

## ORIGINAL RESEARCH ARTICLE

# Metaverse in a virtual education context

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### ABSTRACT

An important approach to the use of emerging technologies is the virtual ecosystem in the field of education, which ensures the creation of an interactive and multi-sensor immersive environment connected to multi-user online applications, resulting in events with extraordinary technological developments on the Internet. The purpose of this demonstrative article is to explore the characteristics and influence of 3D tools in the teaching process. The survey is divided into two main formal parts: the first part is the emerging destructive technology trends, including the emergence of technology, mobile devices and innovative digital training scenarios; the second part describes the virtual world as a multi-sensor tool, because the potential provided by the initial scene of virtual reality is used as a training resource in the culture of educational network. Writing is carried out under the explanatory paradigm supported by the viewpoint of qualitative methodology; the technique of calculating reading through heuristics. Similarly, a comprehensive review of printed and digital resources has been carried out, such as books, magazines, dictionaries, papers, online newspapers, web pages, audio-visual document management, illustrations, videos, etc. Finally, the question was raised: to what extent does meta text affect the teaching process based on virtual education background? The development of the whole survey is revealed by combining key words.

**Keywords:** metaverse; virtual education; three-dimensional ecosystem

## 1. Introduction

In the face of uncertainty and ominous scientific progress, the current life, especially those related to blockchain technology; various developments will ensure the creation of immersive and multi-sensory 3D environments by providing some interactive capabilities in virtual educational environments designed through the web; the characteristics of a real, continuous, interactive and three-dimensional world. In short, meta poetry will be the next development of social network. At present, educators are forced to implement strategies and interactions in the digital

ecosystem to enable them to continue teaching/learning activities remotely without ignoring the inclusiveness related to quality.

Exploring the different educational connection dynamics supported in the virtual environment through avatars/users (including the metaverse itself or the simulated virtual world) will provide a series of new options for educational research in the digital age certified by the educational community, obtain necessary epistemological support in the process of education in order to develop professional skills of specific majors. In addition, the training process is optimized by abandoning traditional/simulated

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learning, but most importantly, innovative virtual technologies such as virtual reality, augmented reality and 3D meta version are used in non-face-to-face scenes.

From a more comprehensive perspective, students need to develop their abilities and skills to help them consistently adapt to an abnormal lifestyle. However, the challenge is to “strive to maintain the operation of the education system, even under current conditions”. This task is further complicated by the lack of experience in virtual teaching and access to technical resources (computers and connections)<sup>[1]</sup>.

It is clear that training for facilitators or educators is an indisputable priority every day. The world of digital transformation has led to a high degree of management of technology, claiming to optimize teaching processes, especially those related to the creation of immersive, multi-sensory, three-dimensional or meta cosmic ecosystems.

In any case, as an educational tool, 3D world will bring corresponding advantages and disadvantages. However, “with the emergence of virtual reality, it expands an unimaginable teaching world, how students communicate with others, how their knowledge grows and teaches”<sup>[2]</sup>. Based on the challenges inherent in the mainstreaming of innovative technologies, corresponding measures are being taken to address the challenges identified in the immersive virtual environment. Metaverse’s multi-sensory technology scene allows the representation of “physical manifestation” and newborn numbers through the domain of avatar and second life platform.

Therefore, the three-dimensional world will provide a track about the three-dimensional contour. In this opportunity or possibility, it allows to replicate an unknown and unique ecosystem, where there will be learning consistent with the motivational behavior revealed by the facilitator avatar, and the facilitator will promote synchronous interconnection; “with the support of information and communication technology,

constantly improve the classroom environment and change the traditional classroom teaching process. In this sense, the meta scriptures made a great contribution to the consolidation of these proposals<sup>[3]</sup>.

Through the use of second students to improve the author’s professional experience in metaverse; in this discussion paper, we try to externally reflect on the characteristics and influence of three-dimensional immersion and multi-sensory environment in the teaching process from the formation/educational environment generated by the information society related to network culture.

