

## THE METAVERSE: HIGHER EDUCATION'S NEXT FRONTIER

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### **Abstract**

With its possibilities and challenges, online education has become mainstream in higher education. However, with the transition from Web 2.0 to Web 3.0, online education has a chance to evolve and expand in new ways. One of these ways is the metaverse. The metaverse - immersive worlds where users engage, socialize, connect, and learn with other users, organizations, brands, and various entities - holds the opportunity to elevate higher education in ways unseen in Web 2.0. The metaverse offers business students and faculty a new pathway to connect and learn in a space where no physical or geographical boundaries exist.

This paper offers a glimpse into the metaverse along with challenges and opportunities which accompany it. However, the paper also has the purpose of encouraging universities, faculty, and administrators to consider the metaverse as an innovative way to reach learning goals and meet strategic objectives.

*Keywords:* metaverse, metaversity, online education

### **Introduction**

Upon the introduction of the Internet, people had few options to interact with this new medium. Generally, in the introductory stage, called Web 1.0, users could basically access a static website, gather information, and utilize that information. After further advancements in technology, the era of Web 2.0 emerged. That stage of the internet allowed for interaction and engagement with websites and other media. The Web 2.0 era generated apps, mobile access, social media, and initiated user generated content. The functionality of the internet grew during Web 2.0 with social networking, user participation, and richer digital experiences. While Web 2.0 saw major innovative advancements, the internet has now moved on to a new era: Web 3.0. Web 3.0 builds upon Web 2.0 but is a progression to a decentralized web. Attributes of Web 3.0 include non-fungible tokens (NFTs), Artificial Intelligence, virtual reality, blockchains, targeted advertising based on user behaviors, and a decentralized data network that enables users to own their personal data, which was generally not typical in the previous eras.

Industries such as medicine, sports, retail, and others are embracing Web 3.0 as a business strategy. In addition to these industries, however, it is crucial not to exclude higher education in the context of Web 3.0. Institutions of higher education have also had the opportunity to reimagine the modern classroom, which includes advanced online learning platforms and virtual reality-based curricula such as the metaverse. As higher education becomes more competitive and the stakes become higher for

universities and other educational institutions, it is crucial to examine the opportunities and the challenges afforded by Web 3.0 and more specifically the metaverse classroom.

### **Digital And Online Education**

Online education has been the focus of considerable educational research to determine if it is now considered to be relevant and foundational, rather than simply a popular, but short-term trend. Topics such as effectiveness (Kusmaryono, et al., 2021), quality (Esfijani, 2018), accessibility (Guilbaud, T. et al., 2021), rigor (Hamel, 2019), value (Moura & Viana, 2021), satisfaction (Gopal, et al., 2021) and course design (Lewis, 2021) have been studied. Different formats of online delivery vary and include synchronous/asynchronous, blended, hybrid, abbreviated, MOOC (Massive Open Online Courses), and others. Additionally, various tools in these online formats disseminate information for students in the form of audio, video, interactive content, and much more. Digital and online education received further attention as courses, including business-related ones, pivoted to an online format during the Covid-19 pandemic.

A noteworthy Web 3.0 advancement, and one with educational ramifications, is the emergence and popularity of digital worlds. Though digital worlds have been in existence previous to Web 3.0, they have not been as advanced or received as much financial backing as the present. These digital worlds, or metaverse, have gained support in business/marketing (Hollensen, 2022), faith-based communities (Jun, 2020), medicine and education (Hwang, et al., 2022).

