I. КРУГЛЫЙ СТОЛ:
«ИНТЕГРАЦИЯ ПЕДАГОГИЧЕСКИХ И ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ В ОБРАЗОВАТЕЛЬНЫХ ОРГАНИЗАЦИЯХ СРЕДНЕГО ПРОФЕССИОНАЛЬНОГО И ВЫСШЕГО ОБРАЗОВАНИЯ»

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Exploring benefits and challenges of Digital Technology in the Higher Education

Abstract

Teachers have often dabbled in the practice of teaching, which has progressed over decades as innovative techniques processes, materials, and technology have been adopted. Over the last decades, technological innovation has advanced at a breakneck pace, resulting in creative advances and interesting technological advancements. These developments, luckily, generate benefits while also raising unique demands. The innovation of science and technology has had a major impact on educational methods in recent years. This article offers an informative overview of some of the recent technological advances that educational system is prospering from, as well as some of the obstacles that they face. This paper gives an analysis of how technology has improved higher education conquer time and space constraints. It also shows how emerging innovations affect or implement different educational tools. Furthermore, the paper discusses how innovations are affecting various facets of schooling [for example, examination and course management systems (CMS)]. Finally, the article concludes with a summary of the new issues that have emerged.

Introduction

Online interfaces have had a profound effect on all aspects of human society in the existing era, such as the social, financial, and political realms. These form of advancements in 21st-century have resulted in a shift in how people engage with information, interact with each other, and contribute to the society. Moreover, these important variations aren't limited to expanded opportunities for written, oral, and visual interactions via fully engaging platforms. The era we exist

in demonstrates profound discrepancies in how society works overall, in that the globe is linked on an unparalleled dimension via technological channels. Since all spheres of life, including socio-economic systems are facing transformation and are struggling to adapt to the new millennium in order to better serve the demands and expectat of the social system, it is just normal to assume educational transformations to better satisfy the interests and future of the society in this technology wave. Higher education institutions (HEIs), which play peculiar functions in information production and dissemination, have been subjected to greater transformation expectations.[1] As a result, the competitive landscape for information economy, driven by the market dominance of interactive connective technology,[2] is pushing higher education institutions to reconsider their existing systems and make structural changes to better meet the needs and demands of the new millennium.[3] Aside from digital technologies and the transitions they enforce, HEIs also face obstacles relevant to the new era, such as growing and dynamic learner demographics, rising learner mobility, continuing education, and increased business rivalry with modern higher ed markets.[4]

HEIs must strengthen their science and innovation competence productivity, integration among disciplines, creativity, and problem-solving skills in the modern era They must also turn into organizations capable of adapting to the modern era, producing creative and scientific output while maintaining a global perspective. This article looks at how digital developments are affecting the student, teacher, teaching approaches, and management aspects of higher education institutions in the technological environment. As a final result, the article sets the direction for HEIs to better work in this century.

Digital Practices in Higher Education
Distant learning

Distance education has shifted higher education away from the school environment The concept of distance learning – a method of schooling in which students receive lesson plans and guidance over the internet – began to take shape[5] Correspondence study became a term for it. Universities began to contribute to the development of this level of learning. Distantlearning is undergoing yet one more transition as a result of the adoption of new technology.[67] Digital classes, which can be conducted digitally are already being offered by educational insti-

[1] Şahin&Alkan (2016), Yükseköğretimdedeğişimdönüşümsüreciveüniversitelerindeğişenrolleri.

[2] Rust& Kim(2012),The global competition in higher education. World Studies in Education.

[3] Odabaşı, Fırat&İzmirli(2010),Küreselleşendünyadaakademisyenolmak.

[4] Erdem(2006),Dünyadakiyükseköğretimindeğişimi.

[5] Nasseh, (2009), A Brief History of Distance Education.

[6] Harper, Chen, & Yen(2004), Distance learning, virtual classrooms, and teaching pedagogy in the internet environment.

[7] Valentine, (2002), Distance learning: promises, problems, and possibilities.

tutions. These courses, including correspondence study, get around geographical and time constraints. Even then, due to the obvious advancements in the digital communications channel, these lessons are actually more effective than correspondence study.

On the brighter side, more students have access to classes, facilities are plentiful and accessible in a variety of forms and numerous channels enable learners and educators to connect better. Digital classes, on the other hand, disregard the real-world interaction between learners and lecturers. The absence of successful virtual collaboration networks can be detrimental to subjects that involve group work. Teachers must create curricula that acknowledges such difficulties in such courses.[89] The availablevirtual educational resources necessitate a thorough assessment of their content. As most materials are digital, it can be challenging for students and teachers to maintain or obtain them.

