

# Chapter 13

## Metaverse or Not Metaverse: A Content Analysis of Turkish Scholars' Approaches to Edufication in the Metaverse

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### **ABSTRACT**

*This chapter examines how Turkish educational researchers used the Metaverse concept during the Covid-19 pandemic. A thorough examination of the term metaverse is conducted from its emergence, evolution, past and current usage within the academic circles, along with the terms edufication and gamification. Document analysis method is chosen to do a systematic literature review on academic journals. Search was conducted with added keywords to the Metaverse within the literature in Turkish and English. Although the term is a relatively new entrant to the academic research, it is continuously evolving along with the technological advancements its applications to the industry and social life; hence, the concept and its usage will be a continuous subject of further research. The result of the analysis showed that Turkish researchers mainly prefer 'three-dimensional virtual world' instead of the term Metaverse, and the ones found to use Metaverse mainly misuse the term out of its internationally accepted definition.*

### **INTRODUCTION**

The term metaverse was first mentioned and described in the novel published in 1992 "Snow Crash" by Neal Stephenson as a three-dimensional (3D) virtual world (VW) where people existed and interacted with each other as avatars (Joshua, 2017). Since then, many virtual worlds like CitySpace, Active Worlds, SecondLife and Roblox were created (Dionisio et al., 2013). Before October 2021 announcement of the founder of Facebook Mark Zuckerberg, the novel and the movie based on the novel "Ready Player One"

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made great contribution to make the term concrete in people's brains (Sparkes, 2021). In fall of 2020, 'Omniverse' was introduced by Jensen Huang, CEO of NVIDIA as future of the internet (NVIDIA, 2021) and the Roblox company went public with the first metaverse Initial Public Opening (IPO) (Roblox Corporation, 2020). Finally, but not last, in October 2021 Facebook attracted the crowds' attention on the term by renaming itself Meta, while emphasizing that the new era will be under the umbrella term metaverse, and Meta is intended to be the Player One among the other giant technology companies that already informed to have been investing in the Metaverse. Before long, South Korea announced that the City Seoul joined metaverse and some universities mentioned that they are working on their Metaverse campus (Albawaba, 2021). Thenceforward, the studies dated before October 2021 on metaverse, which were only a few to be named, became popular like never before and new studies have been produced in an enormous speed all over the world (Damar, 2021; Narin, 2021).

Covid-19 pandemic has been (and looks like it will continue to be) a universal problem and with regards to education in the pandemic environment, and many countries addressed this problem almost in the same way. They all have switched to distance education rapidly, regardless of to what extent and in what sense their communities were prepared for such a drastic change. While distance education inevitably became the new normal globally, issues and advancements about metaverse and the possibilities it may bring to the education became very popular not only in the society but also in the academic community globally. Turkish researchers have a considerable amount of research on the education in the Metaverse to deliver a gameful experience to users. Therefore, from what perspective scholars who grew up within Turkish culture have taken this topic worth addressing academically. In this chapter, we will cover how the term metaverse is used, by investigating content of the articles published by Turkish scholars on Metaverse with regards to education during the Covid-19 pandemic.

## **BACKGROUND**

### **Metaverse**

The Metaverse is a hard to define and a complex concept. The term has extended way beyond Stephenson's 1992 3D virtual world, by encapsulating physical word 'things' that interact with virtual environments. In the 2007 report of the Acceleration Studies Foundation's (ASF) project named MetaVerse Roadmap (MVR) (Smart et al., 2007), the term's definition was given a good starting point: "*The Metaverse is the convergence of 1) virtually-enhanced physical reality and 2) physically persistent virtual space. It is a fusion of both, while allowing users to experience it as either.*"(p.4).

### **Gamification and Education**

Nick Pelling was the first one that mentioned gamification in 2002, however the term was brought to the literature by Marczewski in 2010 as "*The application of gaming metaphors to real life tasks to influence behavior, improve motivation and enhance engagement.*" (Marczewski, 2013, p. 4). Gamification is simply applying fun factor of games to any tasks including education while education is built up via analogy with education, defined as enriching a non-educational game with educational experiences (Becker & Parker, 2014; Hans Hwang, 2017; Oranje et al., 2019).