### **Metaverse And Education**

Metaverse can be defined in various ways but can be described as the “concept of a future iteration of the internet, made up of persistent, shared, 3D virtual spaces linked into a perceived virtual universe” (Hackl, 2021). Another description of the metaverse is, “a 3D-based virtual reality in which daily activities and economic life are conducted through avatars representing the real themselves” (Go, et al., 2021). The concept of the metaverse has been in existence for many years, but only recently received more attention due to Meta (Facebook’s parent company) backing the metaverse with over \$10 billion in funding (Howley, 2022). Large brands, such as Nike and Walmart, have invested millions of dollars in this virtual reality environment. Other industries such as sports have built stadiums (Reichard, 2022) where users can interact with team players. In fact, Disney recently hired a metaverse strategist (Spangler, 2022). There are numerous ways for users to invest in the metaverse such as metaverse real estate, investment funds, and purchasing shares in metaverse companies (Sher, 2023). Companies like Metaverse Learning have caught the attention of investors as it has secured an investment of over a million dollars to expand learning opportunities for students (Uktechnews.com). As the metaverse becomes more popular and streamlined, it is vital for educators and educational institutions to realize the opportunities and challenges which lie within the MV.

The primary purposes of higher education are to create mental, character, social, and career development; transfer of knowledge; and the achievement of a sustainable successful future (McArthur, 2011). As Web 2.0 transitions to Web 3.0, it is worth considering if these purposes still relate and how they have changed in the new

technological environment. Educators found challenges with online education in Web 2.0, but benefits occurred, as well. For example, online learning in Web 2.0 benefited students by allowing students to be accommodated in ways the physical classroom has never allowed, emphasizing equity and more inclusive environments (Sears, 2022). The role of Artificial Intelligence within the metaverse is allowing for more advanced forms of engagement and interaction with peers, tutors, advisors, and mentors. Additionally, it has been suggested for educators to use the metaverse to encourage learners to perceive and experience things from a different perspective, collaborate with people not possible in the physical world due to geographical barriers and to engage in higher order thinking by involving students in complex and authentic tasks (Hwang & Chien, 2022).

Education has followed this precedence into the metaverse. Though minimal, education in the metaverse has received attention. It has been noted that the metaverse, a space for social communication, can allow for a high degree of freedom to create, and can provide highly immersive experiences through visualization (Kye, 2021). Research has shown that perceived ease-of-use, usefulness, and enjoyment were all predictors of intention to use the metaverse as a form of higher education (Kim, et al., 2022). Wang et. al, (2022) proposed the architecture of a metaverse classroom which includes “hubs” such as instructional design and performance technology.

Through all the opportunities metaverse education offers, challenges have been noted, as well. Privacy risk, implementation, and governance (Lin, et al., 2022) have been found to be considerations for educational institutions. Other potential challenges include costly infrastructure, cultural biases, and useability issues (Kaddoura & Husseiny 2023). Security remains a potential obstacle given the immense amount of biometric data which may be gathered (Mathis, et al., 2021). How to ethically use data gained and how to best strategize for teaching have also been addressed (Tili, et al., 2022). Finally, social acceptance of the metaverse is a consideration for all stakeholders (Lee, et al., 2021).

However, the metaverse is still a viable option for education. Research has shown that virtual reality learners learn four times faster in a virtual reality environment than in a physical classroom (Nagi, 2022). Business programs have found the metaverse to be a positive experience, as well. One MBA program found that their students were introduced to varied perspectives, provided variety, offered experiential immersion, and accelerated student learning (Govindarajan, 2022).

Metaverse education is no longer just speculation. Numerous educational institutions have implemented the metaverse classroom and have even taken this virtual reality environment a step further. This next step is the metaversity.

### **Metaversity**

The metaversity is an immersive virtual reality platform where remote faculty and students wear VR headsets and engage in the online environment just as they would in the physical world. Some schools have created “digital twin campuses” which do not take the place of the physical one, but instead live adjacent to the physical campus to create a more immersive experience than one experienced in the physical environment. Higher education institutions including Fisk University, Morehouse College (Appendix

A), West Virginia University, South Dakota State, the University of Kansas, and others have all created metaversity campuses. The company that built these metaversities, VictoryXR, touts that the metaversity creates greater retention of the information that is learned while attending classes at a metaversity. Currently the data supports this claim. Several areas of study can be found at metaversities including history and business. For example, Morehouse's world history class showed a 10% increase in student grade point averages when compared to Zoom and face-to-face instruction (D'Agostino, 2022). One institution, Adventis Metaverse is marketed as, "the world's first graduate school in the metaverse."

