

The Impact of Emerging Technologies on Higher Education

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ABSTRACT

The rapid growth in technologies like artificial intelligence (AI) or machine learning will result in automation of every job. Teaching is also one of the jobs which will be automated soon. According to the scientists and education experts, robots will enter into the teaching profession and start replacing teachers within 10 to 15 years from now. So as to analyze this statement, the researchers addressed the impact of existing and upcoming technologies in education. They found that technological substitution does not take place as expected. The world demands more teachers, thus introduction of new technologies will manage this issue. Introduction of new technologies in education is not at all possible unless the country is technologically advanced. Introduction of technologies in education will democratize the education. It will facilitate every human to access the quality education.

1. Introduction

According to British education expert Anthony Seldon, "Robots will replace teachers by 2027". It means that artificial intelligence will replace human teachers within a decade. Though it is a highly cost-intensive process, after the initial development costs, administrators wouldn't need to worry about paying digital teachers. Digital teachers wouldn't need days off and would never be late for work. Because of such benefits to the administrators, they are keen to welcome digital teachers soon. On the other hand, studies have suggested that automation will happen at a slower, more gradual pace than many others are predicting. The utilization of new technologies is a slow process, due to economic, legal, and societal hurdles, so that technological substitution often does not take place as expected (Melanie Arntz, Terry Gregory, Ulrich Zierahn, 2016). But every study agrees that automation is inevitable.

2. Research Methodology

For this conceptual study, the researchers adopted the descriptive research design to describe the research problem with its facts and characteristics in a systematic and accurate manner. The secondary data sources were collected from a wide range of journals, research reports, and web portals of international forums for the study.

3. Review of Literature

Frey, Benedikt Carl & Osborne, A. Michael (2013) examined the probability of digitalization for 702 occupations in the US labor market. Their primary objective was analyzing the number of jobs at risk and the relationship between an occupation's probability of computerization, wages, and educational attainment. Based on their estimates, the researchers found that around 47 percent of total US employment is in the high risk. And the researchers conclude that there is a negative relationship between wages, educational attainment, and an occupation's probability of computerization.

West M. Darrell (2015) explored the impact of robots, artificial intelligence, and machine learning. In particular, the researcher studied the impact of these emerging technologies on the workforce and the provision of health benefits, pensions, and social insurance. The researcher concluded the study as if robotics and machine learning are going to take many existing jobs and create employment difficulties for people without advanced technical skills, there is a looming crisis for society as a whole.

Bhat Shrutika (2017) states that human resources will be able to do more to help employees find new roles with the company, thanks to suggestions made by AI-powered software, helping employers retain their best people while increasing job satisfaction. "It will open up opportunities for each individual that may not have been available to them in the past. Hence, it is very clear that automation will create more opportunities rather than affecting human involvement in the jobs.

Houser, Kristin (2017) reveals the fact that students all learn differently. Hence, a good teacher ought to deliver the lesson in such a way that can be understandable by all the students in the classroom. Some students may have behavioral or psychological problems that inhibit or complicate that process. Others may have parents who are too involved, or not involved enough, in their education. Effective teachers must be able to navigate these many hurdles while satisfying often-changing curriculum requirements. Thus, creating robot teachers that can meet all these demands might be challenging.

Luckin, Rose (2017) enquires the situation while machines can handle a variety of specific tasks, we haven't yet come close to creating artificial general intelligence (AGI) — the kind of machine that could answer the tough questions outside the purview of the immediate lesson that a good teacher should be prepared to tackle. AI and automated systems could have collaborative roles in the education system. That would enable teachers and students to take advantage of the tech in ways

that will benefit them both, and we wouldn't need to worry about lack of oversight for when our AI systems do encounter problems.

4. Technologies in Higher Education around the World

MOOCs:

MOOCs (Massive Open Online Courses) are the well established contemporary technology which is already substitutes the classroom learning. But it involves human teachers. However involvement of human teachers is a onetime process. They have to teach in front of a camera and upload it into the website which offers the course. The students with sound internet connection can access MOOC from anywhere in the world. It is entirely replaces the classroom learning environment. MOOC will be the widely accepted method of non-classroom teaching in future.

