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**Digitization of higher education: A great change in
teaching, learning trends**

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Abstract

Higher education has undergone a major transformation in recent years which includes increasing internationalization and student mobility; the increasing supply of online and blended learning; and a rise in internet services in all countries. All of these issues bring with them the need to improve and guarantee quality and recognition and call for innovative measures by governments and institutions which also address equity and access. The wealth of digital educational resources has made new demands on higher education systems and institutions which include developing innovative curricula, study programmes and alternative learning pathways, and routes to higher learning, all facilitated by online, distance, open education, blended learning delivery models and short skills-based courses such as Massive Online Open Courses (MOOCs) and Open Education Resources (OERs) The potential of online learning in general, and in particular in the form of MOOCs, is enormous and builds new paths to higher education as well as expanding lifelong learning opportunities. It also helps to reduce individual and institutional educational costs by offering flexible alternatives. This paper focus on the digital capabilities for higher education, what are the dominant trends in digitization of higher education and the challenges towards digital education.

Keywords: Digitization. Higher education, Digital capabilities

Introduction

Today, India is one of the world's top destinations for education. Today, little children are watching their favorite cartoons and learning pictorial rhymes on the same device. 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, some cutting-edge technologies are being used to further enhance this sector, while grabbing the attention of entrepreneurs, venture capitalists, corporate and governments.

Information technology has reformed each sector it has grasped and it is currently in the promising phases of altering academia. In the coming decades if information technology has its approach, education will be far changed, more immersive and hopefully more constructive to the people than it is today. Digitization in education industry has totally changed the learning and also the teaching process to a very great extent.

Digital Capabilities for Higher Education

Digital success extends beyond technology adoption and beyond the IT organization. It encompasses the entire institutional leadership and community, and rests on a set of digital

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capabilities. Digital capabilities are the application of technology to the core functions of an enterprise: They are the "how" of an organization, rather than the "what," which would be specific technologies and services. Digital capabilities can be defined for institutional missions, IT management, and foundational IT functions. Each capability area examines multiple dimensions of progress, not just technical ones, such as:

- A sufficient and sustainable funding model
- A sufficient and sustainable staffing model
- Active support from institutional leadership
- Active support from the faculty
- Engagement of the entire institutional community
- Adequate training for the institutional community
- Alignment with institutional strategy
- Dedicated leadership of the area
- Support for policies that are appropriate and clear

Capabilities have been an aspect of technology and business management for many years. Although higher education has perhaps over-adapted core technologies to our culture and under-adapted our culture to fit standard business practices, we are nonetheless a specialized "industry" with correspondingly specialized needs. Our core missions of research and education distinguish us from industries focused on finance, commerce, or manufacturing. Our reliance on a highly creative and diverse workforce (faculty) who not only teach and create but also help manage and lead engenders a very different decision-making structure than, say, a hospital or bank. Our complex ecosystem of "customers" is highly distinctive: Faculty, students, alumni, donors, and the local community are all constituents, but with highly dissimilar needs. Higher education's digital capabilities will differ somewhat or considerably from other industries' or from generic capabilities. Higher education needs its own set of capabilities, informed by existing capabilities and adapted to this industry.

Digital capabilities—their corresponding technologies and services—for higher education.

- EDUCAUSE maturity indices measure digital capabilities. They enable institutions to determine where they are and where they aspire to be.
- Deployment indices measure stages of deployment for specific technologies and services, which can be a measure of whether capabilities are being put to use via technologies and services.

This describes the EDUCAUSE maturity and deployment model, the current status of maturity and deployment for the eight areas we have developed so far, and implications:

- Is higher education more capable in some areas than others?
- How are capability areas related? Is effective leadership in one area, for example, related to some overall leadership capacity? Or does higher education's highly distributed decision making and organizational structure result in little translation across capabilities?
- Are capability maturity and technology deployment related? In other words, is higher maturity associated with deployment of more technologies?
- Are we making progress — is maturity increasing?

Mission-differentiating capabilities are the IT capabilities directly associated with the institutional mission. Research computing, e-learning and student success technologies

reflect those capabilities required for successful delivery of technologies and services in support of research and scholarship, education, and student retention and completion. The culture of innovation index assesses the extent to which the institution is open to and prepared for transformation.

- **Culture of Innovation:** Nurturing an environment that continually introduces new ideas or ways of thinking, then translates them into action to solve specific problems or seize new opportunities⁶
- **E-learning:** Learning that involves a web-based component, enabling collaboration and access to content that extends beyond the classroom⁷
- **Student Success Technologies:** Information technology that helps students explore and select a pathway of interest, tracks and supports students' progress along their chosen pathway that ultimately results in student success, and provides institutional leadership, faculty, and advisors with tools and information they need to contribute to student success
- **Research Computing:** Services and infrastructure provided to faculty, students, or research staff for the purpose of performing research at a higher education institution⁸

IT management capabilities relate to the IT function's relationship with institutional management.

