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Suggested Ways to Activate Metaverse in Educational Institutions

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ABSTRACT: The study aims to identify the requirements for activating Metaverse in educational institutions, supporting institutions with the necessary tools, equipment and technologies, and preparing, qualifying and training teachers to employ them optimally to improve and develop the educational process in light of the challenges of the knowledge revolution and the digital explosion and keeping pace with the needs of the digital age, through the descriptive and analytical approach by reviewing previous studies and relevant educational literature. relevance during the period (2022-2023), and in light of the results of previous studies and according to the vision of the researchers, the current study builds a proposal for leadership to apply and show in our institutions, and the importance of this study comes from the fact that it is hoped that educational leaders, decision-makers and officials in ministries will benefit from its results, by developing Decisions and drawing up policies to activate the role of leaders to reach the knowledge society and enhance the capabilities of a smart digital environment.

KEYWORD: Metaverse, educational institutions.

Introduction

Individuals born after 1995 are called Generation Z, due to the characteristics that distinguish them from previous generations, such as their preference for gaming experiences while they were growing up at a time when personal computer and mobile technologies with games were developing and positively affecting user participation and motivation through the application of game elements such as points , badges, levels, and leaderboards in a non-game context, including education, business, healthcare, and education gamification results in effects of learner motivation, engagement in learning, and attitude improvement through these game elements, furthermore, the gaming experience is described as an experience similar to playing a game but in a context Non-game is interpreted differently from a game-like experience. It can be said that an individual has a game experience when he unintentionally has the experience of playing a game.

Digital education faced many challenges, especially for students who were unable to actively participate in distance learning, or that the teacher did not employ the technologies appropriately. This was

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reflected in the quality of education due to lack of experience with online video conferencing software or poor interaction between learners in online video-based classrooms. Online learning without interaction was not significantly different from traditional learning in the past or was found to have a negative impact on Learners' learning motivation and attitude towards learning, and accordingly, a way to deliver value based on gaming experiences was explored in Metaverse as an example of hedonistic experiences where they interact with other users. Thus, providing equal educational opportunities for students who are disadvantaged as a result of their environment, with the necessity of training on use and employment in education, designing a specialized virtual educational site on the metaverse platform, and gamification was implemented to predict future social problems and design a virtual smart city in order to solve these problems

The study Problem:

In light of the increasing technical and digital development, the increase in promotion and the spread of the Metaverse application, scientific research has been increasingly studied, its advantages and challenges are known, and the applicability of scenarios, perceptions and designs for its investment in all institutions, especially educational ones in particular. The Covid 19 pandemic accelerated technological progress and e-learning, given the restrictions and closures that spread at the time and imposed on us digital transformation as a compulsion and not as an option on all activities and operations, as Metaverse has become a medium that connects the world inside and outside the Internet. Focusing on augmented reality and virtual reality technology The increasing desire to apply Metaverse in the educational system focuses mainly on students, and the use of various strategies and different models to identify the factors affecting students' willingness to apply it and invest it optimally to achieve educational goals efficiently and effectively, hence this study came to answer the main question What are the proposed ways to employ Metaverse in educational institutions? A set of sub-questions emerges from it, which are:

1. **What is Met averse?**
2. **How do we employ Met averse in educational institutions?**
3. **What are the proposed ways to employ Metaverse in educational institutions?**

Study Significance

Scientific significance (theoretical):

It is hoped that policy makers will benefit from this study by enacting laws and policies that enhance the role of Metaverse in educational institutions and establish its principles in educational institutions and society as a priority.

It is hoped that the recommendations of this study will benefit the leaders to play their role in encouraging students and researchers to continuously evaluate and provide feedback on educational media.

The importance of the study from a theoretical and intellectual point of view:

- It is hoped that this study will represent a scientific addition to its subject, which is an urgent need in our time and one of the literature that libraries need, according to the researchers' knowledge.

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It is hoped that this study will provide scientific and research horizons for other researchers to delve into such a field in order to bring about the desired development and add new knowledge to educational thought and scientific research to bring about the required positive change.

Study Methodology:

The study used the descriptive, analytical, developmental approach, as it used the theoretical approach with reference to the theoretical literature and studies related to the topic; To form a theory of specialized ideas and concepts in the field of study, and to review relevant previous studies, by analyzing the literature related to the study; To reach the answer to the study questions and to provide a number of recommendations.

