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ROLE OF MODERN TECHNOLOGIES IN THE HIGHER EDUCATION SECTOR

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Abstract: Technology is changing the way students learn but also the way professors teach. Times are changing and technology is everywhere. Today, the teaching learning process become more digitized, and there are modern and rapidly changing disciplines taught outside the walls of traditional education system. This paper will discuss the Technological tools, mode of learning, technological solution to the learning. Finally, this paper explores how the technology for learning such as smart product, artificial intelligence, virtual reality and augmented reality, voice recognition, smart universities and core technologies plays a crucial role in the higher educational sector in the country.

Index Terms **- Higher Education, Modern Technologies, Teaching-Learning process, ICT tools.**

I. INTRODUCTION

Education is the base for a thriving society, and the transfer of knowledge has been a top priority for civilizations since the very beginning. People are constantly looking for ways to make knowledge transfer more easily, more quickly, and more effectively. In the era of digital devices, we have an opportunity to enable better learning with technology. Virtual Reality (VR) seems to be the natural next step for the evolution of education. Voice recognition frameworks empower users to interact with technology basically by addressing it, allowing hands-free information exchanges, reminders and other simple tasks to take place. Smart universities use advanced and smart technologies to create a learning environment that is more interactive and user-friendly. These technologically enhanced students with a better and effective educational experience that facilitates an exciting and engaging learning session. Traditional modes of learning and boring lectures are no longer appreciated. Teachers of smart universities use advanced technologies and a wide array of multimedia tools such as videos, slides, images, audios, podcasts, etc. to ensure enhanced learning. In this paper, an overview of different modern technologies used in higher education sector has been carried out.

II. MAJOR ISSUES IN TRADITION EDUCATION SYSTEM

In traditional education system, most of the colleges and universities have shortage of qualified teachers and lack of physical facilities. Colleges in rural and remote places do not even possess basic facilities for a conducive learning environment for students. It is a mammoth task to improve the quality of higher education, as it requires large time-frame and enormous funding. Still it would not be possible to provide educational facilities to colleges and universities in remote areas at par with their urban counterparts by physically expanding the available resources. But by leveraging the power of ICT, the twin concerns of higher education can be addressed adequately. The quality education would require a large scale expansion of high quality expansion of the opportunities. However, physical expansion of such facilities is fraught with both infrastructural and human resource limitations.

III. ROLE OF MODERN TECHNOLOGIES IN HIGER EDUCATION SECTOR

Some of the few modern technologies in higher education sector and its role are listed below:

A. Voice Recognition For Learning

Speech recognition, also referred to as speech-to-text or voice recognition, is technology that recognizes speech, allowing voice to serve as the "main interface between the human and the computer." speech recognition technology facilitates student learning, as well as how the technology can develop to advance learning in the future. Although speech recognition has a potential benefit for students with physical disabilities and severe learning disabilities, the technology has been inconsistently implemented in the classroom over the years.

How voice recognition is used in higher education sector.

- Universities are choosing to equip their student housing facilities with individual voice-enabled technology devices. Students are utilizing the same for an excess of things including locating rooms and offices, determining when to choose or pick-out of classes, and obtain other college and campus-related information. Students also use these devices to listen to the college radio station via voice command as well as to hear the latest campus news.

- Podcasting-learning anytime and anywhere: One of the greatest advantages of podcasts is their round the clock availability. Students can easily access the podcasts at any time that suits them. This means that students can learn on the go and whenever they are comfortable. Many students have access to a smartphone and an internet connection, and they can download these podcasts on their mobile devices and listen to them on loop or as many time as they want to listen to them. There are many podcast apps which can be downloaded on mobile devices, enabling students to access a wide array of podcasts and find the ones which they like the best. Many universities have also started their own podcasts on various subjects and topics. These podcasts are hosted by reputed professors and are usually accessible to anyone without any fee or a very minimal fee. This means that students have access to quality learning material anytime, anywhere.
- Revision:Students have also been using voice-based technology to retrieve audio lectures and go over their courses subsequent to the completion of the lectures. Professors can record their lectures and upload them as podcasts. Students can download these podcasts and listen to them again and again. This also creates a very valuable learning material for students. As these recorded lectures are accessible anytime and anywhere, students can access these recorded lectures are accessible anytime and anywhere, students can access them easily and revise whenever they want to. These podcasts will come in handy before the exams when students have to revise topics. This will reduce the burden and stress that students face before exams as lectures will always be available to them. Podcasts can also be used by students to understand a concept or topic which they found hard to grasp during lectures. The 24/7 availability of podcasts helps students understand topics at their own pace.
- Online viva or oral exams:With the help of voice technology, it is possible to conduct oral or viva of the student remotely. Students can record answers using their voice and it can be analyzed by the examiner. Speech to text conversion can also help you to understand what is spoken by the student during viva. It can also be recorded for future reference.

