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Digitalization of education: Advantages and disadvantages

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Abstract
Digital education is a revolutionary method of imparting knowledge, especially since it levels the playing field for all students. India is home to the largest population of children in the world, with an estimated 430 million children in the age group of 0-18 years in the country. The state of education in the country, especially in rural areas has been deplorable, with challenges such as archaic teaching methods, shortage of teachers, highly disproportionate student-teacher ratio, and inadequate teaching materials plaguing the sector. Digitization of education helps in mitigating all of these concerns by providing multimedia teaching tools to teachers and engaging students through learning methods that utilise digital tools, such as smart-boards, LCD screens, videos, etc. It also makes it possible for one teacher to deliver information remotely across several locations, through interactive digital media addressing the shortage of teachers in the country.

Keywords: digitization, Education

Introduction

"Digital education is generating new learning opportunities as students engage in online, digital environments and as faculty change educational practices through the use of hybrid courses, personalized instruction, new collaboration models and a wide array of innovative, engaging learning strategies. Furthermore, a 21st century view of learner success requires students to not only be thoughtful consumers of digital content, but effective and collaborative creators of digital media, demonstrating competencies and communicating ideas through dynamic storytelling, data visualization and content curation." [1].

By 2020 it's estimated there will be 1.5 million new digitised jobs across the globe. Today, however, 90% of organisations currently have an IT skills shortage, while 75% of educators and students feel there is a gap in their ability to meet the skills needs of the IT workforce. Research by the World Economic Forum estimates that 65% of children entering primary school will find themselves in occupations that today do not exist. It is imperative, therefore, for the education sector to prepare the talent needed for the digital economy, by adapting as fast as the increasing demand for IT skills [2].

The word "digital" describes any system based on discontinuous data or events. Computers are digital machines because at their most basic level they can distinguish between just two values, 0 and 1, or off and on. All data that a computer processes must be encoded digitally as a series of zeroes and ones.

The opposite of digital is analogue. A typical analogue device is a clock in which the hands move continuously around the face. Such a clock is capable of indicating every possible time of the day. In contrast, a digital clock is capable of representing only a finite number of times (every tenth of a second, for example) [3]. As mentioned before, a printed book is analogue form of information. The contents of a book need to be digitised to convert it into digital form.

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Digitisation is the process of converting the content of physical media (e.g., periodical articles, books, manuscripts, cards, photographs, vinyl disks, etc.) to digital formats [4]. Digitisation refers to the process of translating a piece of information such as a book, journal articles, sound recordings, pictures, audio tapes or videos recordings, etc. into bits. Bits are the fundamental units of information in a computer system. Converting information into these binary digits is called digitisation, which can be achieved through a variety of existing technologies. A digital image, in turn, is composed of a set of pixels (picture elements), arranged according to a pre-defined ratio of columns and rows. An image file can be managed as a regular computer file and can be retrieved, printed and modified using appropriate software. Further, textual images can be OCRed so as to make its contents searchable [5].

Why education in India should go paperless [6]
1. **Increased Productivity**- It takes an employee an average of 12 minutes to find the paper document they are looking for. With a well-executed digitalization and document imaging plan, this can be reduced to a few seconds or less.
   Document Imaging allows the stake holder ability to share, collaborate, exchange and access documents in seconds, reducing the turnaround time further increasing the efficiency for your business.
2. **Cost efficiency**- The cost of printing and paperwork can be exorbitant. It involves various sub costs like equipment management, paper records maintenance and cost of space.
   Document Imaging with Aptara can help reduce these costs to minimal levels, helping you focus on core business areas and increasing the investments for value adding verticals.
   Aptara saves Management Concepts $1M in annual printing, shipping, and labour costs. This represents a 100+% return on investment (ROI).
   Companies like Management Concepts, Cisco rely on Aptara for their digitization needs helping them to save hundreds of thousand dollars annually in printing, shipping and labour costs.
3. **Easy to access and always accessible**- Documents that have been converted can be easily accessed through the cloud or system using any device that has internet, anywhere or anytime.
   Optical character recognition: OCR techniques along with proper indexing of the data help in searching and accessing the data efficiently saving time and efforts.
   Taxonomy and Indexing: Aptara's Document Imaging Services will help you build a high level classification for your documents so that you can easily find the documents that have been scanned, Taxonomy is also useful in further refining search results. A well-designed Taxonomy will increase your search results and employee adoption.
4. **Enhanced security**- A scanned document is trackable document. If needed, only certain users can access the documents and workflows can be set up along with permission groups for an individual, which enhances the security and maintains the confidentiality of the document.
5. **Enhanced Information Preservation**- Information stored in paper formats is degradable information, and