The survey is divided into two main formal parts: the first part is the emerging destructive technology trends, including the generation of technology, mobile devices and innovative digital training scenes; the second part describes the virtual world as a multi-sensory tool from the meaning of the potential provided by the emerging virtual reality scenes, as a training resource in the education network culture, as a reference to the basic pillar of the future teaching process; this will be made up of three-dimensional technology; the basic model, because it will provide interaction and communication between educators/educates, and it will also use various available technical means or tools to provide information.

The purpose of this study is to explore the characteristics and influence of three-dimensional tools in the teaching process. Writing is carried out under the explanatory paradigm supported by qualitative methodology, through heuristic reading technology. In addition, a comprehensive review of print and digital sources was conducted, such as books, magazines, dictionaries, papers, online newspapers, web pages, audio-visual document processing, illustrations, videos, etc. Finally, the question is, to what extent did metaverse affect the teaching process based on the virtual education background? Through the combination of keywords.

## 2. Development

The consequences of international integration or globalization and the health emergency of covid-19; it has brought about the transformation from traditional/simulated education paradigm to zero and one, and introduced and innovated fundamental changes in the process of teaching/learning. These changes are aimed at both school promoters and school collaborators. As the inevitable revolution advanced, technology spread rapidly in the same way, while meeting the requirements of educational institutions to integrate emerging technologies in order to continue to provide access to all levels of education in Latin America.

There is no further exploration of the challenges of virtual education in the Latin American population, which are the result of today's expanded international technological progress; it should be emphasized that there is educational inequality in the region because of the use of various tools to virtualize and digitize the teaching/learning process, which is the result of Covid-19 health emergency. According to Cantú-Martínez<sup>[4]</sup>, health status "is creating a new social phenomenon based on the particularity of these populations, it can be called computer illiteracy, which is the product of the vacuum of access to and use of this technology".

On the above argument; UNESCO also said, "we must redefine our relationship with technology, first of all to ensure that all people have access to and service digital tools, first of all the most marginalized people. Digital processing must be built around inclusiveness and quality<sup>[5]</sup>. The organization recommended that institutions redefine their education policies to ensure the inclusiveness and quality of the virtual education process in Latin America; because at the end of the rapid development of technological revolution, digital platform is available in daily work; in addition, the metaverse based on 3D Internet has recently been launched. As an immersive universe,

it will be the successor of today's social networks.

## 3. Disruptive technological trends in education

Mankind is experiencing an unprecedented technological change, which leads to the gradual integration of emerging technologies into the field of education, in which there are only three destructive trends: virtual reality (VR), immersive virtual reality (IVR) and augmented reality (AR). In addition to applying innovative emerging technologies to education, we must first design transformative educational scenes so that students can learn and participate in the new technology field in which they are born. Therefore, the first trend shows that VR is considered to be one of the watershed of philosophy, science and technology in the digital age. Lanier believes that VR is an "automated ecosystem", which creates a complete illusion that you are in a different place, perhaps in a strange and wonderful environment, or have a body far away from human beings. However, it is also the most influential<sup>[6]</sup>.

Undoubtedly, the integration of RV into education is a major qualitative leap in the field of "discipline or knowledge", especially in the field where it is difficult to imagine the research process. Using the virtual model, you can get the three-dimensional sense that any other graphical representation system lacks. In addition, Lanier also announced the importance of VR because it is digital, can even be programmed anywhere possible, and enjoy a "universe as diverse as a dream" and share it with others connected to the device, rather than being trapped in their own head. For all connected people, a tree can suddenly become a bright waterfall<sup>[6]</sup>.

Within this framework, RV is a real or considered real emotional or physical ecosystem, which is often replicated by computing technology, although it triggers a strong illusion of immersion; Maybe he doesn't have the category of the real background he predicted. A good example of the

application of virtual reality in the field of fiction is the legend of film matrix. Plato's fable can connect the two worlds as your prototype; in this case, the real (ravaged, ruled or imprisoned machines) join another world, the matrix (the thoughts of enslaved humans believe that they live in a normal environment).