Robots:

I do not believe that any robot can fulfill the wide range of tasks that a human teacher completes on a daily basis, nor do I believe that any robot will develop the vast repertoire of skills and abilities that a human teacher possesses. Today's robots also lack the empathy and ability to inspire that teachers bring to the classroom. That doesn't mean robots won't replace teachers, though. Very few studies directly compare human and robot teachers, so it's not clear how much better the human performs than the robot. (Rose Luckin, 2017). Robots cannot take the entire responsibility of a teacher. Rather they can be used as an assistant to do particular tasks.

Artificial Intelligence (AI):

AI is the Computer systems that have been designed to interact with the world through capabilities (for example, visual perception and speech recognition) and intelligent behaviors (for example, assessing the available information and then taking the most sensible action to achieve a stated goal) those we would think of as essentially human. The application of artificial intelligence to education (AIEd) has been the subject of academic research for more than 30 years. The field investigates learning wherever it occurs, in traditional classrooms or in workplaces, in order to support formal education as well as lifelong learning. It brings together AI, which is interdisciplinary, and the learning sciences (education, psychology, neuroscience, linguistics, sociology, and anthropology) to promote the development of adaptive learning environments and other AIEd tools that are flexible, inclusive, personalized, engaging, and effective.

5. Indian Scenario

Government of India under the Ministry of Human Resource Development initiated a digital education program called SWAYAM (Study Webs of Active-Learning for Aspiring Young Minds) to provide access to quality education to every resident in India at free of cost. However a little fee would be levied in case learner requires certificate. This program is done through an indigenous developed ICT platform which helps in conducting the courses, taught in classrooms from 9th class to post-graduation level to be accessed by anyone, anywhere at any time in India. The Courses on SWAYAM are classified into

four parts. The first one is Video Lectures which can be watched and listened anywhere in India through a personal computer or Smartphone with sound internet connection. The Second part is Specially Prepared Materials that can be downloaded and printed for the further study. The third part is the Self Assessment Tests and Quizzes to evaluate the learner's performance and the fourth and final part is an Online Discussion Forum in which the students can interact with the professors and faculties for clearing the doubts if any. To provide best quality content to the courses in SWAYAM nine National Coordinators have been appointed. They are AICTE for self-paced and international courses, NPTEL for engineering, UGC for non technical post-graduation education, CEC founder-graduate education, NCERT & NIOS for school education, IGNOU for Diploma and Certificate Courses, IIMB for management studies and NITTTR for Teacher Training programme. Student Studying in any college/university recognized by UGC can transfer their SWYAM course credit earned after the successful completion of it into their academic credit. Now the UGC make it Mandatory for all Central and State university students to study at least one course in SWAYAM and transfer the credit into their academic record. Though it is a digital mode of teaching and learning it involves human teachers like MOOC. Hence India is yet to have digital teachers.

6. Possibilities

The world must add 20.1 million primary and secondary teachers to the workforce, while also finding replacements for the 48.6 million expected to leave in the next 13 years due to retirement, the end of a temporary contract, or the desire to pursue a different profession with better pay or better working conditions (2030 Agenda for Sustainable Development, UNESCO) Introducing new technologies like MOOC will be the only solution to tackle such issues. However only a small percentage of occupations can be fully automated by adapting current technologies, but some work activities of almost all occupations could be automated (McKinsey Global Institute analysis). An important factor called Network readiness (which includes infrastructure, affordability and skills) is a key indicator of how countries are doing in the digital world. It shows how ready each country is to reap the benefits of that transition in technology (Keith Breene, 2016). India is in 91st position out of 139 countries with respect to network readiness. Hence it will take time for India to welcome digital teachers. On the other hand developed countries will be the pioneers in digital teaching since they have access to advanced technology.

7. Conclusion

At the time of introducing computer there was a strong opposition from employees in every sector. They feared that computer will replace them. Thus they showed resistance everywhere. Though computer reduces the number of employees doing a work, it made a revolution in every sector. Nowadays we cannot think this world without computers. Likewise introducing new technologies will not replace teachers. Experience from around the world shows that, over a period of time, teachers' roles become more central and not peripheral as a result of the introduction of new technologies.

Introducing new technologies will, however, replace some of the things that teachers do and require that teachers take on new, often times more sophisticated, duties and responsibilities. Teachers who don't use technology will be replaced by teachers who do. In places where there are

currently no teachers, technology can help in useful ways to overcome this absence. Apart from everything, technology in education will ensure everyone in the world an equal access to a quality education.

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