

**METAVERSE AND THE FUTURE OF EDUCATION****Dr. Ritu Bhattacharyya**

Principal, Sasmira's Institute of Commerce and Science, Mumbai

Mr. Nikhelesh Bhattacharyya

Student, NMIMS MPSTME, Mumbai

Dr. Sangita Kohli

Principal, Vedanta College

Ms. Lata Bhide

Assistant Professor, Sasmira's Institute of Commerce and Science, Mumbai

ABSTRACT

The Metaverse is a concept of a persistent, online, 3D universe that combines multiple different virtual spaces. The metaverse allows users to work, learn, meet, game, and socialize together in these 3D spaces. Online learning has become mainstream and it is essential to start thinking about the education sectors need to integrate the metaverse into every day learning.

The beauty of using metaverse in teaching is that a teacher can transport the students into the augmented reality of the concept that is being taught to them with the help of a 3D virtual space that connects multiple platforms through a single browser. For e.g. a nursery teacher want to teach a student about wild animals, today the teacher can teach through pictures, of small video and maximum take them to a zoo to show some of the wild animals caged. With the help of metaverse the teacher can actually taken the students on a virtual tour of the wild habitats of the animals. The students can go around the jungle and learn about the habits, food and survival of the animals in the jungles. This can be done with the help of virtual reality headsets.

This can actually help the students to learn concepts much clearly, value can be added to traditional means of teaching and all this can be in a very safe virtual environment.

Key words: Metaverse, education, virtual learning

INTRODUCTION

Online Classes, educating remotely, making best education possible in rural areas are some of the concerns of the Indian Government and therefore there has been a huge effort in digitalisation of the country. With online classes becoming mainstream the students have started experiencing a gap between physical classrooms and virtual classrooms. A tool that can ensure a holistic and involved teaching-learning is the metaverse. The metaverse can bridge the gap faced by the students by creating 3D virtual classrooms where students can virtually meet and interact with their classmates and teachers. The metaverse is a technological revolution which originated in a 1992 science fiction novel written by Neal Stephenson.

The metaverse aims to make digital classrooms smarter by allowing students to fully immerse in 3D videos, helping them experience all the content more closely. It allows them to experiment, fail and learn from their failures in subjects that require practical experiments. The metaverse allows students to take part in extra-curricular activities like sports and arts in a virtual setup. Students can undertake various fun activities like engaging in music or mathematics club, similar to physical campus activities. They can also walk around their virtual campus right from the comfort of their home.

The metaverse has the potential to break down barriers between subjects and promote interdisciplinary learning. It enables teachers to merge traditionally discreet subjects like mathematics and science, offering an engaging and holistic learning experience while demonstrating the real-life applications of various theories. Learning in the metaverse proves productive, primarily because this virtual space can engage students by replicating real-life situations where they can conduct scientific experiments, showcase prototypes and even enter a documentary video on the subject like that of a historic event or place.

The metaverse can be used in classrooms to build awareness in social issues such as famine, pollution or climate change to awaken the humanitarian interests of children. Students, for instance, can be shown a documentary on wild life and the habitat of the wild animals, the students can enter the documentary and experience the dangers in the wild and watch the wild animals and their lives in the jungle. With such a teaching approach, students will not just take home theoretical knowledge but also a deep emotional understanding of things happening around them.

Metaverse allows students to go on a virtual tour of any place in the world, visiting the tourist spots in the country and learning their culture, food habits and other aspects of the country. Educators can invite prominent figures or people of wisdom and knowledge in the virtual world of the metaverse to help students learn about their various life experiences. They can attend engaging symposiums, conferences and lectures. Various events like exhibitions and fests can also be conducted to help them refresh their minds.

The metaverse is one of the most keenly debated aspects in the digital world, and the eLinC report provides an in-depth study for understanding the background, the current situation and the possibilities that are opening up as this technological innovation is applied in the field of education.

The metaverse can be described as a virtual setting that users are able to use in synchronisation to have social interactions. It works with virtual reality (VR) technology, augmented reality (AR) technology, social media-like features, blockchain technology, and the use of controllable avatars. This gives a real-world-like environment where communication is simple yet effective.

The common man's interest in metaverse was fuelled when Facebook decided to invest hugely in metaverse and re-branded Facebook as 'Meta.' Facebook saw the metaverse as the future of online social interactions.

METAVERSE AND EDUCATION

Virtual learning or eLearning became common during the COVID 19 lockdown. Education could not be put on hold and therefore, teachers resorted to reaching the students through online or virtual classes. The metaverse is an advanced form providing learning opportunities in a virtual space.

Education in the metaverse makes use of avatars, that is digital representations of users. Students can use digital avatars to interact with one another as well as with the teacher.

Teachers can also have their own avatars, thus creating a classroom situation within a virtual learning environment. The learning can be further enhanced by changing the surrounding virtual space to suit the lessons being taught. For e.g. a nursery teacher want to teach a student about wild animals, today the teacher can teach through pictures, of small video and maximum take them to a zoo to show some of the wild animals caged. With the help of metaverse the teacher can actually take the students on a virtual tour of the wild habitats of the animals. The teacher can take the students on a virtual tour of the jungle where they can learn about the habits, food and survival of the animals. This not only makes the learning for the students very interesting but it also helps them understand the concepts through almost real life experience.