At the same time, Plato's cave metaphor or fable is helpful to understand the virtual reality developed in the matrix, using digital scenes, which can be social reality or illusion, or computer montage; the process of perfection and unconsciousness from reasoning. In this process, a person finds that he is really affected or limited by various images, conjectures, thoughts and hallucinations. These images, conjectures, thoughts and hallucinations are also expressed through immersive virtual reality (IVR) and are related to the daily tasks of life given by these judgments.

However, with the application of IVR, the second emerging technology trend has been solved, because according to Miguelez et al., IVR can have a beneficial impact on the transformation of teaching process, "they think it is an ideal tool to supplement their learning, even outside the formal education institutions. As a tool to stimulate learning, immersive virtual reality poses a major challenge to educational institutions in the short term<sup>[7]</sup>. Today, cheaper and more accessible IVR devices are identified through immersive learning tools, so it is of great significance in education to take the teaching/learning process to another level by practicing and strengthening skills in synchronous and asynchronous (online and offline) teaching.

IVR aims at teaching/learning in the educational technology environment and supports the production of simulations in which the teaching ecosystem (classroom) or business field can help its partners acquire basic and advanced knowledge related to the work environment. However, "it must be recognized that in order to test the knowledge

taught in the classroom and absorb these simulations, it is necessary to develop cost-effective tools to transfer skills and knowledge to end users (students)<sup>[8]</sup>."

The third emerging technology trend; AR began to be established on the educational stage, showing a considerable number of opportunities to show content, as well as students' skills and incentives. In the specification of AR, Azuna is a pioneer in exploring the emerging destructive technology trend in education, which places computer-generated components before real-time 3D reality, in which the projected panorama is connected from the classroom to the Internet through a technical device.

VR and AR, according to Marín-Díaz et al., "position themselves as a classroom as a means of developing teaching methods and as an aspect of promoting real and experimental first person learning, as they help to improve the nature of educational behavior"<sup>[9]</sup>. AR began to be implemented in Teachers' actions in the field of education, which is a revolutionary technological progress. It helps to build content to show students the deployment of interactive features in the three-dimensional world.

Since its establishment, AR has been committed to the interaction of students in the three-dimensional world; it must be pointed out that within the scope of users' interests, an augmented reality based on ecosystem can be observed, which is directly generated by computers from different digital media; the intention is to enlarge the perceived image in the real world. In the view of Chicaiza, et al.<sup>[10]</sup>, "this will undoubtedly update the old science teaching media because it only provides tabular images, or at best some explanatory videos".

In this sense, VR and AR are resources that can help teachers teach course content, and the use of this emerging technology can strengthen the training process; first, improve the technical skills of the facilitator of the teaching process. Therefore,

“the use of devices such as virtual reality glasses or augmented mobile phones is a tool for creating immersive experiences that enhance the feeling of real scenes and make way for meaningful learning”<sup>[11]</sup>.

In order to end the first paragraph, in addition to providing the beginning of the second paragraph, because it is the three-dimensional virtual world of meta poetry applied in education; it is speculated that in addition to AR, the purpose of teaching is between immersion and beginning. The skills or abilities acquired by operating the AR are projected into a scene by overlapping external digital components related to the unit taught at that time, so as to achieve the objectives set for their respective course modules without leaving the classroom. Therefore, a “facilitator” or “educator” may talk about the trunk and show students a real-size trunk while continuing to explain. Students, thanks to their future augmented reality glasses (they will be as low-key as lei ban)<sup>[12]</sup>.

#### **4. Application of three-dimensional virtual world in education**

Meta poetry is a word first used by science fiction writer Neil Stephenson in his 1992 novel *Avalanche*; this is another way to describe the three-dimensional virtual world. However, at the press conference held in November 2021, the word *metaverse* was infamous. At that time, Mark Zuckerberg, the founder, founder, current president and CEO of Facebook, publicly announced that he would replace his social network name with *meta platforms Inc.*, or *meta only*, but now there is an innovative category to meet the needs of digital customers, who will be able to navigate through the three-dimensional ecosystem through technical tools and AR glasses, applications in smartphones and other electronic devices comply with the protocols assigned to the emerging immersive world.

