INTERPRETING EDUCATIONAL TECHNOLOGY AND ICT IN THE GROWTH OF MANAGEMENT EDUCATION IN INDIA

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ABSTRACT:

The paradigm shift of the Gurukul system of education to E-learning over a period in India is evident with the change from teacher-centered, lecture-based to the student-centered, interactive learning system. This phenomenal change is attributed to the changing role of Educational Technology and Information and Communication Technology (ICT). The admixture and proposition of theory and practice in the course design of B-schools are unique and can be contrasted well from other Arts and Sciences programme. At a B-school, it is not hard and fast to have a practice session followed by a theory class, where a student can develop his skill. Many are social skills, which are present inside every individual and it needs to be sharpened. The pedagogy of contemporary Management education is well supported by technology. With the changing needs of the student community, technology enables the education system to sustain. This study explores the usage of Technology in the Teaching-Learning process, required infrastructure, and comparative importance of essential components, teachers’ competency, and students’ preference. The impact of technology concerning the functions of different types of equipment can be understood. The adoption of various components and the linking system can be studied to classify the users. Exploratory research design is adopted in which after reviewing of literature selective perspectives pertinent to recent researches are segregated and studied to find the research gap and to propose a suitable hypothesis. This area can be explored for formulating the research problem in the present-day context where the links between the issues in the Indian management education and the usage of ICT in the Teaching-Learning process are evident.

Keywords: Management Education, Education Technology, ICT, Pedagogy, Sustainability.

1. INTRODUCTION

Till the late 15th century only verbal instructions were given, that only one sense of the student or learner was stimulated and that was the sense of listening. Rabelais was the first person to use audio-visual aids, and according to him, for comprehension of any concept, the learner should see an object or its picture. When Thomas Edison invented a film projector in 1894 he said. ‘In future, education will be given through the medium of movie films and this will be a kind of visual education.’ B.F.Skinner and S.Edwards emphasized the practical utility of programmed learning and gradually the concept of technology emerged in the field of education.
1.1 Educational Technology

The term educational technology was recognized in 1967 with the establishment of the National Council for Educational Technology in Great Britain. The United Kingdom Association for Programmed Learning promptly added ‘Educational Technology’ to its title in 1968. It contains various devices which make possible the recording, storage, manipulation, retrieval, transmission and display of data, information, printed and photographed materials with efficiency and speed. Technology means focused use of man’s knowledge and skills to find a solution in our day to day problems. As technology always changes, so does the meaning of educational technology. When the term ‘Educational Technology’ was coined it had a different meaning, but with time suggestions of experienced educationalists, psychologists, and other persons, the meaning of educational technology also changed.

Educational technology refers to the application of physical sciences and engineering technology to provide mechanical or electro-mechanical tools or ‘hardware’ which can be used for instructional purpose. In this meaning, the reference is generally to the use of equipment for presenting instructional material. Secondly, Educational technology according to this refers to the application of scientific principles to instruction. Here psychological principles of learning are stressed. Thirdly, Educational technology is considered to be a system in which men, machines, materials, media, and methods are interrelated parts and are organized in such a way as they work together for the fulfilment of specific educational objectives. B.C.Mathis defined ‘Educational technology refers to the development of a set of systematic methods, practical knowledge for designing, operating and testing in schools’. S.S.Kulkarni said ‘Educational technology may be defined as the application of the laws as well as recent discoveries of science and technology to the process of education’. According to Kulkarni any application of the physical sciences in the field of education can be defined as educational technology. There are four forms of educational technology viz. Instructional Technology, Teaching Technology, Behavioural Technology and Instructional Designs.

1.2 Information and Communication Technology

Information and Communication Technology (ICT) is an extended synonym for Information Technology (IT). IT is the expression and ICT were first used in 1997 in a report by Dennis Stevenson to the UK Government and promoted by the new National Curriculum Documents for the UK in the year 2000. ICT is a combination of informatics technology with other related technologies, specifically communication technology. Here, the definition implies that ICT will be used, applied, and integrated into activities of working and learning on the basis of conceptual understanding and methods of informatics.