Previous studies:

Mystakidis (2022) presents a study titled Metaverse, and asserts that Metaverse is a post-reality world, a permanent, continuous multi-user environment that merges physical reality with digital virtuality. It is based on the convergence of technologies that enable multisensory interactions with virtual environments, digital objects, and people such as Virtual Reality (VR) and Augmented Reality (AR). Hence, the Metaverse is an interconnected network of immersive social environments networked in continuous multi-user platforms. It enables seamless, embodied user communication in dynamic, real-time interactions with digital artifacts. The first iteration was a network of virtual worlds where avatars could teleport between each other. The contemporary iteration of the Metaverse features immersive social VR platforms compatible with massively multiplayer online video games, open game worlds, and collaborative spaces of augmented reality.

Weinberger (2022) A study entitled What is Metaverse? Definition based on qualitative meta-synthesis. The term Metaverse has received a lot of attention in various industries, in society, and increasingly, in the scientific communities. This creates the demand for a comprehensive and widely accepted definition of the topic, which is well grounded in research. At the same time, the Metaverse is rather a vision under development than an examinable phenomenon. Therefore, this study applied a modified version of the meta-synthesis method to analyze the existing literature and derive a proposal for a metaverse definition. The modified method takes the nature of the topic into account by evaluating younger publications with many citations to older, less influential documents. Initially, 47 publications were entered into the process, of which 24 were left after the initial analysis. As a result of the analysis, the following definition was proposed: “The Metaverse is an interconnected network of ubiquitous virtual worlds partially overlapping and enhancing the physical world. These virtual worlds enable users represented by avatars to connect and interact with each other, to experience and consume user-generated content in An immersive, scalable, simultaneous, and continuous environment. The ecosystem provides incentives for contributing to the Metaverse.” The meta-synthesis method ensures a systematic and reproducible approach while at the same time preserving the original voice and idea of the analyzed literature in order to create new knowledge based on the existing literature; Thus the proposed Metaverse definition may serve as a useful basis for future research.

Xie Zhi Lu; Hong Hsu, Tsai. (2022) Study titled Designing 3D Virtual Reality in the Metaverse for Environmental Conservation Education Based on Epistemology Climate change causes devastating effects with extreme weather conditions, such as floods, melting of polar ice caps, sea level rise, and drought.

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Conservation education is an important and ongoing project at present for all governments in the world. In this paper, a new 3D virtual reality architecture in the metaverse (VRAM) is proposed to enhance water resources education using modern information technology. METHODS: A quasi-experimental study was conducted to observe the comparison between learning with VRAM and learning without VRAM. 3D VRAM multimedia content comes from a picture book to learn environmental conservation concepts, based on the cognitive theory of multimedia learning to enhance human cognition. Learners wear VRAM helmets to run VRAM Android applications by entering an immersive environment to play and/or interact with 3D VRAM multimedia content in the metaverse. They shake their heads to move the interaction marker to initiate interactive actions, such as replaying, skipping to sequential videos, viewing text annotations, and responding to questions when learning soil and water conservation course materials. Interactive portfolios of operating procedures are transferred to the cloud computing database instantly by the application. RESULTS: Experimental results showed that participants who received instruction involving VRAM had significant improvements in flow experience, learning motivation, learning engagement, self-efficacy, and presence in learning conservation concepts. CONCLUSIONS: Novel VRAM is highly suitable for multimedia instructional systems. Moreover, learners' interactive VRAM portfolios can be analyzed through big data analytics to understand VRAM usage behaviors in the future to improve the quality of conservation education.

Yun Cheng, Cai A study titled Education Value Chain Metaverse Since the end of 2021, the Metaverse has flourished. Many unknown possibilities are gradually being realized, but many people just decided that they use Virtual Reality (VR), Augmented Reality (AR) and Mixed Reality (MR) in the Metaverse. It is even considered that as long as the above realities (VR, AR, MR) are used, they are equal to the Metaverse. However, this is not true, because reality-based presentation tools are just one of the presentation methods for the Metaverse. If we can't go back to the three main characteristics of the Metaverse: "digital avatars", a decentralized "consensus value system", and "immersive experience", then the practice and imagination of the Metaverse will become very narrow. Since 2022, the Metaverse concept has also been widely used in classroom teaching to integrate into teaching activities. Therefore, to prevent teachers and students from understanding the Metaverse not only in "using VR, AR and MR is equivalent to the Metaverse" but also pay more attention to the other two characteristics of the Metaverse: "digital avatars" and the decentralized "consensus value system".

