological or other mystical beliefs among a proportion of participants. Such an association could be attributable to conceptual confusion. Nevertheless, an analysis that does not explicitly address cognitive errors or misconceptions documented within the extant literature is likely to weaken the interpretation of the findings.

Findings in Relation to the Cognitive Structure of High School Teachers About the Metaverse

In response to the second research question, a total of 203 words were associated with the concept of the Metaverse by high school teachers, who categorised these words into nine themes: "form of Metaverse," "possible dangers," "evolution of the Internet," "economic order," "Metaverse technologies," "education," "social Metaverse," "space," and "fallacy." The cognitive structures of high school teachers closely mirrored those of secondary school teachers, indicating a shared understanding across educational levels. To increase clarity, frequency values indicating how many participants used that word were added to the end of each word that the participants associated with.

As illustrated in Figure 2, "form of Metaverse" emerged as the predominant theme, encompassing categories such as "virtual world," "digital existence," and "digital world." This observation suggests that, akin to secondary school teachers, high school teachers predominantly perceive the Metaverse as a digital construct. "Possible dangers" theme encompassed concepts such as "digital isolation," "digital security challenges," and "Metaverse experience paradoxes," reflecting apprehensions about the potential risks associated with the Metaverse.

Figure 2. High school teachers' cognitive structures about the Metaverse

Nevertheless, the present analysis does not delve into whether such concerns stem from direct exposure to digital threats or are rooted in a more generalised societal discourse on cybersecurity and digital addiction. The "Evolution of the Internet" theme encompasses the categories of "Future Technologies" and "Evolution of the Internet." This observation suggests a correlation between teachers' perceptions of the Metaverse and broader technological advancements. A similar observation can be made with respect to the "economic order" theme, which included "new world structure" and "digital economy." This suggests an awareness of economic shifts associated with digital environments. "Metaverse technology" thematic area incorporated "digital technologies" and "wearable technologies," reflecting an understanding of the Metaverse's reliance on the development of emerging technological infrastructures. "Education" theme encompassed both "e-learning and virtual interaction" in addition to "areas used in education," thereby underscoring the Metaverse's capacity to enhance pedagogical practices. However, the results do not delve into the extent to which educators anticipate incorporating the Metaverse into their instructional methodologies. "Social Metaverse" and "Space" themes demonstrated analogous trends as observed in the secondary school findings. The theme of "fallacy" encompassed the concept of "astrology," thereby signifying the persistent misconceptions surrounding the Metaverse. It is conceivable that some participants may have erroneously associated the Metaverse with celestial phenomena, a misapprehension that can arise from linguistic or conceptual ambiguities. However, there was an absence of references that could have contextualized how such misconceptions are formed and sustained. A more comprehensive discussion on cognitive biases could strengthen the interpretation of these findings.

4. DISCUSSION

A subsequent evaluation of the results was conducted, taking into account relevant literature. In this context, a total of 442 words were associated with the Metaverse by secondary and high school teachers. These words were categorized into nine themes, including "form of Metaverse," "possible dangers," "Metaverse technology," "evolution of the Internet," "economic order," "education," "social Metaverse," "space," and "fallacy." It emerged that the cognitive structures employed by secondary and high school teachers were analogous, albeit with notable distinctions in their associations and interpretation.

Form of Metaverse
Educators generally agree that the Metaverse can be defined as a virtual realm that is limitless in nature and where avatars exist outside conventional constraints. This perception aligns with the conclusions of previous studies that described the Metaverse as a conceptual extension of reality, located between the virtual and real worlds (Göçen, 2022; Mystakidis, 2022; Kye et al., 2021). This understanding suggests that educators perceive the Metaverse as a space for digital beings, reinforcing its potential to provide immersive experiences.

Possible Dangers
A further salient theme pertained to the potential dangers of the Metaverse, with participants voicing concerns that it could lead to digital addiction, the weakening of social relationships, and emotional desensitisation. Additionally, apprehensions regarding cybercrime and losing

control over digital identities were documented. These apprehensions reflect the findings of extant research on the societal negatives of digital immersion, particularly the psychological impact of virtual environments and feelings of isolation (Akpınar & Akyıldız, 2022; Kuş, 2021; and Bakır, 2022). It could be beneficial for further discussion to explore whether secondary school teachers, given their younger student demographic, might be more concerned with online safety issues, while high school teachers focus on the broader societal effects of digital dependency.

Metaverse Technology

The relationship between teachers and Metaverse technology has been primarily associated with the utilisation of virtual, augmented, and mixed reality tools. This observation indicates their direct engagement with digital learning environments, thereby signifying an awareness of the potential for educational applications (Şentürk et al., 2022; Hwang & Chien, 2022). However, the extent to which teachers differentiate between various Metaverse technologies remains ambiguous and necessitates further investigation.