1.3 Objectives of ICT in Education

The prime objective is to blend technology with conventional classroom teaching-learning process. ICT becomes the channel to exchange and share ideas among teachers and students. It broadcast educational lessons and provides online facilities in different subjects. Mainly enables
several devices to develop spatial awareness and psychomotor control. ICT accommodates devices to manage library automation, satellite-based education, simulations and to carry out internet-based research to enhance the educational process. It encourages the students to use email, social networking sites, etc. for educational discussion, chats, sharing of ideas and feelings, etc. (Shaikh Imran R, 2013).

2. PROBLEM STATEMENT

Current status of Management Education in India

Sydenham College in Mumbai was the first college to give business knowledge at graduation level, set up in 1913. Delhi, Shri Ram College of Commerce was set up in 1920. After independence universities included graduation and post-graduation courses in commerce. In 1955 universities at Delhi, Mumbai and Chennai started the two-year full-time MBA programme. Indian Institute of Management as centres of excellence was started in the early 1960s. During 1991 there were only 130 institutions with an annual intake of 12000 students. Post liberalization of the economy the government allowed several colleges and private institutes to start the Management degree programme. During 2009, there were 1608 institutes offering MBA degree programme and 391 institutes offering Post graduate diploma in Management (PGDM). During the year 2017-18, there were around 3500 institutes with the annual intake of around 421509 regular students and 156911 through distance mode. Currently, the demand for management degree has come down phenomenally and with the slowing down of economy many B-schools are closing down, since 2017. The reasons attributed are lack of students, unavailability of quality faculty, dwindling placement opportunities, and decrease in the pay package.

Table No. 1: Number of Enrolment to MBA (Management) degree programme

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Enrolment</th>
<th>In Distance Mode</th>
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<tbody>
<tr>
<td>2012-13</td>
<td>392587</td>
<td>178742</td>
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<tr>
<td>2013-14</td>
<td>392937</td>
<td>165260</td>
</tr>
<tr>
<td>2014-15</td>
<td>409432</td>
<td>148893</td>
</tr>
<tr>
<td>2015-16</td>
<td>416325</td>
<td>132929</td>
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<tr>
<td>2016-17</td>
<td>416490</td>
<td>127275</td>
</tr>
<tr>
<td>2017-18</td>
<td>421509</td>
<td>156911</td>
</tr>
<tr>
<td>2018-19</td>
<td>462853</td>
<td>125980</td>
</tr>
</tbody>
</table>

Source: All India Survey on Higher Education.

In 2018, India Today magazine reported 93% of MBA graduates do not get jobs. The quality of the programme is greatly questioned. Table 2, indicates the increased ranking of India in Global competitiveness index, from 50 to 40 in 10 years. At the same time, the Quality of management schools in India indicates decreased ranking, from 12 to 41.
Table No. 2: Quality of Management Schools in India

<table>
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<tbody>
<tr>
<td>Global competitiveness index of India</td>
<td>50</td>
<td>49</td>
<td>51</td>
<td>56</td>
<td>59</td>
<td>60</td>
<td>71</td>
<td>55</td>
<td>39</td>
<td>40</td>
</tr>
<tr>
<td>Quality of management schools in India</td>
<td>12</td>
<td>15</td>
<td>23</td>
<td>30</td>
<td>33</td>
<td>30</td>
<td>56</td>
<td>55</td>
<td>43</td>
<td>41</td>
</tr>
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*Source: Global Competitiveness Reports from World Economic Forum, Geneva*

3. METHODOLOGY

In recent days there is a drop in students’ enrolment for Management degree programmes. There could be several reasons behind. Here the author tries to establish that the delivery of knowledge and assessing the skills of students is one among them. To add further the deployment of Education Technology and ICT in Management education needs to be strengthened. The author tries to explore the research possibilities in this area. The study adopts exploratory research design, also called as formative research. This design involves the study of related literature in formulating a problem for more precise idea or hypothesis. And subsequent stages of research could be planned as this design is highly flexible. The study also covers possible limitations of ICT usage in Teaching and Learning Processes.