degrades further every time it is handled manually. Document imaging ensures that your business's most important data is saved and preserved for the future
6. **Disaster recovery**- There is always a risk of disaster, whether it is natural or manmade. Fire, flood, earthquakes or other destructive phenomenon may cause a major disaster for your paper documents seriously affecting your business.
   Document imaging offers you to have a safe repository of your data which can also be shared on cloud or your local document management system, enabling you recover precious documents with a simple click.
7. **Saves space**- Real Estate space is expensive, eliminating paper storage can give you with more space, reduction in rent, reduced off-site document storage fees or potential to open up a new office.
8. **Stay Competitive**- From multinational firms to small organization, digitization has been the mantra of the new age document management. Document digitization efforts have repaid businesses in reduced costs, efficient workflows and satisfied customers.
9. **Environmentally friendly**- Document Imaging and overall document digitizing process adds to your green credits and is an environment friendly initiative. It removes the needs of creating multiple backup copies and unnecessary printing, increasing the eco-friendly quotient of your company.
10. **Digital Transformation** – Image scanning is a first step in building a digital transformation plan. Early adoption is the key for organizations to ensure digital success and focus on cost savings and standardization.

Disadvantages of digital education [7]
▪ With the advancement of mechanization, teachers are not equally trained with its proper implementation. Thus, learners are just using technology instead of gaining knowledge from it. Using applied science to achieve education in the proper way is a good thing but to transform it into an active set of skills is a matter of time.
▪ Relying completely on computers are creating poor studying habits. Many students keep browsing websites to find the shortest possible way to solve problems in Mathematics 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.
▪ 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.
▪ With the speeding development of technology, the websites owner urges to rank their websites higher in search engines, so they only concentrate on rankings instead of the content that they are posting. Many websites come with wrong information that has been

copied and pasted from other sources without checking its authenticity. Thus, the learners are misguided by the wrong informations available on the websites. These things can perhaps become serious obstacles in their development.

▪ There are arguments that because of all the new technology that there is a loss of communication skills and the ability for people to interact with each other. Since a fairly large amount of the new technology is made for an independent use there are valid concerns about the loss of interpersonal and cooperation skills that students usually develop within a classroom setting.

▪ It is not secret that the newest and most up to date technology is very expensive. In order for a school to use technology like this they have to pay for it, which is difficult for most public schools to do because of the sheer cost. This is also difficult for parents because the students become accustomed to some technology that they do not have at home [8].

Conclusion
In today's hyper-connected world, sensible use of technology can enhance education. It's clear that the benefits are many more. But the key to technology in the classroom is always going to be the teacher-student relationship, because that's where the education happens. Technology can be a highly effective tool, but that's all it is — a tool because man has created technology and technology has not created man. Technology is not meant to replace the teacher. Rather, the idea is to create a flexible learning environment that breeds innovation. It shifts the classroom experience from the 'sage-on-a-stage' approach to a more collaborative learning environment. The success of such endeavours will ultimately depend upon how technology is applied to keep students engaged. It can be frustrating and time-consuming, but in the end, technology in education can pave the way to new experiences, new discoveries, and new ways of learning and collaborating

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