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Digital Education: A New Learning Paradigm

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ABSTRACT

The digital education—an interdisciplinary field that uses digital technologies and methods in all streams of education, has opened new techniques of teaching. Digital education allows anyone and anything to connect in any way; where technology is open, neutral and consistent. We may be struggling with certain fears or problems that prevent us from having effective deliberations in the classroom. Being confident in yourself and your own disciplinary knowledge, will help you to resist the fear of failure or change. The use of adequate digital resources and materials is critical to successful teaching and learning. There have been rapid and widespread changes in technology: learning management system, website technology, cloud storage, smart mobile apps, collaborative productivity software and multimedia sharing. The millennials are engrossed in many tasks and are comfortable with multimedia enjoyment. They thrive on interaction and have little tolerance for traditional communication methods as exemplified by the word 'lecture'. The emergence of online learning environments and Web-based course activities has significantly contributed to the recognition that we need a better understanding of the conditions and means for achieving effective learning. Digital education gives learning a new relevance to contemporary society, professional and industry practice.

Key Words: Surfeit, Ubiquitous, Cognitive, Self-efficacy, Didactical.

Introduction

Digital technologies are increasingly central to the way we do our work as an educator, we all have responsibility to keep pace with the information technologies that are changing the landscapes of education. When we realize to adopt new technologies in classroom, the strenuous part is getting started. This is not because lack of available tools and methods, but rather a surfeit: when there are so many possibilities for functions, sites and resources, it can be extremely cumbersome to separate the efficient from the inefficient and save time. The digital education—an interdisciplinary field that uses digital technologies and methods in all streams of education, has opened new techniques of teaching. To keep up with the information technologies that are reshaping the education pedagogy, this research paper seeks to provide an insight to digital tools that can be used in teaching where information flows effortlessly between us and the world. Digital education allows anyone and anything to connect in any way; where technology is open, neutral and consistent. I hope this article will act as a primer designed to improve and review the ways to integrate technology into the classroom.

Significance of Study

The concept of traditional education has changed radically within the last couple of years. We are now entering a new era — the revolution of online education. Digital learning is referred to technology enhanced learning, where a set of technology-mediated methods are applied to support student learning. The purpose of this research paper is:

1) To enhance the student learning experience by providing opportunities for cross-disciplinary, cross-cultural and/or cross-campus collaborations.
2) To provide access to a greater depth and breadth of resources and information.
3) To develop digital literacy skills that are increasingly required in contemporary society and workplace environments.
4) To provide flexibility of time and location in learning and teaching which can occur at times that are more convenient and productive for both students and teachers.

Digital Resources

Starting with online education systems can be the most difficult part of the process. In many cases, the psychological and social barriers to the use of innovative methods can cause far greater barriers than any lack of technical knowledge. When we use technically experimental attribute to overcome the fear of failure it often threatens our creativity. Failure is part of life. Lisa Spiro (2012), points out experimentation as one of the core values in the field of digital humanities. As she says, the digital humanities community recognizes the value of failure in the pursuit of innovation.

We may be struggling with certain fears or problems that prevent us from having effective deliberations in the classroom. Thinking that I am bad in computers, may make you anxious. Keeping in mind that we are bad at things we have not yet tried, not getting right help or not reframing in a very practical way. Try modifying this common fear into precise terms that reflect specific situations, which will reduce your anxiety to a minimum. Being confident in yourself and your own disciplinary knowledge, will help you to resist the fear of failure or change.

After overcoming with resistance and anxiety, we wonder where to start. Digital resources are a good place to start. Digital resources have some inherent advantages over printed textbooks when it comes to teaching. Digital resources include hardware and software, operating systems and mobile applications, storage and networking, and the support structures on which they operate. The use of adequate digital resources and materials is critical to successful teaching and learning. They are more capable of high-quality, full-colour charts and diagrams. They are often interchangeable between devices. Students can view them on smart phones or on a library computer. They can be helpful for the students who do not want to carry bulky, heavy text books in class. Although we consider that access to technology is difficult for underprivileged students but the internet access is ubiquitous and many students who cannot afford laptops or home computers do possess smartphones capable of loading electronic text.

The temptation to explore what is known and the ease with which to begin exploring has multiplied in recent years due to Web. The invention of the World Wide Web in 1992 made online education more accessible. The Web is easy to use and capable of providing multimedia, which expands the range of fields that can be provided online. Throughout its vibrant history, online education has handled tough questions and developed various models for understanding how new methods of learning and teaching can be productive, constructive, thrilling and significant.

Ithiel de la Sola Pool (1984) recognized by the early 1980s that computer networking would immensely affect our world. One could argue that computer communication is one of the perhaps four most fundamental changes in the history of communications technology. Any such list is, of course, judgmental, but the case can be made that writing 5,000 years ago,

printing 500 years ago, telegraphy 150 years ago, and now computer communication were the four truly revolutionary changes.

While e-mail is an important networking application in education, its group communication, computer conference, collaborative learning environment is an essence of online education. Murray Turoff (1978) designed computer conferencing to be a ``collective intelligence" system that would structure group communication for information exchange and problem solving.