B. Augmented Reality (AR) and Virtual Reality (VR) in Education

AR is used on a smart device to project a layer of educational text and lesson-appropriate content on top of a user's actual surroundings, providing students with interactive and meaningful learning experiences. VR creates an entire digital environment, a 360-degree, immersive user experience that feels real. In a VR setting, students can interact with what they see as if they were really there. Virtual reality in education include the ability to inspire student's creativity and spark their imaginations. This can motivate them to explore new academic interests. AR and VR in education also helps students struggling to understand difficult academic concepts. For example, through AR, geometry students can check out 3D geometric forms from multiple perspectives; they can rotate a shape to see it from different angles and even view it from the inside. The benefits of virtual reality in education go beyond academics as well to include cultural competence. For example, a virtual reality field trip to other parts of the world, whether it be India orAmerica, exposes students to cultures other than their own. The combination of both technologies known as mixed reality, can improve student outcomes, too. For example, in a March 2019 report, EdTech cites a study showing that students in a mixed reality biology classroom received higher scores than other students. AR and VR can help with memory retention and recall, EdTech reports on a recent study that shows an increase in retention of almost 9 percent for students who learned in an immersive environment such as VR.

C.Collaboration of Teacher and Artificial Intelligence (AI)

AI can drive efficiency, personalization and streamline admin tasks to allow teachers the time and freedom to provide understanding and adaptability. The vision for AI in education is one where they work together for the best outcome for students. Since the students of today will need to work in a future where AI is the reality, it's important that our educational institutions expose students to and use the technology.

- **Differentiated and individualized learning**

Adjusting learning based on an individual student's particular needs has been a priority for educators for years, but AI will allow a level of differentiation that's impossible for teachers who have to manage 30 students in each class. There are several companies currently developing intelligent instruction design and digital platforms that use AI to provide learning, testing and feedback to students from pre-K to college level that gives them the challenges they are ready for, identifies gaps in knowledge and redirects to new topics when appropriate.

- **Universal access for all students**

Artificial intelligence tools can help make global classrooms available to all including those who speak different languages or who might have visual or hearing impairments. Presentation Translator is a free plug-in for PowerPoint that creates subtitles in real time for what the teacher is saying. This also opens up possibilities for students who might not be able to attend school due to illness or who require learning at a different level or on a particular subject that isn't available in their own school. AI can help break down feed storage between schools and between traditional grade levels.

- **Automation of admin tasks**

An educator spends a tremendous amount of time grading homework and tests. AI can step in and make quick work out of these tasks while at the same time offering recommendations for how to close the gaps in learning. As AI steps in to automate admin tasks, to create more efficient enrollment and admissions processes.

- **Tutoring and support outside the classroom**

AI support their children when they are struggling at home with homework or test preparations. Tutoring and studying programs are becoming more advanced and soon they will be more available and able to respond to a range of learning styles.

D. SMART UNIVERSITIES

A system that enables technology-led learning and teaching to prepare the students for the forthcoming IT revolution is a smart university system. The potential of university management systems has been realized to a large extent when COVID-19 outbreak paralyzed the whole education system across most parts of the globe.The university system which are really smart equip the best curricular, pedagogy, assessment and teaching-learning materials to ensure holistic development of students. Various benefits of Smart universities are:

- Easy access of 24*7 information for this we just need to have a gadget with a secure internet connection, and we can access the lecture or recorded class anywhere.
- Better understanding with the help of visual aids such as videos, presentations, images, animations etc.
- No penalty for absenteeism as we can always go back to the panel and access the recorded lectures any time.
- The traditional learning model needs a physical space that you need to maintain, but here, just a gadget with a good internet connection does the job.
- Open-walled expanded learning as we get a lot of opportunities to learn about the subject from the web. The world of internet gives an edge.
- Gamification enables fun-filled learning as when the concepts are taught via games, the learning sessions are more fun-filled.
- Online learning results in better retention, better understanding, faster learning, and all this leads to better grades.
- Parents are better informed about their ward's progress. Teachers can keep track of their students' performance in an effective fashion.
- By replacing the usage of tons of paper with digital gadgets. This results in the reduction of the carbon footprint.

IV. CONCLUSION

Modern technologies have given a boost to higher education everywhere. Students are getting used to e-content and its acceptability is growing day by day. As per prevailing trend various social media sites like Facebook, Twitter, Skype, etc. should be integrated within e-content to make learning more fruitful. People from every walk of life may benefit from it. The colleges in remote and rural parts should be provided with broadband connectivity and emerging technology in the form of artificial intelligence and virtual reality that is beginning to alter education tools and institutions .Teachers should be trained with these technology practicality and adapt to incorporate in university curriculum. Students should be made aware about the free availability of digital content by organizing special campaigns and promotional events.Even though most experts believe that the critical presence of teachers is irreplaceable and there will be many changes to a teacher's job and to educational best practices.

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