4. DISCUSSION

4.1. Current Issues in Management Education

Larger the increase in the number of institutes and enrolment of students, bigger is the deterioration in the quality of management education in India. Regulatory authorities failed to check the standards of institutes. Diminishing employment opportunities coupled with the fact that institutes could not make students employable led to a deplorable condition. ‘There is no evidence of research in the area of faculty quality and educational delivery in B-schools in India’. Data is required to study the effectiveness of training of faculty and their ability to deliver value to students (Jayaraman & Arora, 2020). The institutes are not having an institutional structure for transformative classroom delivery process and classrooms are lecture-oriented, not learning-oriented and students are not evaluated based on the application of learning on problem-solving, data analysis, diagnosis and decision making (Shetty, 2014). The Pedagogy and the effects of ICT on teaching and learning methods is one of the important challenges to address. Management science is more practical and a mix of both theoretical and case-based method of teaching is to be followed (Gupta & Satapathy, 2012). Industry-academia connect is not well
defined. Information technology management skill though important to bridge the gap between industry and academia, less effort is taken to develop such skills. Several institutions have students’ placement cell, not as a part of a full-fledged Industry interface cell and many cases two separate cells operate with less of interconnections.

Management education in India has to evolve local or regional market-specific, where we need local content based on business cases, exercises, experiences with materials shared by Indian business groups. This approach gives focus on problem solving and simulations that are prepared for the respective business contexts. Since management is a practice-oriented domain, management education has to incorporate an element of internship training and research project in sacrosanct. The current system places more stress on retention and recalling concepts rather than understanding, learning and application. More work is required on the application side by introducing case studies, role-plays, as well as simulation. Management training is about working in teams and managing team’s, significant consideration need to be given on business strategy, market planning, business negotiations, leadership, business ethics. ‘Around 95 per cent universities in developed countries use digital infrastructure for knowledge management, sharing and assessment, whereas we barely have 1 to 1.5 per cent institutions using the same in India’ says Bhupesh Daheria, CEO, Aegis School of Data Science, Business, Cyber Security & Telecommunications. The two important criteria relevant to our study are applying the transformational instructional methodology and investing in ICT and these two provides linkages with other institutes and industry.

4.2. Recent Changes in Pedagogy

With the easy accessibility and faster speed of internet, newer and newer applications are being developed with each passing day. The creative potential of a human being is being utilized to its optimum limit, and the result is novel technological advancements in every field therefore, education is no exception. In metros, slowly and gradually blackboards and chalks are disappearing. With technology invading classrooms, iPads have replaced books, school diaries, forms and circulars. Blackboards, chalk and dusters have been taken over by whiteboards and smartboards. Teachers and students are using the latest technology to make teaching and learning convenient and easier. Schools are letting go of traditional methods of imparting knowledge by building an environment of easy interaction anywhere and anytime.

Cloud computing technology such as Google Docs, Groups, Dropbox and other online portals keep students posted about events, projects and homework. ICT in education apart from enhancing the teaching-learning process, it enables distance learning where learners can access qualitative learning from anywhere and at any time (Y. Rajasekhar, 2014). The way students work with information and knowledge, has changed and the gap between students and the formal education system is increasing, wherein changes to education system occur, not because of ICT, to increase the active participation of students in the learning process (Papić & Bešter, 2012).
4.3. Flipped Classroom

Video lectures play a very important role. The concept of the flipped classroom is highly useful where the student hears or sees faculty lecturing at sitting home. Listening to lectures is a lower-order thinking job and not an active job, whereas reacting after that is more crucial and active learning happens in the classroom. As the concept of the flipped classroom is gaining massive importance, the making of video lecture has also grown. Video content plays a crucial role when faculty prepare small video clips which are uploaded in the LMS or websites. Where the concepts are not clear, students can rewind or replay the video until the meaning is captured fully. The class time can be utilized with a planned interaction between a teacher and students. The underlying assumption is students when exposed to the topic for the second time, he can understand well and the concepts can be grounded properly. In a flipped classroom the traditional pattern of face to face lecturing and interactions are replaced with pre-recorded video, audio contents, readings and other supplementary materials.

