ISSN - 2250-1991 | IF : 5.215 | IC Value : 79.96

Original Research Paper Management

TECHNOLOGY IN CLASSROOM PEDAGOGY

Prof. (Dr.) B. H. Nanwani | Director, Sadhu Vaswani Institute of Management Studies 6, Koregaon Road, Pune, India

ABSTRACT

Technology has made inroads in the education sector. Teachers in management institutes are generally digital immigrants but need to brace up to challenges of using instructional technology to stay relevant. The paper attempts to explore the level of awareness and adoption of technology in classrooms and the challenges they face in the use of such technology.

KEYWORDS | Instructional Technology, E tools.

INTRODUCTION

India has one of the largest education systems in the world. According to India Brand Equity Foundation (2016), our higher education system is largest in the world with over 36000 institutions enrolling 70 million students. The education sector in India is poised to witness further growth given that we will have the world's largest tertiary-age population and second largest graduate talent pipeline by the end of 2020. Brand Equity Foundation has projected the education market to reach US$ 116.4 billion in the year 2016-17 and higher education is expected to constitute about 60% of this market.

The challenge before India is twofold: improving access to education for the teeming youth and providing high quality, outcome based education. The panacea possibly lies in the adoption of disruptive technologies in education. While the Mobile Internet and Cloud can improve access, classroom technologies can help improve pedagogy and create worthy cognitive capital. Instructional Technology can help students become active and engaged learners and teachers from information dispensers to guides and facilitators.

The focus of this paper is on instructional or classroom technologies. The education process typically covers:

1. Providing relevant information
2. Reinforcing through exercises
3. Clarifying and reviewing material
4. Testing to verify learning

Classroom Technology has impacted each of the above steps in a unique way.

KEY CLASSROOM TECHNOLOGY TRENDS

Pamela Perez has outlined the following as impactful and important classroom technology trends:

1. Flipped Learning

Here the students learn through classroom lectures at home [videos] and use classroom time for application and information processing.

2. Gamification

Game-design thinking with embedded challenges and rewards are applied to different classroom tasks like learning difficult concepts and testing knowledge.

3. Mind Mapping

Mimicking the way the human mind works, Mind maps are graphic and visual presentation of circled ideas linked together with lines. These maps facilitate understanding and recall of information by students.

4. Digital Textbooks

Using tablets or BYOD [bring Your Own device] concepts, students are able to access every book they'll need for the year anytime and anywhere.

5. Big Data

Mobile devices, applications and wireless technologies are linked to seamlessly provide relevant data to help a teacher get real time data on problem areas in learning among her students and restructure content and delivery accordingly.

6. Social Media

Social media can be used to create online groups for projects and assignments; hashtags for Twitter can be used to organize interactive conversations.

E Tools

Besides the above a number of E tools are being used to to help students in accessing information, doing their assignments and projects, reviewing their learning and also getting feedback on strengths and areas of improvement. Some e tools are: Blogs, Wikis, Podcasts and Learning Management Systems.

Outcomes of Technology in Classrooms

According to Bolluyt J. (2014), technology is disrupting education and its broad outcomes are:

1. Customized learning in place of 'one size fits all'
2. Helping students develop a key skill, 'collaboration'
3. Enabling students to learn and consume content socially
4. Empowering students to learn anything from anywhere
5. Centralizing grading and assessment

Teachers and Technology

Instructional Technology has greatly impacted the role and trade of teachers. Teachers as 'digital immigrants', [individuals who lived before technology was as pervasive as it is today] are teaching 'digital natives' i.e. children born and brought up with technology. The teaching model in higher education is consequently inconsistent with the technological needs of millennial learners (Dede, C. (2004) Jones, V. R. (2012) in Marzilli et al (2014). Teachers therefore may not readily be inclined towards use of instructional technology. However technology in education is here to stay and teachers would need to brace up to educational technology to sharpen their offerings and stay relevant.