Use of games on the virtual platform for teaching is very common in the technical education and is known as gamification of learning. In many ways, it makes sense to relate to the popularity of video games and to students' familiarity with gaming, especially when used on a whiteboard. Gamification is not the only form of teaching thru meta use of controllable avatars is also very popular. Students who are not very great at social skills can benefit immensely through meta classrooms where they enter in forms of avatars and are able to interact with other members in the classroom without any social anxiety.

Meta is also keen on use of metaverse in education and thus has invested \$150 million in Meta Immersive Learning in order to increase learning virtually. India, under its Prime Minister has been working for several years for a Digital Transformation in the country and we have gained substantial growth in digitalisation. Though we are not fully equipped to adapt to the metaverse model in education fully we are working towards achieving the same as it can solve various problems like lack of infrastructure, teacher shortage and students dropping out of the formal education system.

EDUCATION OPPORTUNITIES IN METAVERSE

In a country like India metaverse can be very useful in the field of education. Meta is being used in schools for pre-primary education to ensure in-depth concept clarity to children from a young age . Metaverse can be extensively used in education to achieve a few things like:

Diversity, Equity, and Inclusion (DE&I) : There are different types of students in a class some a quick to grasp a concept while other may take some time to understand the same thing. The students also come from different financial, political, cultural and ethnic back grounds. In a traditional classroom the teacher struggles to provide all the students a level playing field and equal opportunities. The metaverse, can be very helpful for students who require extra attention with the use of comparatively lesser resources. Thus it can be a great tool for those with impairments or disabilities

Some students are not socially very comfortable and struggle with making eye contact or speaking out in group situations, such students can be helped by using avatars in the metaverse. This takes away their awkwardness in social situations and they are able to interact and communicate with people they would otherwise in a traditional class never be able to do it. The metaverse gives the student a sense of belonging and a reduction in anxiety-inducing behavior.

Relatable to younger generations : gamification is a popular form of learning used by educators because it make learning more enjoyable. This is understandable because many students love playing video games and using technology. Metaverse allows them to interact with one another in avatar form on social media, and taking part in other forms of modern digital entertainment.

Children today are extremely tech-savvy they have had access to digital technology from a very young age. They are often more tech-savvy than their parents and teachers. Youngsters are used to the highly stimulated digital learning since a young age. Parents start taking the help of digital technology to keep their kids occupied from the age of below one, these children then may find a simple teacher-to-student lectures extremely monotonous and uninteresting. It is clear that in-class games, eLearning, mobile learning, and other digital ways of teaching are gaining traction all over the world, and this momentum shows little sign of slowing down.

Metaverse education attempts to appeal to these students in ways that will keep them engaged with various learning materials, and allow them to learn in an environment that they are comfortable with. The use of metaverse environments has the potential to cater to all three student engagement types - behavioral, emotional and cognitive.

Immersive Learning: Generation today have a very short span of attention it takes a lot of ability to immerse them into a learning environment metaverse offers an a mirror world, to the teachers to create an interactive class which is a mirror of the real world. The concept of mirror worlds is that it works on creation of a one-to-one digital map focused on recreating the real world as accurately as possible to ensure a near real life experience for the students. It is expected that with continuous research the mirror world will in future be so accurate that it will barely be distinguishable from the real world. For e.g. If a student in India had to be taught about the arctic region then the teacher can take the help of mirror world on metaverse and take the students through the climate and flora and fauna and survival techniques in the area without taking the students to the arctic region and also giving the students a very conceptually clear learning.

Meta verse can also be used to give the best learning in area where there is shortage of teachers and the lesson can include students from different locations or even multiple countries.

Gaps in use of Metaverse

The largest gap is availability of technology to carry out the metaverse learning. The cost of the technology is also a matter to ponder. Urban upscale schools may be able to get the technology but the cost at the moment may not permit the use of metaverse in mainstream teaching.

Metaverse is being promoted as a tool for inclusive learning especially for children with special needs, but the biggest problem that may arise is for these children to be able to use this technology. It may need additional people to operate the technology for these children. Also depending on the need of the child special programs may need to be created according to the ability of the child to learn which again is a very expensive proposition.

Another large gap is trained teachers, very few teachers are aware of use of metaverse in education and thus training the teachers on use and creation of material for teaching is also a huge task which will not only require money but it will also require time

At the same time a lot of training will go in educating parents on use of metaverse because most parents are of the opinion that gaming and videos and even metaverse is 'time-pass' and entertainment and their mind set will need changing that it is a advanced method of learning.

The Future

It's essential for educators to understand that metaverse education is still in its relative infancy, and as technology becomes more widely used and as investments increase, there are many potential benefits that will be realized in time. UNIVERSE by ViewSonic is one option

that is currently exploring the advantages of immersing students in learning, boosting accessibility, and building on and improving mirror worlds and avatars.

It remains to be seen how different companies will implement their own metaverse platforms and how these different metaverses will be able to interact with one another. There are also some significant research gaps, which we hope will be closed in the future. When this is achieved, it should provide greater certainty for educators, with clearer guidance on how to get the most from this technology.

Closing thoughts

The metaverse can have a substantial impact on the education domain and open up a myriad of exciting opportunities for both educators and students.

If implemented thoughtfully and correctly, the technology could enhance or even completely transform the overall learning experience. It could also facilitate greater learning speed, establish an inclusive environment for everyone, and make it possible to acquire practical skills in non-hazardous conditions.

If you wish to develop your own education solution in the metaverse, reach out to our experienced metaverse development team. We can devise a strategy for a smooth metaverse transition, think up and design a fully-fledged metaverse economy, and develop a robust architecture for your metaverse solution.

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