Commenting on previous studies:

The current study agrees with that of Mystakidis (2022), Weinberger (2022), and Xie Zhi Lu; Hong Hsu, Tsai. (2022) The Metaverse has the potential to play a significant role in improving and advancing the educational process in several ways**:**

Enhancing Engagement: The immersive nature of the Metaverse can enhance student engagement and motivation by providing an interactive and immersive learning environment. This can make learning more enjoyable and memorable, and increase retention of knowledge and skills**.**

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Fostering Collaboration: The Metaverse can foster collaboration among students, allowing them to work together on projects and assignments in a virtual environment. This can help develop teamwork, communication, and problem-solving skills, which are essential in the modern workforce**.**

Providing Personalized Learning: The Metaverse can provide personalized learning experiences that cater to individual learning styles and preferences. This can be achieved by providing adaptive learning paths, customized feedback, and interactive simulations**.**

Offering Accessible Learning: The Metaverse can provide access to education for students who may not have access to traditional educational institutions due to geographic or financial constraints. This can help bridge the digital divide and provide equitable access to education**.**

Facilitating Innovation: The Metaverse can provide a platform for innovation and experimentation in education. It can help educators explore new teaching methods, test new technologies, and develop new learning resources that can improve the quality and effectiveness of education**.**

Overall, the Metaverse has the potential to revolutionize the educational process and help it keep pace with technological and knowledge development. However, it's important to approach the use of the Metaverse in education with caution and ensure that it aligns with educational objectives and principles. It's also important to consider the ethical implications and ensure that data privacy, security, and social implications are carefully addressed

Conclusion:

To answer the first question of the study: "What is Met averse?"

It is defined as a virtual world that enables users to interact with an environment generated by smart devices, provides an opportunity to participate in immersive learning experiences, and enables the creation of more engaging, personal, and interactive learning experiences that are not possible in the physical world. (172, 2021, Sanchez and Aguado).

It was defined as creating safe and controlled environments for training purposes, such as allowing medical students to practice surgical procedures without the risk of harming patients (Shu & Chen 2018).

In education, the metaverse can be used to create virtual classrooms, allowing for synchronous and asynchronous learning that can occur anytime and anywhere (Pellas et al., 2012). In addition, the metaverse can be used to simulate real-world environments and scenarios, allowing skills and knowledge to be developed in a safe and controlled environment (Shu & Chen, 2018).

The metaverse is a virtual world that is created and maintained by its users. It allows interaction with the computer-generated environment and other users, and provides unique opportunities for immersive and interactive learning experiences (Hew & Cheung, 2010).

The two researchers know that the term "Metaverse" generally refers to a virtual future iteration of the Internet, where users can interact with a fully immersive virtual environment. In such a world, identification and authentication would be necessary for users to access their virtual identities and participate in Metaverse activities and events

To answer the second question of the study: How do we employ Met averse in educational institutions?

The term "Metaverse" generally refers to a hypothetical future iteration of the internet, where users can interact with a fully immersive virtual environment. In such a world, identification and authentication

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would be essential for users to access their virtual identities and participate in the activities and events of the Metaverse.

The exact mechanisms for identification and authentication in the Metaverse are still in development, but some possibilities include:

Digital Identity: Users could create a digital identity, which would be tied to their real-world identity, allowing them to access the Metaverse through a secure login system.

Biometric Identification: Biometric data such as fingerprints, facial recognition, or voice recognition could be used to authenticate users in the Metaverse.

Blockchain-based Identity: Decentralized identity systems based on blockchain technology could provide secure and transparent identity verification for Metaverse users.

Social Media Integration: Existing social media platforms could be integrated into the Metaverse, allowing users to authenticate themselves using their social media profiles.

It's important to note that the development of the Metaverse is still in its early stages, and the specific methods of identification and authentication will likely continue to evolve over time.

To answer the third question of the study: What are the proposed ways to employ Metaverse in educational institutions?

The Metaverse is a powerful tool that can be used to enhance the use of metaphors in education. By creating immersive and interactive virtual environments, educators can help students visualize and experience abstract concepts in a more tangible way. This can help students engage with the material and understand it more deeply.