LITERATURE SURVEY

Technology in education has positive effects on the learners as also the teachers. It helps to improve students' academic performance and meaningful learning, higher order thinking skills such as critical and independent thinking. Combining education and technology creates a more stimulating learning environment

[Evanouski, Pollard, (2009)]

ICT helps create digital resources and collaboration tools to help students and teachers enhance and share their academic work and avoid duplication of efforts (Cholin, 2005 cited in Syed (2013). It facilitates learning by doing, asynchronous and real time conversations, self-paced learning, analysis and critical thinking skills, ability to communicate and collaborate and above all lifelong learning. (Yuen et al, 2003 cited in Syed (2013).

Further research shows that instructional technology has beneficial effects on student outcomes. Users of Flipped classrooms have better achievement scores, higher self-efficacy and motivation in independent learning; better engagement in learning, improved collaborations and interactions, and an inclination to build a learning community and exchange ideas to solve problems [Davies et al. (2013) Tune et al. (2013) Enfield (2013) Talley and Scherer (2013) McGivney-Burelle and Xue (2013) Baepler et al. (2014) Kim et al. (2014) Galway et al. (2014) McLaughlin et al. (2014) Hung (2015) cited in Zainuddin, Halili (2016)

Traditionally teachers have been viewed as 'information providers' however now e tools are being increasingly used to enable students access multiple sources of information. However "tools such as community networks, social book-marking, wikis and blogs, podcasting, digital story-telling, project based learning initiatives, video blogging and other new technologies, as enablers of people to be producers of information" Reardon (2008) cited in Mapua and others (2010). The use of these is therefore ever increasing.

In context of using technology in classrooms, Marzilli and others (2014) in their comprehensive article revealed an overall positive stance of teachers towards using technology in the classroom and found that on average faculty members utilized about six technology tools in their courses. Respondents were found to be using technology for Lecture Capture, Grading and Assessment, Asynchronous Forums [Wikis, blogs], Synchronous Forums [instant Messaging, Skype], Social Media, Learning Management Systems (LMS), Image-based Platforms [power point, animations], and Plagiarism Tools. The article also identifies barriers to using technology as: distraction among students, lack of knowledge about technology among teachers, insufficient resources and loss of the humanistic aspect of education.

RESEARCH METHODOLOGY

Secondary research has been relied upon to present a snapshot of instructional technology in classrooms and broad outcomes of technology in education. Survey method has been used to collect primary data on attitudes of, awareness and adoption of instructional technologies by teachers employed with Management Institutes in Pune. The questionnaire used here is a modified version of the questionnaire designed by the Economist Intelligence Unit, for a white paper on the topic: The Future of Higher Education: How Technology Will Shape Learning.

SCOPE

This research is restricted to a study of instructional technologies only. Further the survey was restricted to teachers teaching the MB course. Instructional technology helps students develop higher order thinking skills and collaborative skills, all of which are acutely necessary for students pursuing management degrees. Teachers who nurture such future managers in the MBA institutes are therefore expected to be abreast of these technologies and use them for the good of students.

SAMPLE

The questionnaire was e - mailed to over 350 teachers in management institutes. The response was however received from 35 teachers only.

OBJECTIVES

- To identify key instructional technologies
- To explore awareness about and adoption of classroom technologies among Management teachers

Hypothesis

- Majority of Teachers in Management institutes are aware of Instructional Technologies but adopt it in a limited way
- Digital Immigrant teachers are not at ill at ease in adapting to instructional technologies

RESEARCH FINDINGS

Profile of Respondents:

All 35 respondents working in 18 different Management Institutes in Pune are Post Graduates with 3 respondents also holding doctoral degrees. 94% of the respondents have full time jobs and 65.7% of the respondents are males.

60% of the respondents are between 30 to 40 years of age; 14% are between 41 to 50 years and 4 teachers are under 30 years of age. Majority of the teachers [57%] have more than 5 but less than 10 years of experience, 17% have between 10 to 19 years of experience while another 17% have been teaching for less than 5 years.