Other positives of a metaversity include personalization of courses, access of knowledge, emergence of new teaching pedagogy, and innovative on-demand information via AI (Kahla, 2021). Conversely, concerns include technology access, monetization, and academic freedom (D'Agostino, 2022). But, as metaversities continue to grow in number, research has offered models and metaverse learning environments that may help universities and faculty design programs, degrees, and classes within this space. For example, Wang, et al., (2022) suggested a metaverse learning environment should include four "hubs" which are: instructional design and performance technology, knowledge, research and technology, and talent and training.

**Figure 1. Morehouse College Metaversity**



Metaversity research is still sparse due to the novelty of it, but possible future research has been suggested. These research streams include developing models/strategies for metaverse teaching and learning, learner's performance, assessment, student behaviors, and ethics (Hwang & Chien, 2022).

### **Educator Thoughts Of Teaching In The Metaverse**

During a recent teaching and learning academic conference, the authors hosted a presentation and discussion about metaverisites. To explore and learn more about initial perceptions of educators' perceptions and thoughts of teaching at a metaversity, the authors asked the participants, after the presentation, if they would or would not teach at a metaversity. The participants (approximately 20) were all higher education instructors of varying disciplines, including business. After giving their answer, they were given the opportunity to elaborate as to why they would teach at a metaversity or why they would not. All participants stated that yes, they would teach at a metaversity. The following is a sample of the comments made during the discussion.

- I have spent time in an immersive digital environment since I was an undergraduate in the 1990s. I will teach what I can wherever I can. Some disciplines may not be so effective in the metaverse.
- The metaverse is coming, be unafraid.

- Students are digital natives. This is their world. We need this now.
- We will all be teaching in the metaverse in 10 - 15 years.
- Students will be expecting this to occur. The biggest concern is the “real” face to face interaction that is so vital. I hate to think that we will become a world of avatars.
- It is the future, why delay? It could flatten the educational access curve. I would love to see schools combining through this platform.

Throughout the presentation and discussion, it was apparent everyone was intrigued by the metaversity. Most participants were aware of the metaverse, and one had spent time in the metaverse. Concerns raised during the discussion included access, cost, and lack of educator competency along with the issue of time management. From an administrator’s perspective, student privacy and budget allocation were mentioned.

Overall, however, faculty were extremely optimistic about the opportunities the metaverse may offer. Faculty agreed there was a level of interactivity in the metaverse unparalleled with current online learning platforms. The immersive experience with gamification and artificial intelligence could bring a higher level of creativity and motivation. Others argued even though the initial cost may be high, cost per student would be manageable.

### **Conclusion**

Online education, with its rewards and challenges, is a form of education used by thousands of students and faculty around the world. While it does produce challenges, it also offers opportunities never afforded to the physical classroom including disappearance of time and space boundaries. Now, with the metaverse and the metaversity, educators, and academic institutions have the chance to explore, grow, and innovate with new strategies regarding andragogy and pedagogy. Some experts have noted the metaverse will be mainstream within the next decade. This may infer the young students of today will expect and even require the metaverse to be a part of their learning. To the higher education student of the near future, it will be a natural learning environment.

The idea of teaching in the metaverse or at a metaversity possesses a wide range of reasoning and valid opinions. There are still numerous questions to be asked and even more to be answered. As Web 3.0 overtakes Web 2.0, teaching and learning will see the dawn of a new era. No one predicts that the physical classroom and in person instruction will become extinct or obsolete. But, from a financial, administrative, and learning perspective, the metaverse and the metaversity could be higher education’s next frontier.

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