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Regarding the Metaverse, it is a space that is not specific to education just like the real world, there are educational aspects in it with numerous other aspects. The education experts want to take place in this era as soon as possible while taking advantage of game-factor not by adding games on top of their educational experience but adding educational experiences into the Metaverse. Therefore ‘edufication’ seems to meet the intended meaning more than ‘gamification’.

## **Problems of the Meaning of Metaverse**

While the term metaverse has already been misused as a synonym of VWs; which are including but not limited to the above-mentioned VWs (Park & Kim, 2022), it is not only more than one VW but an embracing term that includes all those VWs, VR and AR technologies and more as a container. Hence, the key feature of the Metaverse is building a web of interconnected multiuser platforms that allow users to interact both in real-life and immersive virtual environments at the same time with real-time and dynamic communication (Mystakidis, 2022). Inevitably, each application plays an important role on both building the Metaverse and embodying its possibilities (Suzuki et al., 2020).

Converting independent VWs into an integrated verse has its own challenges for each research area. Complex issues like ethical problems, fintech infrastructure of it, legal regulations, and more are being and to be discussed in every aspect. Educational researchers have their own discussions as well. According to Dionisio (2013) it has four aspects to be considered: realism, ubiquity, interoperability, and scalability. These multiple-user platforms need to allow learners to use their own avatar through multiple technological devices to make their interaction more sensible and realistic while the objects are transitive between real-world and multiple VWs. Therefore, the learners will feel almost in an additional dimension of real-life, not in a virtual one.

Regarding the education technology, the Metaverse opens up an almost unlimited number of possibilities adding edutainment’s advantages on top of it. Similarly, to the term itself, using the term metaverse in edufication was stuck around SecondLife in earlier studies (Kemp & Livingstone, 2006; Park & Kim, 2022). On the contrary, it is now used as a substitution of almost every technology (AR, VR, VW etc.) used in education. Due to wide scope of the Metaverse, all those technologies take part in it however none of them is enough on its own, moreover it is not essential to use AR or VR to make a metaverse application (Kemp & Livingstone, 2006).

## **RESEARCH METHODOLOGY FOR THIS STUDY**

### **Research Questions**

In conducting this research, the following questions were used to guide the systematic analysis of the literature.

1. How Turkish educational researchers used metaverse concept during the Covid-19 pandemic?
2. Is the term Metaverse being misused by Turkish educational researchers as specified within the international literature?

## Literature Search and Evaluation

### Materials and Procedure

In order to obtain an insight about the Turkish scholar's point of view about the term 'Metaverse', it was decided to make a *systematic literature review* by using *document analysis* method which is a procedure for both data collection and analysis. Document analysis method involves collecting the data from the documents and evaluating them systematically. The method uses interrelated stages to be followed for raising the data to a conceptual level in order to find an answer in scientific research (Corbin & Strauss, 2008; Lune & Berg, 2017). In this case the data is not a raw data but a list of documents that meet the criteria of this research, documents to be appraised from a specific point of view within a specific period of time.

### Inclusion Criterion

To be able to obtain more concise view of the Turkish educational researchers' perception of the term, it was decided to base this research on academic journals. It may seem as excluding those other valuable researches; like theses, conference proceedings, books and book chapters, but keeping an intensive focus on the most current research as they often considered to be.

### *Time period*

*The COVID-19 pandemic, also known as the coronavirus pandemic, is an ongoing global pandemic of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The novel virus was first identified from an outbreak in Wuhan, China, in December 2019. (Wikipedia, n.d.)*

On January 30, 2020; The World Health Organization (WHO) declared Covid-19 as a Public Health Emergency of International Concern and pandemic on March 11, 2020 (World Health Organization, n.d.). As of April 2022, the world is in the third year of pandemic and according to the WHO's statement dated on March 11, 2022; the pandemic is not over yet (Rocel Ann Junio, 2022).