Evolution of the Internet

The Metaverse has been identified as a key element in the progression of the internet, with proponents perceiving it as the subsequent phase in the evolution of digital technologies. This perception is consistent with theoretical propositions suggesting the Metaverse signifies a transition towards a web experience characterised by enhanced immersion and interactivity (Duan et al., 2021; Gaafar, 2021). The conviction that digital technologies will influence the future composition of society has contributed to these associations.

Economic Order

The economic ramifications of the Metaverse have been a point of discussion, with deliberations encompassing cryptocurrencies, data aggregation, and digital commerce (Kahraman, 2022; Sparkes, 2021). The outlook on these advancements as a conduit for economic growth has been juxtaposed with apprehensions regarding the intensification of economic oversight and the exploitation of digital labour. An illuminating investigation would entail a comparative analysis of high school teachers' attitudes concerning these economic implications, in order to discern whether those engaged with societal concerns exhibit greater scepticism towards these economic ramifications than their counterparts in secondary education.

Education

A recurrent theme in the discourse among teachers pertained to the potential of the Metaverse within the educational context. A significant proportion of respondents regarded it as a potential catalyst for enhanced experience-based and interactive learning opportunities. It has been posited that the Metaverse could augment student engagement, particularly in applied fields of study (Şentürk et al., 2022; Batdı et al., 2022). These observations corroborate extant research that has previously been conducted on the advantages of Metaverse applications in educational settings. However, this discussion is recommended to adopt a more critical perspective and address the practical challenges of

integrating the Metaverse into educational settings, including digital literacy requirements and infrastructural limitations.

Social Metaverse

Teachers' perceptions of the Metaverse are also associated with social media, likely influenced by Facebook's rebranding as 'Meta' and the integration of digital content games within social media platforms (Kuş, 2021). This suggests a perception of the Metaverse as both a tool for interaction and an extension of current social media experiences. It would be worthwhile to examine whether teachers hold a favourable view of this technological progression, perceiving it as a means to enhance social connectivity, or whether they view it with skepticism, considering it as a potential catalyst for escalating levels of digital dependency.

Space

A further affiliation was identified between space-related technologies and the Metaverse, including simulations utilised in astronaut training and virtual explorations of space environments (Lee et al., 2022). This observation suggests the presence of a conceptual association between the Metaverse and advanced simulation technologies.

Misconceptions

It has been observed that some participants have associated the concept of the Metaverse with astrology. This observation suggests the presence of possible misconceptions regarding the concept of the Metaverse. This emphasises a necessity for greater clarity in distinguishing between scientific applications of the Metaverse and speculative or pseudoscientific beliefs.

The research indicates that whilst teachers recognise the potential benefits of the Metaverse within education and technology, they also have significant concerns regarding its societal, economic, and psychological impact. The discussion could be enhanced by further examination of how these perceptions vary between secondary and high school teachers, considering their distinct professional responsibilities and educational priorities. Addressing these variations could offer more in-depth insights into how educators might approach Metaverse integration in their respective teaching contexts.

5. CONCLUSIONS

The conclusion of this study suggests that, when employed judiciously, the Metaverse holds considerable potential to contribute to educational advancement. Its integration within education can facilitate the cultivation of critical competencies, thus augmenting the richness and authenticity of learning environments. Consequently, it was decided that the initiation of Metaverse implementation should be undertaken primarily with students from higher age groups, where there is a greater probability of conscious utilisation, particularly within disciplines such as engineering and medicine, where the scope of application is constrained in certain instances. It is recommended that education be integrated with a hybrid model, as opposed to the transition towards a completely virtual and digital environment.

This study investigated how middle and high school educators conceptualize the Metaverse. In contrast to prior research, which had predominantly focused on the technical aspects or pedagogical potential of the Metaverse (Lee et al., 2021; Mystakidis, 2022), this study shifted attention to teachers' cognitive frameworks, a critical yet underexplored factor in successful technology integration. The findings revealed a convergence in teachers' perceptions, indicating a collective awareness shaped by broader societal and media discourses. However, the limited diversity in pedagogical perspectives underscored gaps in educators' readiness to engage critically with the Metaverse, emphasizing the need for targeted professional development initiatives. This study yielded three key implications for educational policy and practice. First, it highlighted the potential need to incorporate Metaverse literacy into teacher professional development programs (Hwang & Chien, 2022). Practical training using immersive simulations and prototype environments (Lee, Woo, & Yu, 2022; Duan et al., 2021) could enhance educators' understanding of the technology's pedagogical affordances and limitations. Second, the findings suggest integrating Metaverse-related competencies into formal curricula. While the Metaverse presents transformative potential for knowledge construction (Sparkes, 2021; Gaafar, 2021), its implementation must account for both technological infrastructure and teacher readiness. Finally, the research underscored the need for intervention studies that actively develop teachers' conceptual understanding of the Metaverse, moving beyond descriptive research. As the technology evolves, educators should help shape its ethical and pedagogical implementation (Lee et al., 2021; Mystakidis, 2022). Future research should investigate how professional development can transform teachers from passive adopters to active designers of Metaverse-based learning experiences.

