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EMERGING TRENDS OF ICT IN HIGHER EDUCATION

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Today, little children are watching their favorite cartoons and learning pictorial rhymes on the same device as well little young generation is watching social serials. Education is being imparted to them through flexible and non-intrusive formats. As a consequence, students across all age groups are discovering the joys of learning and having fun while at it. There has been a noticeable shift in the perception of parents and teachers view digital learning too. Today, institutions are making efforts to shift the focus back on students to reinvent the way they learn right throughout their life.

India might not have readily adopted education technology but it's heartening to see how a traditional sector like education is using technology as an enabler so far. Today India is one of the fastest growing markets for e-learning based products and services. High speed broadband internet, low lost computers and mobile devices have shown notable growth in the use of technology for learning. Many entrepreneurs and startups have grabbed this opportunity to develop technology based educational products for private and government based schools, colleges and universities.

Hence it is more interesting first to know how ICT is useful in higher education i.e. the factors that are enabling the growth of digital education

1. Uses of ICT in Higher Education:
1.1 Classroom based learning
Nowadays technology has become integral part of classroom based teachings. Today in many schools, colleges and universities in India instead of blackboard projector screens are used for teachings. Hand writings of teachers are replaced by power point presentation. Student experience a different kind of set up in today's technology based classroom. Gadgets like tablets and laptops are used to take down notes.

1.2 Technology enabled distance education
Distance education is a way of learning where the students or working professionals can learn the courses remotely through online access and interact with faculty via online classroom. It helps students to interact with their mentors or tutors directly through chat, e-mail or phone call. Indian is a developing country and for many students who are living in remote places or villages getting degree for higher education is still a distant dream. This gives the students or working professionals the flexibility to learn at their own time without the compulsion of going to a class.

1.3 Online learning management system
Many colleges and universities in India are integrating online Learning Management System or LMS platform into their web portal. Students can remotely login to access course material and also attend live classes with teachers. Pre-recorded lectures, videos can be uploaded on the LMS platform making it easy for students to go through it multiple times.

1.4 BISAG - SANDHAN Video Lectures:
SANDHAN (All Gujarat Integrated Classroom) is an initiative by OCHE (Office of the Commissioner of Higher Education) and KCG (Knowledge Consortium of Gujarat), Department of Education-Government of Gujarat. Under SANDHAN program video lecture of various UG course are being telecasted since 2009. This innovative Academic Program "SANDHAN" through BISAG (Bhaskaracharya Institute for Space Applications and Geo-informatics), intends to benefit more than 1 130 colleges across the state imparting education in the stream of Arts, Science and Commerce, Home Science, Education and Law. Thus SANDHAN is creating a platform which provides an excellent opportunity for the use of the Audio-Visual medium for the telecast of lectures in a very innovative and interesting manner.

1.5 Mobile-based learning:
Since major cases of COVID-19 are seen in India, mobile learning has picked up by the populaces who have gradually assimilated it in their lives. It has offered students the flexibility to access educational content seamlessly across multiple digital devices like desktops, laptops, tablets and smart phones. The Smart phone user's base in India continues to increase, in both urban and rural areas. The coming years will witness users accessing most of their educational content through internet powered smart phones in a massive way.

Today educational mobile apps are available on popular platforms like Android and iOS. Developers are creating educational apps based on particular subjects. They are simplifying complex concepts with easy to understand illustrations and animations, puzzles games etc.

1.6 Usage of Virtual Reality (VR) and Augmented Reality (AR) for learning:
Virtual Reality and Augmented Reality are already buzzwords in the technology space. VR allows students using e-learning platforms on mobile devices to directly interact with study material. This keeps their engagement levels high and motivates them to learn more and better. On the other hand, AR facilitates teachers and trainers in performing tasks, they previously haven't or cannot, in a safe environment.

1.7 Blogs:
Like Podcast, wiki and other types of new technology, blogs can be used in classroom environment for diary entry; it also can be a useful tool to link communication between study groups within a class or other classes or even schools. If use effectively, blogs can create a learning environment that extend beyond the schoolyard.

1.8 Other E-resources:
There are also certain websites like Khan Academy and various YouTube channels that offer video lectures by eminent scholars and teachers in various subjects.

Covid 2019 has changed the way of life and its major impact is that in order to maintain social distance, in almost fields ICT is widely used.

2. Challenges for use of ICT in higher education:
Even today by and large, at most of the higher education institutions (HEIs), students still attend classes taught by knowledgeable faculty, read from textbooks and handouts, take tests and exams, do projects, get grades and a degree certificate. This was the case half a century back and still remains the case i.e. to say that there are common challenges

that make teachers and institutions slip away from the concept of use of ICT in higher education. Below some of the challenges that are obstructing use of ICT in the class room are narrated.