IMPACT OF TECHNOLOGY ON TEACHING METHODOLOGIES

Teachers were asked to assess the impact of technological innovation on teaching methodologies. 77.1% of the respondents averred that technological innovations would have a major impact on teaching methodologies over a period of five years. The remaining 22.9% of respondents felt that the impact would at best be modest.

TECHNOLOGY AND SELECTION OF MANAGEMENT INSTITUTES FOR PURSUING MBA COURSE

Would availability of technologies impact selection of MBA Institutes by students? 74.3% of respondents affirmed that availability and use of technology would become 'a very important criterion' while the others [25.7%] felt that it would be a somewhat important criterion for selecting MBA institutes by aspiring students. Given this, teachers would need to embrace technology in their pedagogy.

EXTENT OF USE OF INSTRUCTIONAL TECHNOLOGY IN CLASSROOMS

Given its importance, it was desirable to explore the usage of technology in classrooms. 62.9% of respondents currently make a modest use of instructional technology; 20% use it extensively and 14.3% make a limited use of the same. The usage is bound to increase given that teachers have broadly expressed that technology would have a major impact on teaching methodologies and that 90% teachers intend to invest in learning instructional technology in due course.

TECHNOLOGIES USED IN CLASSROOMS

Teachers were asked to indicate whether they were aware of and adopt certain instructional technologies. Their responses are given in Table 1 below:

Table 1: Awareness about and Adoption of Instructional Technologies

Technologies	Aware		Aware & Adopt	
			No.	%age
	No	%	No	%
Social Networks	34	97	21	60
Flipped Classrooms	27	77.14	7	20
Gamification	24	68.57	8	22.85
Mind Maps	28	80	8	22.85
Digital Textbooks	32	91.42	17	48.57

As is apparent an overwhelming majority of respondents are aware of instructional technologies although the adoption appears to be modest. This trend is likely to change in the next couple of years with increasing access to smart phones and internet.

OTHER INSTRUCTIONAL TECHNOLOGIES

Technology has permeated through every process in the education process. Teachers were requested to indicate their awareness of and use of technologies such as Collaboration tools [Google Classroom, Ever note etc.], Online Assignments and Tests, Online Feedback, Videos, Wikis, Podcasts etc.

Graph 1: Awareness and Adoption of Instructional Technologies

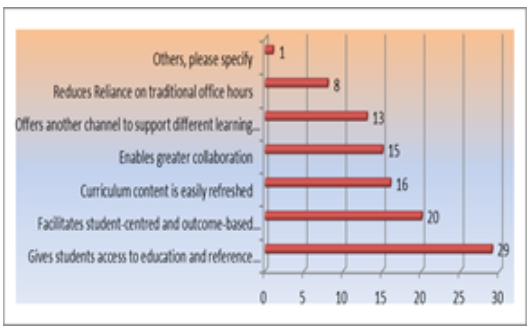
As is evident from the graph majority of the respondents are aware about technologies that can be employed in the teaching – learning process. There is higher adoption of Collaboration tools like Google Classroom, Ever note, Online assignments and Feedback and Videos like Ted Ed, Khan's Academy etc as compared to Wikis, Blogs, Moodle and Podcasts.

COMMUNICATION TECHNOLOGIES

Technologies in education are bound to have differing impacts and benefits. Teachers were asked to identify the top three communication technologies that they felt would most improve academics over the next five years. These were:

Videos and Presentation tools [71.4%]
Software to support dynamic, individually paced learning [65.7%] and Online collaboration tools [60%]

BENEFITS OF USING TECHNOLOGY IN CLASSROOM TEACHING



Graph 2: Benefits

Important benefits that accrue from use of technology in teaching are:

- Increase in access to education and reference resources [82.9%]
- Facilitates student-centred and outcome-based instruction [57.1%]
- Curriculum content is easily refreshed [45.7%]