At the end of the amazing progress of

continuous processing and storage of virtual information in 3D scenes, with the demonstration of digital platforms in daily work and the popularity of metaverse based on social networks, now 3D Internet will become an available scene on social networks. Through VR and interconnection, it will be awarded. Through the interaction with other users, information and even media (through the network), create a copy of immersive simulation scenes in the real world.

Soon, due to this technical interruption, action suggestions will be put forward according to the daily nature of teaching practice in the education website based on innovative and emerging interruption tools; in addition, the impact related to the impact of the virtual world on education will be disseminated. In the 3D world, the existence of the second life platform and serious games or serious games specially designed for educational purposes; first, not just for entertainment or entertainment. Any simulation attributed to metaplasms can be used as a teaching tool. What is important is the teaching method or teaching method adopted by the mediator, which aims to make use of various existing educational situations and develop them in the classroom.

Obviously, in order to realize the functionality of metaverse strategy, Guzmán et al. believe that “Basic aspects must be considered, such as available computers or devices, the ability to own these programs and/or video games, and the good connections required for some of them”<sup>[13]</sup>. In addition to the technical equipment, appropriate optical fiber connection is also required to improve the “virtual and immersive experience” in CIO<sup>[14]</sup>, which will become a feature of metaverse because it ensures the various parameters necessary to develop real-time experience, such as improving signal stability and real-time audio and video transmission.

In short, metaverse refers to the “three-dimensional virtual world” where the avatar is located. The avatar is another self of the user and

becomes an active subject in metaverse. AR is the medium for connecting avatars and real-world users in metaverse<sup>[15]</sup>. However, with the rapid development of information and communication technology (ICT), due to the rapid development of virtual world, the improvement of accuracy, digital learning and connectivity, the concept of meta poetic meaning will continue to change; it also identifies multimodal extension models of various computer protocols based on a more immersive simulation environment in the meta version.

Metaverse itself is a real-time three-dimensional immersive simulation media, and its ecosystem is suitable for accommodating audio-visual notifications, resulting in an impressive configuration in training or teaching places. However, due to lack of knowledge and incompetence in dealing with three-dimensional world technology, it is difficult for various network users to participate in or even use them in the teaching/learning process; most importantly, making full use of the capabilities of the metaverse and applying these capabilities to the digital environment “requires training in specific skills unique to the virtual world. This is called digital skills. Digital skills are the sum of the knowledge, abilities, skills, attitudes and strategies required to use technology and the Internet<sup>[1]</sup>.”

It is worth mentioning that the knowledge of building a digital world is not worth mentioning; Similarly, if this approach does not allow visualization of the digital world, it does not allow educational participation; The technology network will be dedicated to tool or entertainment purposes. Instrumental digital skills refer to the skills and skills that depend on the use of relevant tools or technical equipment. According to the position of UNESCO, “instrumental digital skills cannot promote good management of technology without strengthening critical thinking and understanding of how the digital environment works”<sup>[5]</sup>.

The use of meta tools in the classroom is important not only for the digital facilitator, but

also for the effective use of meta tools in the classroom. Metaverse, which matches the second life platform, is the main goal of RV training. This training has made a breakthrough in the field of education and provided significant improvements; In addition, there are various examples.

For example, traditional English teaching style or any other language based entirely on the guidance of the host; Now, with the support of RV determined in metaverse through the second life platform, through real-time dialogue with people from different languages, choices are put forward in the process of teaching/learning; This virtual interaction produces meaningful learning, because students or learners have the opportunity to listen to avatars (in their mother tongue) and practice grammar and vocabulary dynamically through enriching vocabulary, which is related to stimulating the understanding of the learned language; it belongs to generation z.

Different from the meta poetry based on second life, the meta poetry announced by Mark Zuckerberg is the first step based on the social courage and active participation of generation Z, which is considered to be the driving force of meta poetry in the future. The digital age appears in daily life, from online games, virtual currency, plus the reward of cryptocurrency issuance. People, especially teenagers (generation Z), actually live in this virtual ecosystem. You may think that they will become the protagonists in promoting the metaverse in the next few years.