Learning Resources

Though books are widely seen as learning resources, lessons are essential in the classroom. The way books are written and circulated is evolving as a result of digital developments. It has really transformed the way lectures are delivered. Teachers can also include animation and projection in the classroom due to technological advances. the further sections of the article provide a quick overview of these areas.

Lectures

The convenience with which video can be captured and edited is stretching the bounds of recorded lessons. Teachers record their lessons either during or before a lesson. Educational videos are made by people from all walks of life, not just academics. Open video sharing platforms like YouTube and Vimeo are assisting in the distribution of these items. Videos, on the other hand, are a different form of content with their particular set of issues. These recordings cannot replace the real and complex experiences that occur in the classroom. When certain approaches are implemented it is also challenging for teachers to determine learners' comprehension.

In several fields, presentation is an essential aspect of educational institutions. The approach teachers use, now every subject is being shaped by technological innovations. The manner teachers tell a story is evolving due to demonstration apps like PowerPoint, Keynote, and Prezi. Even then, research suggests the ability of these techniques is largely supported by the instructional form

[8] Sandholtz, Ringstaff& Dwyer, (1997), Teaching with Technology: Creating Student-Centered Classrooms.

[9] Grudin, (1994), Computer-supported cooperative work: history and focus.

used.[1011] Furthermore, advancedvisual technology has made it possible to create teaching cues that efficiently illustrate new approaches. To reach students who interact best with multimedia aids, teachers use presentation, visualization, and illustration to make their lessons interactive and explanatory.[1213] Positively, these resources can be reused, shared, and enhanced, allowing the instructor to spend much more time engaging with learners. However, creating such materials requires time, and teachers require professional assistance in both designing and implementing them. Such resources can significantly raise the class's momentum, making it even harder for students who are less competent to keep up.

Books

Conventional paper-based books are being supplemented or replaced by new technologies. Most paper books are also available in digital form referred to as e-books (electronic books). One of the most significant benefits of e-book is their portability. E-books are less expensive than printed books, and they can include immersive graphics and visualization to help explain ideas, as well as interactive assessment and customization. Publishing houses, and also associations and people, publish electronic books. As a result, the content of e-books must be adequately measured in order for teachers to speak intelligibly on which e-book to use in a lesson.

Teachers devote a considerable amount of time in the classroom to discussing fresh ideas. Most e-books' interactive features (such as graphics and visualization) allow teachers to communicate the similar knowledge without devoting a considerable amount of time and resources to explaining the lessons during the lecture. Even so, we must notice that although some learners are quick to respond to visual stimuli, others are good at answering to audible instructions. Engaging electronic books simply bring a bit of specialized instruction to the practice. Material that is interactive does not always imply that it is of excellent quality. To be credible and beneficial, the textbook's average quality must meet specified criteria. A rigorous evaluation framework is lacking in most of the e-books. To be regarded a proper answer, activities or exercises demand precise answers. A notation or extra space may cause the answer to be marked as inaccurate.[14] This maydissatisfy students. Moreover, e-books are less desirable sometimes in the basis of their permanence and resale value.

Assessments

[10] Virtanen, Myllärniemi&Wallander,(2012), Diversifying higher education: innovative tools to facilitate different ways of learning.

[11] Brock&Joglekar, (2011),Empoweringpowerpoint: slides and teaching effectiveness.

[12] Jonassen, (2006). Modeling with Technology: Mindtools for Conceptual Change.

[13] Tufte, (2006), The Cognitive Style of PowerPoint: Pitching Out Corrupts Within, Second Edition.

[14] Pulman&Sukkarieh, (2005).Automatic short answer marking.

To make evaluations more reliable and accurate, various methods have been introduced. Teachers can share teaching activities, involve students, and display student reports in real time using tools like Socrative, Kahoot, Edmodo, and Nearpad. Assessing materials may be shared and reused by teachers. Most of these tools aren't bound to any specific book and do not take a lot of processing times, make them ideal to be used as evaluation tools in a variety of subjects. In recent times, e-books have begun to incorporate an evaluation system. Teachers may use the book to monitor and assess academic achievement. Although digital evaluations typically allow for quick assessment, they also present a number of challenges, including a structured strategy for achieving the collection of assessment materials; utilization, reuse, and distribution of assessment materials all over portals; exam quality measures; and the ability to incorporate and link assessment methods to curriculum outcomes.

In addition, it issignificant to evaluate the efficiency of automaticassessment systems. Most of the existing assessment frameworks accurately assess multiple choice and true–false queries. Shortanswers and essay questions, on the other hand, are much more challenging to evaluate automatically. In Computer Science, efforts have been made to automating the assessment of student codings.[15][16][17] In these set of circumstances, precised tasks about the criteria, and detailed system testing must be created to evaluate the programs' performance. Both of these things take time and necessitate instructors spending a considerable time management and creating assignments.[18][19][20] For smaller class sizes, the beginning framework cost will exceed the value of automatedscoring,however it has further opportunities for class sizes.