The Covid-19 pandemic radically changed our lives in all manners: socially, psychologically, and economically. While the world has been expecting educational technologies and gamification to be the remedy for the limitations of both traditional education methods and distance learning within two-dimensional web; the pandemic threw all word in distance learning environments without examining who is ready for it. After the first surprise, scholars had turned their eyes to metaverse and its possibilities to see how it may be used to make distance learning more realistic, to be able to increase its effectiveness and accessibility. Moreover, Lee (2021), expressed that the increasing popularity of the Metaverse is also caused by the lack of socialization of people due to Covid-19 pandemic.

Therefore, the main goal of this study was to analyze the research articles published by Turkish researchers in the field of edufication to be able to explore how they use the term Metaverse in their research during the Covid-19 pandemic period. Although the pandemic is not over yet, this study was

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made in April 2022 and therefore, the research articles that were published between March 2020 and April 2022 was included in this research.

### ***The Point of View***

Throughout the history, adapting to a new situation was a challenge for people and finding solutions to the problems faced on this way differs by culture. Matsumoto (2006) on the other hand, explains how cultures were shaped at first, examining how the universal problems are being solved differently by different groups of people, and then these solutions evolve to become the cultures of these groups themselves. Although many different definitions might be found, a shared system of how people behave when encountered with a universal problem, shapes the culture. Moreover, behavior of the individual members of the group are also shaped by people's ways of life and living conditions, which may not always be their personal choice but depending on the group they were born in.

As it was mentioned earlier; the emergence of distance education and the Metaverse coming into the spotlight occurred close to each other. Exactly similar to the case in the other parts of the world, Turkish scholars got excited by the possibilities of the Metaverse's in the field of education. Consequently, in this research, content of the articles published by Turkish scholars on Metaverse with regards to education was investigated and analyzed.

### ***Literature Identification***

To identify the literature, a literature search was made by using the following keywords to be added to "metaverse" in both Turkish and English: "education", "game", "gamification", "edutainment", "education", "game-based learning", "educational games" in April 2022. TR Dizin, DergiPark and Tubitak Harman databases were searched, using both English and Turkish keywords because these databases only include the researches published in Turkey. Google Scholar web page was searched, using only Turkish keywords and only in Turkish pages. The searches yielded a total of 531 results which were given in *Table 1. Search results*.

Table 1. Search results

Keyword	TR Dizin	DergiPark	Tubitak Harman	Google Scholar
Metaverse	1	18	21	110
Metaverse + Education (Turkish Eğitim)	0	5	0	88
Metaverse + Education (English)	0	7	4	40
Metaverse + Learning (Turkish Öğrenme)	0	0	0	39
Metaverse + Learning (English)	0	9	0	35
Metaverse + Gamification (Turkish Oyunlaştırma)	0	0	0	5
Metaverse + Gamification (English)	0	1	0	2
Metaverse + Edutainment (English)	0	0	0	0
Metaverse + Edufication (English)	0	0	0	0
Metaverse + Game+ Education (Turkish oyun + eğitim)	0	1	0	65
Metaverse + Game + Learning (Turkish Oyun + öğrenme)	0	0	0	32
Metaverse + Game+ Education (English)	0	2	0	18
Metaverse + Game + Learning (English)	0	1	0	17
Metaverse + Game-based Learning (English)	0	2	0	2
Metaverse + Educational Games (Turkish Eğitsel oyunlar)	0	0	0	3
Metaverse + Educational Games (English)	0	3	0	0
TOTAL	1	49	25	456

After the duplicates and the non-journal articles that could not be filtered on Google Scholar search were eliminated, 59 articles were identified.

The 59 articles' titles, abstracts and keywords were read to identify which may be classified as educational research. After carefully resolving of the manuscripts, computer science (3), sociology and psychology (8), law (1), business (23), philosophy (3), e-sports (1), arts (5), and architecture (1) articles were excluded; 15 articles were deemed relevant to educational research and their full-text were obtained for quality assessment.