The findings of this study revealed a striking similarity in the cognitive structures of middle and high school teachers regarding the Metaverse, as evidenced by the alignment of thematic categories and the comparable distribution of connotation frequencies. This similarity suggests a shared conceptual framework among educators across educational levels, potentially influenced by common media narratives, professional development opportunities, or limited hands-on experience with immersive technologies (Lee et al., 2021; Mystakidis, 2022). However, the lack of significant differences between the two groups also highlights a limitation of the current study: it does not explore in depth the potential nuances in perception that may emerge from differences in teaching context, digital literacy levels, or subject specializations. Future research could investigate these differences more thoroughly through mixed-method approaches or longitudinal studies to better understand how teacher backgrounds and school environments shape their understanding of emerging technologies like the Metaverse (Hwang & Chien, 2022; Duan et al., 2021). Given the growing interest in using Metaverse applications in various educational contexts (Gaafar, 2021; Lee et al., 2022), such investigations are essential for informing professional development and educational policy.

It is recommended that in-service training be provided on the subject of Metaverse. This is expected to have an important role in education and will be valuable in planning educational situations. Information should be made available, and protective measures should be taken within the scope of digital security and fighting against cybercrime. Metaverse applications should be made available in a way that will contribute to the social

lives of students and teachers without making them antisocial. It is further recommended that seminars be held regarding shopping via Metaverse applications. It is imperative that experimental studies are conducted with the objective of rectifying misconceptions surrounding the Metaverse. A comprehensive collection of student, parental, and administrative perspectives is crucial for a nuanced understanding of the Metaverse concept. The development of this concept should be focused on reducing dependency on social media. When integrating the Metaverse into educational settings, it is essential to approach this with caution, taking into consideration financial constraints and public concerns regarding the subject. The integration of the Metaverse into applied disciplines and the education of older age groups represents a preliminary step in its introduction to theoretical courses, with the ultimate objective of facilitating its gradual dissemination.

This study was not without limitations, which should be carefully considered. Firstly, the non-probability sampling technique employed, coupled with reliance on voluntary participation, may compromise the external validity of the findings. The potential for self-selection bias exists, as participants with particular predispositions or motivations may have been more inclined to engage in the study, thereby potentially skewing the results. Secondly, using self-report measures introduces the possibility of response biases, including social desirability effects and variations in participants' subjective interpretations of the survey. Despite efforts to ensure clarity in the design, individual differences in comprehension and response tendencies may have affected the data. Thirdly, the restricted sample size and its contextual specificity constrain the generalizability of the findings to wider populations.

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Conflict of interest

The authors declare no competing interests.

УСТАНОВКИ ТА УЯВЛЕННЯ ВИКЛАДАЧІВ ЩОДО МЕТАВСЕСВІТУ

Анотація. Основною метою цього дослідження є вивчення установок та уявлень викладачів щодо Метавсесвіту. Це описове дослідження, в якому використовувався метод опитування. У дослідженні взяли участь 93 освітян, які викладали у державних школах міста Малатья (Туреччина) впродовж 2023–2024 навчального року. Спочатку для визначення типів шкіл відповідно до дослідницьких запитань було використано метод стратифікованої вибірки. Далі для відбору респондентів застосовували метод «снігової кулі». Дослідницькі дані було зібрано за допомогою тесту асоціації слів. Для аналізу отриманих даних використано контент-аналіз. У результаті було виокремлено такі теми: «форма Метавсесвіту», «економічний устрій», «еволюція Інтернету», «технології Метавсесвіту», «освіта», «можливі загрози», «простір», «соціальний Метавсесвіт» і «хибні уявлення». У дослідженні рекомендовано проводити заходи для усунення хибних уявлень учителів щодо метавсесвіту, а також впроваджувати інформаційні технології в освітню систему поступово, невеликими кроками з особливою увагою до цифрової безпеки.

Ключові слова: освітні технології, Метавсесвіт, Метавсесвіт в освіті, віртуальна реальність.