2.1 Lack of hardware and guidance to use them:
Many institutions are still not sure as to what type of computers and other technological devices they should use. Institutions need to understand their requirement and work accordingly.

2.2 Students will know more than me attitude:
Kids today are more active and pro when it comes to technical things. The attitude that kids may know more than me makes educators insecure and backs them up. Instead, teachers should interact and engage with other students and try to learn along with them. Teachers also have to become a learner in order to enjoy the benefits of this mix.

2.3 Fear of technology:
Educators have this fear of the unknowns with new technologies. They are scared to experiment with new technologies.

2.4 Lack of training opportunities and rigid teaching models:
Educators aren't provided with sufficient training and proper technical support. With so many roles to play, there is shortage of time to practice with new and ever-changing technologies. The already existing teaching models are rigid to be transformed.

2.5 language problem:
Challenging task in the Indian context is language. It's a multilingual country and resources, including reading material, are not available in these languages. So, often there are teachers who are trying to explain complex subjects in languages not understood by the students. Learning in your first language is the best way to lay a strong foundation and because of the lack in resources, this seldom happens. Customization in the Indian context is very important because each student has her own pace.

2.6 Infrastructure challenge:
There is also an infrastructure challenge because teachers and students can't always download or experience heavy files because of internet speed constraints. So, the content has to be crisp, short but impactful. This involves a lot of nitty-gritties of the tech team

2.7 Immense expenditures:
This is an advanced era of technology where machines like computers substituted the use of paper with its hi-tech features and to maintain them a huge sum of money is required colleges which can otherwise be spent to buy necessary resources. In addition to it an institute has to spend lacks of rupees to update the outdated software.

2.8 Transforming learners into inefficient learners:
Many students keep browsing websites to find the shortest possible way to solve problems in accountancy, mathematics etc instead of solving them in a traditional way which actually helps them to gain in-depth knowledge of the subjects. Spell-checkers prevents them from learning the correct spelling thus resulting infinite spelling mistakes in paper.

2.9 Waste of valuable time:
It is the human being who built technology not the technology that created a human. As humans are not error-free, similarly technology too does not come error-free. There are lots of problems like server error and connectivity problems which take oodles of time to troubleshoot it, therefore, hindering the learning process which can sometimes be a matter of frustration both for the learners and the educators. Wastage of time because of unnecessary issues is not at all advisable in

schools or any learning institutes where every second is valuable for the learners.

2.10 Major sources of distractions:
Due to scheme of NAMO tablets, almost higher education institutions especially in Gujarat state issues laptops and tablets. As we all know that in present generation, social networking sites are literally ruling the world with its attractive innovations therefore students and learners are busy in checking their posts and updates, counting the number of likes, checking the status that they themselves or any of their near and dear ones updated, engage in commenting on social sites etc. All these activities create a huge distance between them and their education.

2.11 Extinct of good handwriting:
As smart phones, laptops, desktops and tablets wholly replaced the use of paper and pen, therefore, finding a person with good hand writing is just like finding a needle in the haystack. All the important documents are now typed and fitted in that small folder icon in your laptop. Experts say that people are sacrificing their handwriting to adopt the technology for fast learning.

3. Future hold:
An emerging area ripe with potential is the use of augmented and virtual reality (AR/VR) to create immersive learning experiences that enable learning by doing rather than listening or watching, which can substantially improve learning effectiveness. Further, with a data-driven approach slowly beginning to take hold in higher education, there is a tremendous scope to have very impactful data-led innovations. Prime among them is the notion of an artificial intelligence (AI - enabled learning assistant. Think of your own Jarvis (from Iron Man) as a personal tutor who knows your learning preferences and behavior intimately, what and how much you have learned and can create a customized learning experience that best suit you. IBM Watson is working on this. Many innovative start-ups as well as the big tech giants like Google, IBM, Apple, etc, are working on disruptive innovations in education, which makes the next decade very exciting for this important aspect of our lives.

5. Conclusion:
Use of ICT has both positive and negative impact on higher education. ICT has no doubt brought about tremendous change in education, but we are yet to achieve the desired level of IT adoption in higher education in the country. The optimal utilization of opportunities arising due to diffusion of ICTs in higher education system presents enormous challenge. Moreover, it can provide access to education regardless of time and geographical barriers. Similarly wider availability of course material in education which can be shared by means of ICT, can foster better teaching. While technology can influence the way how students are taught, it would also enable development of collaborative skills as well as knowledge creation skills. ICT enabled education will ultimately lead to the democratization of education and it has the potential for transforming higher education in India.