Communication and Team work

The need for meaningful communication between learners and lecturers grows dramatically as teaching methods and tools become more digital. It's necessary for teachers to be prepared to connect with students via a variety of networks. Email, teleconferences, and videoconferences are examples of digital methods of communication. One-to-one, one-to-many, and many-to-many interaction all are supported by these approaches. Teachers and students can connect in live time using fully accessible networking tools like Skype and Google Hangouts. Many websites offer screen-sharing as well as web conferencing facilities

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[15] Brecht&Ogilby, (2008), Enabling a comprehensive teaching strategy: video lectures.

[16] Edwards& Perez-Quinones, (2008), Web-CAT: automatically grading programming assignments.

[17] Isong, (2001),Developing an automated program checkers.

[18] Srikant &Aggarwal, (2014), A system to grade computer programming skills using machine learning.

[19] Falvo, (2008), Animations and simulations for teaching and learning molecular chemistry.

[20] Jackson&Usher, (1997),Grading student programs using ASSYST.

(e.g., GoToMeeting).

Teachers must also interact with the entire class. The most popular methods of group communication are discussion boards, web forums, and wikis. Collaborative classes are structured to enable students to interact with each other. To facilitate online interaction such modules require efficient communication channels. Group learning is facilitated by collaborative networks like CATME.[21] Question-answer tools, like Piazza, assist students in both asking and responding to questions. These networks have powerful in-class and out-of-class methods to involve students. They encourage community development and knowledge construction altogether. Even then, such forums often necessitate constructive and intensive supervision to confirm that learners are provided a positive atmosphere that promotes concept analysis, that they have been respectful of one another, and that they have been given the appropriate answer.

Course Management Systems

For a long time, teachers have been handling their students through course management systems like WetCT, Blackboard, Sakai, or Moodle. These types of programs have a centralized resource control, networking, and assessment framework which are either commercially viable or fully accessible. Commercial CMS are even less adaptable when it comes to adding new features and are more expensive than fully accessible systems. Institutions need qualified technicians for the implementation and maintenance of these programs owing to their sophistication.

Open-source tools have been used to create online course materials in recent times. Teachers can use EdX, Google Course Creator, Coursera, Udacity, and other platforms to develop online courses. Major open online courses (MOOCs) and Big open online courses (BOOCs) are being paved by these technologies (BOOCs). The majority of these lessons are accessible, allowing for everyone from anywhere in the globe to register, participate, and earn accreditation. Engaging students, evaluating students efficiently, and creating and sustaining a positive collaborativeenvironment are a few obstacles that such initiatives face.[22] Learners often face the challenge of learning multiple models because several teachers can use different platforms.

Conclusion

As technology advances, pedagogical methods must adapt in order to keep up with the innovations while still making sense of their effects. The potential

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[21] Loughry, Ohland&Woehr, (2014),Assessing teamwork skills for assurance of learning using CATME team tools.

[22] Zheng, Rosson, Shih&Carroll, (2015), «Understanding student motivation, behaviors and perceptions in MOOCs».

to record resource use and class activities is among the benefits of virtual technology in education. E-books, instructional videos, teaching materials, and other digital content generate a lot of user data. For the growth and continuity of technology-dependent teaching and learning activities, it is important to consider how students engage with technology solutions and to recognise the effects of using sophisticated systems. Learning analytics is a new area of study that seeks to answer these concerns.

Some other benefit of digital innovation is the convenience with which learning materials can be created. The huge challenges in this field are the material consistency and the long-term durability of such objects. Recognizing the transition of higher education requires cataloging and maintaining educational materials. This kind of preservation would pave the way for future research into the effect of these tools on learning outcomes. Incorporating technology in the classroom comes with its own set of difficulties, since it can be challenging and time-consuming. The instructor must weigh the benefits of spending time in technology implementation against the possible effects on pupil performance. If various digital elements (for example, e-book, evaluation, and demonstration) can be retrieved which can display positive effects on student progress, the incentives and resources for the time being can be significant. Institutions can also include assistance and opportunities for technology adoption. One more challenge is achieving collaboration between different innovations in order to facilitate the smooth incorporation of different digital modules in a classroom.

Although a variety of new tools are evolving to aid education, educators are responsible for their implementation and effect on learning. Adoption should be driven by learning objectives, student demographics, and professional pedagogical theory and practice. Although technology is not a replacement for teachers, it can help in a variety of ways. To fully comprehend the effects of incorporating digital technology in education, extensive research is needed.