The full-text articles were skimmed for further assessment, four of the articles were excluded because they were reviews of international research, included the education field however, they were not showing the Turkish scholar's point of view. One of the articles was excluded because, it was a social media posts' classification which included educational posts. Although the authors put 'education' in their keywords list, it is only one of their classifications, it could not be classified as educational research as a whole. Two of the articles were excluded because they were published in magazines instead of a peer reviewed journal. The reason that these articles got to this stage is because the magazines were published by universities in Turkey, and they were classified as a journal in google scholar database. After

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the quality assessment stage had ended, 7 articles were deemed relevant to this research, and they were examined deeply for coding. It is important to note that there was one article that the main discipline of the research seems different than educational research, however it was classified as educational research by both authors of this research only because it is about the perceptions of the students of their discipline about the Metaverse era.

## **DATA EXTRACTION AND ANALYSIS**

The following analysis consists mainly of coding, held in its most common description as analyzing raw data and putting into a conceptual understanding. The act associated with the study is coding and concepts created through this act are called codes. It should be emphasized clearly that coding is a thorough and in-depth study that includes analysis of the data utilizing techniques i.e. questioning the data, comparing and contrasting the data in order to be able to develop the concepts from the data (Corbin & Strauss, 2008). Coding can be described as mining of the data similar to a mineral mine where one needs to dig deep into the ground to get the real value of the resources. The act of digging in the metaphor of data versus mine can consist of reviewing transcribed fieldnotes and dividing and disassembling them while taking their connections into account. The next stage of the analysis is set upon how the collected data is differentiated and then combined based on its properties and dimensions (Miles & Huberman, 1994).

### **How the Metaverse was Defined in the Chosen Articles**

The articles were examined in terms of the definitions they provided for the term Metaverse within their concept and following codes were driven from the articles (7) to provide a projection of the term: imitation of real world (2), synonym of Virtual World (3), 3D- AR and VR services (2), digital era (2), and universe of many VWs (1). This section briefly introduces the definitions of the term Metaverse in the full text of selected articles. The articles were presented chronologically.

The first article included in this research, which was published by Demirbağ (2020), used the term Metaverse as an inspirational concept of 3D virtual worlds and defined as: ‘Interactive and multiuser environments, where the real world is imitated with 3D VR technology’. This definition is consistent with their inference from review of literature, that is the advancement of VWs was ruled by the developments in both sci-fi literature and game industry, and these advancements led the researchers to define Metaverse – 3D VW as above mentioned since it is very similar to Stephenson’s definition.

Damar (2021) conducted a bibliometric study on Metaverse, and defined Metaverse as a 3D virtual shared world. His definition depends on the AR and VR services and equipment, which are introduced as essential peripherals of this technology. Although the definition seems to be quite narrow at first glance, the article was concluded with the acceptance that the term is complex and will take many years to develop and understand thoroughly.

Sağlık and Yıldız (2021), conducted a study on Web 2.0 tools in education. Although they use Metaverse and its components (VR, AR, VWs and so.) often in the study, they did not define Metaverse as a part of their research. Therefore, this study was not included in the coding process.

Dursun and Yetimova (2022), stated that the Metaverse era and obligatory distance education period during the pandemic, caused Turkish students’ perceptions about their future work to shift towards digital business areas from the traditional ones. They used the Metaverse as a synonym to ‘internet of

the World' in the Industry 4.0 era. This definition seems vague since it might stand either for 'a net of Virtual Worlds' or 'a World similar to internet'. Apart from this vagueness, other meanings might have been meant. The reason could be the translation problems, since Dursun and Yetimova's article is written in Turkish. It might have been translated not accurately while the international literature was synthesized. The same situation appears also for Altan and Özmusul's article (2022), in which the Metaverse term was used as a synonym to Digital era, telecommunications era and artificial intelligence. In this article, accompanying the previously mentioned situation, there might be a desire to use a new and popular world in the article for SEO (search engine optimization) purposes.