In last 18 years, Robinson and Dusenberry (2019), have seen rapid and widespread changes in technology. A sample of these changes is reflected in these categories:

- Learning management systems (LMSs): Planning, organizing, and managing classes have been centralized with tools such as Moodle, Blackboard, Desire to Learn (D2L), Canvas, and Google Classroom.
- Website and wiki technology: WordPress, Squarespace, Weebly, Wix, and their subsequent iterations facilitate easy website development and publication. Wikis like Wikipedia and Wikimedia enable users to contribute to collective, crowdsourced knowledge.
- Cloud services and storage: Cloud computing allows cheap, quick, and expansive server space, supporting popular applications such as Amazon Web Services, Dropbox, Netflix, iCloud, Microsoft OneDrive, and Adobe Creative Cloud.
- Smart mobile devices and apps: Smartphones, tablets, and other mobile devices allow users to go online more easily and to access the internet and specialized apps from almost anywhere.
- Collaborative productivity software: Online co-authoring software such as Google Docs and Dropbox enables simultaneous, distributed collaboration. Subsequent development expanded these offerings to include collaborative project management software, spreadsheets, and presentation slides.
- Multimedia sharing: Sites like YouTube, Vimeo, and SoundCloud permit users to create, share, and edit video and audio content without the need for individuals to have their own sophisticated storage and delivery systems.

In recent years, much has been written about the new generation of learners. These students have grown up with interactive technologies such as computers and videogames. Of particular note is the growing number of mobile technologies in the form of mobile devices as cell phones and iPods. These devices have developed mechanisms for easy interaction and transmission of information.

According to Prensky (2001), these learners are part of the ‘Net-Generation’ sometimes referred to as ‘Millennials’ or ‘digital natives’ and represent the majority of undergraduate students who are currently enrolled in colleges and universities. These students rarely read newspapers, learn by doing, and are drawn to a group or other activities that include a social component. They are engrossed in many tasks and are comfortable with multimedia enjoyment. They thrive on

interaction and have little tolerance for traditional communication methods as exemplified by the word 'lecture'.

Efficient management of goals starts with learning how to set goals. Peter Ferdinand Drucker (1909 – 2005), an outstanding Austro-American management consultant, in The Practice of Management (Drucker, 1955), suggested a plan of action for teaching students how to set goals. The time-tested plan consists of five steps that are easily memorized with the acronym SMART. SMART means Specific, Measurable, Achievable, Realistic, and Timely.

In short, teaching students how to set Specific goals means that they should state their goals accurately, define them clearly and simply. Teaching them how to set Measurable goals means that they should include a target or a measure which they can use as conclusive evidence or reference point as to whether or not they have achieved what they need to do. Teaching students how to set Achievable goals is to teach students how to set goals that will challenge them to pursue their personal best, but they are not beyond current capabilities. Teaching them how to set Realistic goals means not only completing tasks, but also learning how to act to achieve relevant results and outcomes. Teaching students to make their goals Timely means teaching them that they must reach a specific date, agreed time, or deadline. For this purpose, they should be introduced to Parkinson's Law of Time Management which states, "Work expands to fill the time available for its completion". It is important to warn students to this Law because it means that if they don't set deadlines, and stick to them, they may not be able to complete tasks on time. Setting deadlines creates stress which motivates people to do tasks on time. Without setting goals in a timely manner, tasks can be taken forever and never get completed. Therefore, students should be taught to set targets for themselves for the actions they take, to complete tasks within the allotted time, and to push themselves to act against time. Following Parkinson's Law means that they are more likely to complete tasks on time because the deadlines for tasks is shorter, forcing them to pressurize themselves to complete the task in the short time allotted to them. This means that they will not be able to postpone work until the last minute because they do not have the luxuries of that extra time.

Thus, paraphrasing Kuhn (1970), we can say that, educators are looking at the world and what they look at has not changed. But in some areas, they see different things, and they see them in different relations one to the other. That is why, before they can hope to communicate fully, one group or the other must experience the conversation that we have been calling a paradigm shift.

The emergence of online learning environments and Web-based course activities has significantly contributed to the recognition that we need a better understanding of the conditions and means for achieving effective learning. Brown (1990) viewed new educational environments as part of the shift from seeing technology as a cognitive delivery system to seeing it as a means to support collaborative conversations about a topic and the ensuing construction of understanding.

Key factors in effective online delivery

Effectiveness: Webster and Hackley (1997) remarked that students' performance, measured by their marks, represents a key aspect of teaching effectiveness. However, several studies have shown that there is little or no difference in student performance between educational television and face-to-face instruction or between video instruction and face-to-face instruction (Wetzel and Stern, 1994). Webster and Hackley (1997) further suggested that the following dimensions can capture the concept of

effectiveness: student involvement and participation, cognitive engagement, technology self-efficacy (the belief that one has the capability to interact with a given technology), perceived usefulness of the technology employed, and the relative advantage or disadvantage of online delivery.