Exploratory qualitative research was done innovatively by Teegan green, through a videography data analysis came with five dominant themes from all the interviews. They are (1) changes to teaching (changes in pedagogy) (2) reasons for changing (to keep the class engaged) (3) positive students engagement (lecturers view on students change towards flipped classrooms) (4) successes and (5) potholes (are the participants recall on implementation of the shift). Teegan suggested a few indicative flipped assessment for marketing classes. Some of the activities are computer monitored Quiz, participatory marks for online blogs, developing new product prototype, developing new service blueprint, reporting interview results to the class, presenting a video of the work done in a team, interviewing marketing managers about the CRM initiatives, developing an advertising campaign, running a real-time market etc. Students need to feel that the content of the group task or any in-class activities is related to the prerecorded lecture, otherwise, they may not see any point in prior preparation (T. Green, 2015). The negative side is when students’ fail to do pre-learning, it will be very difficult to run a group activity in the classroom. Another criticism is that students would not attend classes and may or may not watch the video at home. A recent study by Northern Ireland’s Queen’s University Belfast found the introduction of lecture capture had almost zero effect on attendance. Students used the videos frequently as a study aid, and some 96 per cent of them said that they use video lecture for exam preparation. ‘Flipping the classroom inside-out means giving up even more control’. In such a case, a facilitator may be involved and the assessment is again done by teams themselves (Bliemel, 2014). ‘The flipped classroom is essentially part of a broader conceptual framework of teaching which promotes the use of active learning in the classroom and students being responsible for the information gathering portion of learning outside the classroom’ (Cynthia & Joseph, 2014). Vazquez & Chiang (2015) empirically proved that Students prefer video content instead of textbooks to prepare for the class. Pre-lecture videos with an ideal time of 15-20 minutes help students come to class better prepared. The fixed cost for flipping the class for the first time will be on the higher side. The preparation time for a 16 weeks course varies from six months to one year. Pre-lecture videos reduce the time taken to cover the material.
4.4. Learning Management System

‘An LMS provides an array of tools and functions to support teaching and learning, usually including course management tools, online group chat and discussion, homework collections and grading, and course evaluation’ (Hsiu-Ping Yueh and Shihkuan Hsu, 2008). The faculty uses LMS to plan his delivery from mapping the course curriculum and syllabi. The class roster can be downloaded and schedules are made explicit in the interface common to both faculty and students. LMS platform facilitates students to take up homework and to interact with the course instructor. Evaluation can be done in a faster and smarter way. The interim assessment helps students to tune to the expectation and could take corrective measures. The assessment is transparent and feedback is quick. Many LMS products are commercially available, such as Blackboard, AngelLMS, Intralearn, TMLMS, Desire2Learn, ecollege-classlivepro, Sometimes the terms ‘Course Management Systems’ (CMS) or ‘Learning Content Management Systems’ (LCMS) are used to indicate similar systems. Blended learning prevents students from going fully online, otherwise called as full e-learning. Blended learning is facilitated through the Learning Management System (Ali Al-Busaidi, 2013). In a study on the Blackboard usage, there is no difference in the time spent on traditional applications such as word processing, spreadsheets and statistical packages. However, Internet and e-mail use had increased quite dramatically (Marriott, Marriott, & Selwyn, 2004). The same study indicates accounts students’ feedback saying that there is no need for faculty assistance. The blended learning system is made up of important components drawn from Web-based instructional system and Traditional learning systems such as Peer group learning, Self-paced learning, Teacher as moderator, Real-life problem analysis and contextual and choice-based learning (Mukherjee, 2014). Learners experiencing blended learning boosts their intention to full e-learning, their innovativeness enhances their intention (Ali-busaidi, 2013)

4.5. Web-based learning

The development in the Information and Communication Technology enabled many to take up Web-based learning. This unconventional method of learning is facilitated through online chat rooms, electronic whiteboards, video conferencing, instant messaging, discussing forum, e-mails etc., Hsin – Huan Wu clarified that Knowledge sharing is the critical part of the learning process. Learners should share their knowledge with the application of Information technology. The researcher explored the factors influencing Knowledge sharing to help the instructor to enhance such behavior and established that the knowledge-sharing attitude is influenced by the subjective norms, the expected contribution and expected loss. The web pages provide opportunities to access course material outside the class and to work independently and there is no increase in the performance of multiple-choice questions on the final exam, but there is an improvement in students attitude toward the course, the instructor (Harter & Harter, 2004). The perceived website credibility rely on web site appearance and content and consistency of information (Sharma, Chandel, & Govindaluri, 2014).
4.6. MOOC and Online courses

The conventional courses are designed for closed communities with students paying for courses. The LMS of a course are structured either in an online environment free or for payment. David Cormier brought together the LMS and an open course which was named as Massive open online course (MOOC) wherein students can register a course free with a predefined timeline and the expected outcome (Martin, 2012). Though the quantitative study is in favor of internet and email usages, the qualitative study indicates the reluctance of students using online tutorials and other forms of non-traditional teaching (Marriott et al., 2004). The use of technology enhances student learning and the relationship is moderated by the subject major and amount of internet used (Krentler & Willis-flurry, 2005).