Çelik (2022), stated in his article that the new fictional universes had drawn the digital era population in with new communication technologies. The metaverse was defined as a VW in which all worlds are gathered where all digital elements are combined, and hence a virtual living space was created. Çelik also suggested that Web 3.0 technologies including AR and VR will be existed without intermediaries on the metaverse-based digital environments. This definition seems to be the closest to the definition that was given on MVR (Smart et al., 2007).

While Türk and Dari's article (2022) is about sociology of communication, it was included into the coding process of this research because Türk and Dari stated that socialization is shaped by educational institutions along with other institutions. Educational institutions, unlike many other units of society, subject individuals to the modern formation process by using the innovations in communication tools. In this way, the experiences of the individual outside the educational institutions (i.e. to have fun, work, relax) also pass through this formation filter. Moreover, they defined the Metaverse as a special 3D universe where all the actions of socialization including but not limited to shopping, education, entertainment and working, are carried out through special clothes and apparatus. Hence it is a new and developing concept, as they suggested, its definition is being built day by day.

## **LIMITATIONS AND FUTURE RESEARCH DIRECTIONS**

This research is limited with:

- The date of literature search 26.04.2022,
- The TR Dizin, DergiPark and Tubitak Harman ana Google Scholar web databases of search,
- The keywords that authors chose,
- The search result of 59 research in which 10 of them included in the study.

Possible future studies may include the theses, proceedings, and book chapters in the field for deeper understanding.

## **CONCLUSION**

The metaverse is considered as a new and complex concept containing all aspects of real life since it is a hybrid reality in which people are expected to be confused about the boundaries between real life and Metaverse. As a natural consequence of this situation, it offers almost endless possibilities of research in all fields. This review article is conducted to throw a light to the misuse of Metaverse within the Turkish

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educational academic literature, which seems to be affected from colloquial misuse of the term. With the Covid-19 pandemic, people had to do practice many activities in the virtual environment i.e. socialization with friends, taking courses, attending concerts, working from home, having distant education, most of which had to happen in two dimensions online. This obligatory situation made the Metaverse concept in people's heads more concrete than ever before and a spark went off for the new dimension of the internet. The giant technology companies invested in this idea to support people to be a part of this hybrid reality that allows them to switch between VWs easily. When this idea is brought to life, most of the daily activities can be performed within itself.

To return to the research questions of this study, Turkish educational researchers mostly used meta-verse concept during the Covid-19 pandemic as suggested in international research, synonymously with virtual worlds and/or imitation of real world. Also, some of the researchers defined the components of Metaverse (AR, VR etc.) instead of the term itself.

Although the journal articles were chosen because it was suggested as the most current research indicator in international research (Alasutari, 2010; Hargens, 2000), it was concluded that this is not the case for edufication researchers in Turkey. While screening the first 531 research for inclusion, both authors noted that edufication researchers in Turkey are more likely to share their research as books and book chapters. This may be because edufication researchers produce publications on the interaction of different disciplines, as Clemens et al. (1995) suggested "...*Books generate conversations across sub-fields and disciplines...*"(Clemens et al., 1995, p. 433).

Regarding the edufication researchers, it is important to note that, Turkish edufication researchers were observed to use the term "Three-dimensional virtual world" in Turkish instead of the term Meta-verse, which explains the narrow search results.

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## **KEY TERMS AND DEFINITIONS**

**Augmented Reality (AR):** A computer-generated synchronous or asynchronous enhanced appearance of real-life spaces with sounds, graphics.

**Avatar:** An image that was created by user electronically, it may be realistic or manipulated, depending on the user's wishes.

**Edufication:** Enriching a non-educational game with educational experiences.

**Gamification:** Applying fun factor of the games into any real-life tasks to transfer advantage of gameful experiences ie. motivation to engage.

**Metaverse:** A web of interconnected multiuser platforms that allow users to interact both in real-life and immersive virtual environments at the same time with real-time and dynamic communication.

**Three-dimensional Virtual World (3D VW):** A three-dimensional digital space that represents a world with some realistic or figmentive characteristics.

**Virtual Reality (VR):** An immersive hybrid reality that contains fictions and imagination which was created using technology.