- **IT Governance:** A decision-making process that ensures the effective and efficient use of information technology and alignment of the campus IT strategy with the institution's strategic plan⁹
- **IT Risk Management:** The process of identifying, assessing, prioritizing, and addressing the major IT risks associated with an institution's key objectives¹⁰

Foundational capabilities underpin effective and efficient application of information technology to institutional priorities. Analytics relates to technologies that enable institutions to use data to make informed and effective decisions. Analytics is a tool, a means to an end, rather than an end in itself (unlike student success). Information security safeguards data and identities and is indispensable in today's environment.

- **Analytics:** The use of data, statistical analysis, and explanatory and predictive models to gain insights and act on complex issues¹¹
- **Information Security:** Functions and resources associated with providing information and systems security services and programs for the institution, including directory, identity management, and access provisioning/de-provisioning functions and roles, etc.¹²

Six Dominant trends in digitization of higher education

- **Democratization of Education**
- With more than 1 billion new students expected to enroll in universities in the near future, and increased prosperity taking root in developing countries, digitization allows higher education to be more scalable and more affordable.
- **Lifelong Learning**
- Higher education is no longer solely available to traditional students who are able to attend class during regular business hours. Digital education offers

nontraditional students—including full-time workers, single parents, and career changers—convenient access to higher education at various stages of their lives.

- **Individualization of Education**
- Digital education allows for more flexibility and more customization in what, how, and where courses are delivered, and it makes for faster and more relevant feedback.
- **Exponential Technology Advancements**
- Digital education is being furthered by new capabilities in mobile devices, cloud delivery systems, video streaming and other broadband-intensive applications, and learning management systems.
- **Digitized Students**
- Today's students are digital natives who are used to getting what they want at the time and location they want to get it.
- **Changes in Workforce Demand**
- Digitization and automation in the workplace requires new and continually advancing skills. As a result, employers are demanding that universities provide more opportunities for their employees to access continuing, convenient education. Impact on teaching and learning

Ultimately, technology is going to have a significant impact on teaching and learning. The power of the cloud and more consumer-orientated devices are going to make anytime, anywhere learning more commonplace and accessible to all. Furthermore, with access to free, or very cost effective, learning content now becoming ubiquitous, the role of the teacher is going to evolve and become more important than ever.

With an eye on making education more relevant to the workplace, and with a focus on Stem-based skills, building emotional and engaging connections with learning materials is going to be the key part in the next phase of development for teaching and learning and gaming in education is going to be an underlying theme throughout.

Challenges towards Digital Education

Let's start with student motivation. If technologies can draw in otherwise disenfranchised students through the personalization of material to a student's interest or through gaming technology, they could benefit disengaged, poorly performing students. However, these technologies often reduce oversight of students, which could be particularly detrimental for children who are less motivated or who receive less structured educational supports at home. It is also possible that these technologies will be less able to engage reluctant learners in the way a dynamic and charismatic teacher can.

Moreover, approaches that forgo direct interpersonal interaction completely are unlikely to be able to teach certain skills. Learning is an inherently social activity. While an intelligent tutor might be able to help a student master specific math concepts, it may not be able to teach students to critically analyze a work of literature or debate the ethics of new legislation.

More broadly, it is important to realize that technologies can be either substitutes for or complements to resources already in the school. To the extent that they are substitutes, they are inherently equalizing forces. For example, well-designed and structured online content might provide critical support to a novice teacher who is too overwhelmed to produce the same coherent and engaging materials that some more experienced teachers can create.

Finally, even with the best implementation, digital learning is likely to benefit students differently depending on their personal circumstances and those of their school. For instance, non-native English speakers might benefit from online instruction that allows them to pause and look up unfamiliar words. Likewise, we might expect an online course to be more advantageous for students attending a brick-and-mortar school with very low-quality teachers.

In recent years, the worlds of online learning and computer-aided instruction have converged to some extent, morphing into what is often referred to as blended- or personalized-learning models. There are a number of interesting projects underway across the country, including pilots supported by the Gates Foundation's Next Generation Learning Challenge, and the emergence of charter networks with a goal to provide truly personalized learning for every student, such as Summit Public Schools in California and Washington.

Conclusion

As online education has been adapted by many universities, it has made approachable and shorten the distance between a student and his/her dreams. Online education is a type of distance learning. There is no need to attend the college or university in person. Coursera is an educational technology company which works with universities to make some of their courses available online. E-learning or computer-based training includes all forms of electronically supported learning and teaching. It also includes educational technology.

As considering some of its demerits, classrooms nowadays have become movie halls with audiovisual content, with no communication between students and teachers. The relationship between the student and professor will possibly be blurred.

This grouping of traditional training instructions united with digitized learning is one of the ways we can make our future generations to become global contributors who can interconnect across culture, time and geographies.

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