Furthermore, the Metaverse can be used to teach students about important life skills such as goal-setting, decision-making, and leadership. Through simulations and virtual reality experiences, students can learn how to plan and execute their goals, make informed decisions, and become influential members of their communities.

Moreover, the Metaverse can be used to integrate different tools and media into the educational process, such as books, curricula, courses, simulations, virtual reality, the Internet, and social media. By using these tools in conjunction with the Metaverse, educators can create a more holistic and engaging educational experience that meets the needs of different learning styles and preferences.

In conclusion, the Metaverse can help educators draw a thin line between metaphors and education by providing a powerful tool for creating immersive and interactive learning experiences that utilize metaphors and other educational tools. By leveraging the potential of the Metaverse, educators can create a more engaging, effective, and personalized educational experience for students.

Digital smart environment	-Creating a digital classroom environment and providing metaverse tools in line with the required curricula.	virtual reality (VR) technologies, augmented reality (AR) technologies, mixed reality (XR) technologies,

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	-Providing an attractive and safe environment for students, interesting and stimulating experience and initiative through technology. - Ease of student communication and overcoming barriers through the virtual world, which overcomes the difficulties of distance learning; Where distance learning can be done with direct interaction with students in a way that simulates the natural educational environment.	Virtual reality glasses and augmented reality. Education and communication platforms such as what was launched by Meta and Microsoft Mesh, among others. Through these technologies, virtual, augmented, or mixed reality worlds are being built. This surrounding environment in which students learn, train, or meet away in the metaverse world is also dealt with through platforms. Access to, vision, and interaction with the learning environment in this metaverse world is through glasses and special controls.
scientific articles	Curricula that stimulate motivation and attraction for students to learn: An augmented reality that the teacher uses with his students, which contributes to attracting them to accept the scientific material. Detailing the scientific material, no matter how difficult and complex it is, by explaining its details using high-quality graphics, photos, and videos. Metaverse technology engages students with the contents of the lesson; Due to the passion of students in the modern era for modern technology and its applications, in addition to the entertainment that prevails in the atmosphere of the virtual classroom	The Internet: Almost 29 percent of young people worldwide, or about 364 million people, are not connected to the Internet. In many ways, the digital divide is now wider than ever. Education in the Metaverse World Cost: The cost of the resources and tools available to access education platforms in the metaverse world that are free or publicly priced remains high for most potential users. For example, virtual reality glasses and augmented reality are to enhance productivity and training efforts in industries, healthcare and education in institutions. However, the current prices for these glasses are a little high, which makes us not expect them to be sufficiently widespread now. However, with the increase in the need for virtual and augmented reality glasses in the near future, their prices may decrease in a way that facilitates their availability and spread among the general public. Effectiveness: The success of education is measured by its effectiveness. Which is one of the most pressing problems with regard to distance education. This was before the

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		corona pandemic and also during it. And with unequal access to distance education technologies for one reason or another, the problem of poor effectiveness in general educational outcomes will be greater in order to reach a prosperous future for education in the metaverse world. Preparing teachers: There is great importance to preparing teachers to be more able to integrate the potential of traditional learning with modern methods such as education in the metaverse world. They must be trained on the integration and comprehensiveness of technologies and devices with appropriate educational curricula. It also requires ongoing support to guide teachers to use learner-centered techniques. Guidance: The difficulty of appropriate guidance by teachers for students, commensurate with their experience in the computer and its tools that they need during this process, also emerged. Curricula: For the sake of education in the world of metaphysics, it is necessary to review and scrutinize the methods and tools of education. For example, it is necessary to change: the method of exams; the method of explaining the educational curricula; the way lessons are delivered; the method of measuring results and outputs; How to teach different skills. Teaching tools and aids: Developing online tools or technologies that can enable science experiments, engineering models, and other hands-on activities remains a challenge. However, we can begin to address these issues with complementary technologies such as virtual reality, augmented reality, image recognition technologies, and eye tracking.

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Recommendations:

Provide training and support for educators to effectively use educational media in the classroom.

Ensure that educational media is accessible to all students, regardless of their background or circumstances.

Promote research and development in educational media to continually improve its effectiveness and impact.

Foster collaboration and partnerships between educational institutions, technology companies, and other stakeholders to leverage the potential of educational media

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