Challenges in Adoption of Technology in Education

Table 2: Challenges in the Use of Technology in Education

Challenges	Responses	%
Risk of students graduating without foundational knowledge	20	57.1
Potential increase in student plagiarism	26	74.3
Distraction in the classroom	22	62.9
Potential increase in student cheating on homework and exams	18	51.4
Fragments traditional sense of campus community	9	25.7
Too much time in lecture preparation with technology	6	17.1
Job insecurity	6	17.1
Others	1	2.9

The top three challenges in adoption of Instructional Technologies identified were:

- Potential increase in student plagiarism
- Distraction in the classroom
- Ready access to online facts and research increases the risk that students are graduating without foundational knowledge in some subjects

INVESTING IN LEARNING INSTRUCTIONAL TECHNOLOGY

On an optimistic note, 94.3% of the respondents indicated that they would invest in learning instructional technology over a period of next two years. It obviously indicates that teachers would like to take steps to be relevant in the system.

TEACHERS' CHALLENGES IN THE ADOPTION OF INSTRUCTIONAL TECHNOLOGY

The most cited challenges were constraint of funds [48.9%], time constraints [42.9%] and the apprehension that technology could destroy the beauty of classroom teaching [34.3%].

Fear of not understanding technology inputs was chosen by a mere 3 respondents, while 5 respondents were happy with status quo. It may thus be concluded that digital immigrants are not afraid of taking on challenges of teaching digital natives. was chosen by a mere 3 respondents, while 5 respondents were happy with status quo. It may thus be concluded that digital immigrants are not afraid of taking on challenges of teaching digital natives.

Based on the above findings it can be clearly stated that the Hypothesis that 'Majority of Teachers in Management institutes are aware of Instructional Technology but adopt it in a limited way in their classroom pedagogy' and 'Digital Immigrant teachers are not ill at ease in adapting to instructional technologies stand proven'.

LIMITATIONS

The research being based on a relatively small sample may not be representative of the views of the larger community of teachers.

The views of students as stakeholders have not been covered. This makes the study uni-dimensional and therefore perhaps lop sided.

CONCLUSIONS AND SUGGESTIONS

Management teachers are not averse to using technology in classrooms and seem inclined to invest in learning for the larger benefit of the student community. Management Institutes would therefore do well to organize programmes to train teachers in this sphere and help them stay relevant.

References:

1. Bolluyt J. (2014). 5 Ways Technology Is Disrupting Education. Retrieved from http://www.cheatsheet.com/technology/5-ways-technology-is-disrupting-education.html/?a=viewall India Brand Equity Foundation. (2016). Education Sector in India. Retrieved from India Brand Equity Foundation: http://www.ibef.org/industry/education-sector-india.aspx
2. Evanouski, Pollard. (2009). A Synthesis paper on Technology in Education. Impact of Technology in Education pp1-14. Retrieved from www.academia.edu/335899
3. Glenn M. (2008). The Future of Higher Education: How Technology Will Shape

Learning. Economist Intelligence Unit white paper, sponsored by the New Media Consortium. Retrieved from https://www.nmc.org/pdf/Future-of-Higher-Ed-(NMC).pdf
4. Mapuva, Stoltenkamp, Muyengwa. (2010). Blogs, Wikis, Podcasts: Harnessing Technology for Enhanced Learning Achievement through Powerful Web Tools. International Journal of Instructional Technology and Distance Learning, Volume 7 (12), 3 -16
5. Marzilli & others. (2014). Faculty Attitudes Towards Integrating Technology and Innovation. International Journal on Integrating Technology in Education (IJITE) Volume 3 (1), 1-20. doi:10.5121/ijite.2014.3101
6. Pamela Perez. 7 Must-Know Classroom Technology Trends That Are Changing Education. Retrieved from http://www.securedgenetworks.com/blog/7-must-know-classroom-technology-trends-that-are-changing-education
7. Zainuddin, Halili (2016). Flipped Classroom Research and Trends from Different Fields of Study. International Review of Research in Open and Distributed Learning, Volume 17(3). Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/2274/3699