According to studies conducted by Dillon and Gunawardena (1995) and Leidner and Jarvenpaa (1993), three main variables affect the effectiveness of online delivery: technology, instructor characteristics, and student characteristics.

Technology: The reliability, quality and medium richness are key technological aspects to be considered (Sanders Lopez and Nagelhout, 1995). In particular, the network set up should allow for both synchronous and asynchronous exchange; students should have convenient access (e.g., through a remote access); and the network should require minimal time for document exchange. The quality of the interface also plays a crucial role (Trevitt, 1995). The literature concerning interface design for online delivery ranges from the highly artistic (Laurel, 1990) to highly technical (Blattner and Dannenberg, 1992). Reeves and Harmon (1993) presented a synthesis between these two tendencies and identify the following dimensions as being important ones in the user interface: ease of use, navigation, cognitive load, mapping, screen design, information presentation, aesthetics, and overall functionality. The perceived richness of the technology should also influence the effectiveness of online delivery. In medium richness theory (Daft and Lengel, 1986), a rich medium is one that allows for both synchronous and asynchronous communication and supports a variety of didactical elements (text, graphics, audio and video messages). A central part of the medium richness relates to interactivity. Indeed, McIntyre and Wolff (1998) noted that: One of the powers of interactivity in a Web environment is the capability to engage by providing rapid, compelling interaction and feedback to students. Engagement is also enhanced by problem-based presentation of educational material. An engaged student is a motivated student (Neorman and Spohrer, 1996).

Instructor characteristics: Collis (1995) remarked that the instructor plays a central role in the effectiveness of online delivery: It is not the technology but the instructional implementation of the technology that determines the effects on learning. Webster and Hackley (1997) suggested that three instructor characteristics influence learning outcomes:

1) attitude towards technology;
2) teaching style;
3) control of the technology.

Students attending a class with an instructor who has a positive attitude towards distributed learning and who promotes the technology are likely to experience more positive learning outcomes. In a distributed learning environment, students often feel isolated since they do not have the classroom environment in which to interact with the instructor (Serwatka, 1999). To overcome this feeling, instructors can provide various forms of office hours and methods of contacts for the students. Most importantly, the instructor should exhibit interactive teaching styles, encouraging interaction between the students and the instructor. Students in Internet distance learning courses often face technical problems. It is therefore crucial that the instructor has a good control of the technology and is able to perform basic troubleshooting tasks (adding a student at the last minute, modifying students' passwords, changing the course settings). Organisation skills go hand in hand with control of technology. Haynes et al. (1997) remarked that a designed instructor is essential for overall coordination and that, as the development of an online course is labour intensive, both faculty and technical

resources must be identified and committed to the schedule at an early stage.

Student characteristics: A variety of characteristics with potential influence on online delivery can be identified in the literature. As maintained by Colley et al. (1994), such variables as prior experience, having a computer at home, and personality produce gender difference towards computers. Reinen and Plomp (1993) found that computer usage at school was dominated by males in most of the 21 countries they surveyed. Computer experience is another variable which can have an interaction with gender (Kay, 1992).

In addition to gender, other demographic characteristics may influence the effectiveness of online delivery. The programme opted by the students (e.g., Master of Business Administration, Master of International Business, Master of Electronic Commerce) is expected to play a vital role. The registration of the students relates with computer experience: students enrolled in Curtin University's Master of Electronic Commerce take all their courses online and are well versed in technology. Another demographic variable to consider is related to the country of origin of the student.

Leidner and Jarvenpaa (1995) also suggested that students who lack the necessary basic skills and self-discipline could perform better in the traditional mode of delivery provided to them. Similarly, the brightest and most motivated students may prefer to learn in an individual competitive environment rather than sharing their knowledge with less motivated, less bright students in a traditional classroom setting.

Conclusion

To contextualise this article, it is helpful to explain briefly, what is referred to as the new learning paradigm. Kivunja (2014), believes that every educated person should have an appreciation of core skills in literacy and numeracy (e.g., the 3Rs of reading, writing and arithmetic), to succeed in the 21st century, an educated person must also have skills that enable him or her to think logically and to solve problems effectively and independently.

The Government of India has launched various initiatives like Digital India and Skill India to promote digital literacy in the country. Few more such examples are e-Basta (schools' books in digital form), e-Education (all schools connected with broadband and free WiFi) in all schools, development of pilot MOOCs (Massive Online Open Courses), NandGhars (digital tools as teaching aids), SWAYAM (MOOCs based on curriculum taught in classrooms from 9th class till post-graduation), and India Skills Online (learning portal for skill training). It is clear that the government's efforts to reap benefits of online education in India go a long way.

Digital education gives learning a new relevance to contemporary society, professional and industry practice. It provides opportunities to access and share information more easily and readily. Teachers and students are able to join online communities of practice based on their area of interest rather than their geographic location. This learning experience can occur at a local, national or international level, and can be enriched by increased interaction and engagement, peer feedback, and group work skills. Thus, digital education can streamline some administrative aspects of teaching.

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