Metaverse provides teachers with an immersive, multi-sensory 3D environment suitable for any field of work or education. People know that “myths and novels are unrealistic, but they are exciting. Similarly, metaverse is not the real world, but it can provide a tangible feeling, so it can provide users with immersive services based on interactive stories<sup>[15]</sup>.”

Due to the tangible feeling in the emerging three-dimensional virtual immersion world, it is necessary to have some particularity, including the

elements in metaverse. Features include: immersive (users immerse themselves in the virtual world to feel the experience); entity (incarnation reflects the user experience) and persistence (continue to execute, even if there is no connection).

Once the characteristics of the metaverse identified in an immersive, multi-sensory 3D environment are described and have the opportunity to use it in any professional field, three partitions related to the various characteristics of a given metaverse configuration component are listed in **Table 1**: hardware (physical devices and sensors), Software (recognition and representation) and content (scene and History) from the perspective of three-dimensional world; similarly, metaverse's methods or directions (user interaction; implementation and application) are also expressed.

In order to effectively implement the metaverse practice in the teaching process supported by the innovative meta social network deployed in the virtual ecosystem, it is necessary to consider each particularity and component formalized in **Table 1**. However, based on the core issue of the research, to what extent does meta poetry affect the teaching process based on the background of virtual education? Based on the reflective analysis of the above literature, externalize it; therefore, it can be inferred that there are many initiatives around the world when implementing meta poetry in educational situations;

These decisions show that in building a real-world instructional design, this platform is relevant at different levels of training and adjusted for the required accuracy and quality.

## 5. Conclusions

From a more holistic perspective, the main purpose of this study is to determine the impact of meta poetry on the teaching process based on the virtual world background. Therefore, the meta-Psalm has been transformed into an updated virtual education scene, where it reaffirms the appearance or image, personalization, and shows the skills of each user or avatar. Education is the pillar of social structure. It must guide the changes of classroom environment. These changes are related to the immersive and multi-sensory three-dimensional world. It is committed to innovative methods, enable educators to participate more in the teaching/learning process, and combine the latest technology with the various interests of digital society and network culture.

The epistemological dimension of education is changing with the current technological progress in the digital age. Therefore, through the use of VR and AR based platforms, the emerging technology-based training technology is regarded as an important part of the evolution and integration process. These platforms are related to the basic platforms identified in the emerging meta social network, in order to

**Table 1.** Important aspects of Meta poetry

Elements of Meta poetry		
Hardware	Software	Content
(Physical devices and sensors) Screen mounting head	(Identification and representation) Scene and object recognition DC speech recognition Generate V objects from scene Speech synthesis Motion representation	(Stage and story) Multimodal content representation Moderate DC Entity linking and extension Population scenario Stage crowd Evaluation of scenario
Expansionary { Manual input Non manual input Input motion		
Meta poetry method		
User interaction	Implementation	Application
Interaction { Delete language Multimodal Multitasking Incarnate	Multimode reasoning RL based optimization method Lifelong learning Optimize Multi-Agent Optimized integration Operation optimization	Cognitive simulation Games Office Society Marketing Education

consolidate the innovative teaching methods corresponding to the emerging 3D virtual immersive world. The method used by these platforms is play to learn. In these methods, teaching games strengthen the learning style, which is why we list the use of educational software as the basic aspect, and show the convenience of meta version and VR in providing 3D world education.

The author believes that distance education based on virtual technology and blockchain technology can produce meta education standards, driven by the metaverse, and provide structured and unstructured, progressive and mixed learning expertise in the three-dimensional virtual world. From the perspective of reflection:

Teachers must continue to receive training and training in the use of innovative technologies that can be implemented in the field of education in order to enable promoters to provide students with up-to-date and high-quality education.

Use the familiar immersive and multi-sensory three-dimensional virtual education environment for education, and simulate the personalized active intervention of participants through avatar, so as to improve students' social and educational interaction.

Encourage the adoption of the latest technologies in the education ecosystem in order to participate quickly in the education/learning process, so as to have the latest education.

## Conflict of interest

The author declares no conflict of interest.

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