4.7. Blogs and Social Media

Social media are websites and applications that allow users to share content or to participate in social networking. It is fast growing in all fields. It gives high advantages to many users. Particularly recent days many college professors are using social media for their profession. Wikipedia states Social media as ‘media for social interaction, using highly accessible and scalable communication techniques’. Social media is the use of web-based and mobile technologies to turn communication into an interactive dialogue. As defined by Heidi Cohen, ‘Social media is engaged by creating real-time online events, extending online interactions offline, or argument live events online’. In this study, it is particularly findings professional development of B-school professors by using social media. Mostly many people are using social media for their purpose of self-gratification but apart from that, social media are sharing information to all. Today’s advancement in technologies paves way for students and professors to interact in social media sites. Students freely ask doubts and get it clarified, faculty push lectures, and mentor students through social media. Faculties make links with parents of students. Students’ activities and academics results are easily reaching the parents by using social media. Many sites give creative information and entertainment to students. So they do not get distracted and bored feelings by using social media. Both students’ and professors’ interactions are giving information, not only for particular students its giving information to other students in the group so the information sharing is high and it is easily reaching to all students by using social media and it is constantly changing, continuous professional development should be given to instructors to keep them aware of new ways to incorporate social media technologies into their teaching. Domalewska (2014) in a content analysis study in the foreign language classroom inferred there was limited interaction between bloggers, students did comment as part of the course requirement and did not invite other bloggers to participate in the discussion.

4.8. Learning styles, Infrastructure and Environment

ICT is facilitating media. In using technology like Laptops and other electronic gadgets, the learning style changes but not the learning outcomes. Technology enables faculty to team up in peer-reviewing the course content across institutions (Elliott & Hall, 2015). Adams & Morgan
(2012), conducted Course competence development score with 45 criteria before and after introducing tablet. All indices with few exceptions showed significant differences, particularly sociability, oral and written communication and projection of confidence are the skills showing the strongest effect. Goorha & Mohan (2010) in their aim to understand the learning preferences of Business school students, found that majority of students shown interest to lecture style of learning and an equal number of students feel that audio-video recordings can adequately substitute in-class lectures. ‘Students are at the center, and they benefit from both the teacher and e-technologies have considerably transformed the way students learn, and what they learn’ (Mbuva, 2014). Faculty feedback revealed that the preferred instructional technologies enhance teaching effectiveness and is positively influenced by institutional support and department heads and limiting factors are time constraints, large class size and faculty gender (Peluchette & Rust, 2000). In a group of different types of learners from different knowledge background, experiences, the pace of work and different attitude and willingness, effective diffusion of knowledge occur in the classroom environment when it is multi-dimensional with many events covering many related tasks (Ongaki, 2014). MBA students’ performance seen improved along with increased student-faculty involvement when all collaborate in the virtual classroom or on the discussion board, results of T-tests (Akhras, 2012). If a teacher writes on a smartboard in one class, it gets replicate in another class. It saves time, as teachers do not have to keep erasing their writing, such software helps to maintain consistency in the quality of teaching across schools. Teachers can plan their lectures and load them on the board. Jackson et al (2011) compared data collected in two different periods concluded that between 1996 to 2006, there are no significant changes in the students’ expectation to classroom lecture, class discussion, handouts, group projects and increased preference were found in the usage of e-mails, computer presentation, computer-based activities, internet videos. ‘Students who were previously passive or disengaged in classrooms relying exclusively on the lecture-only deliver format are more engaged and attentive when technology is used (Jackson, Helms, Jackson, & Gum, 2011). Elliott & Hall (2015) came out with the difficulty in integrating the laptop into the classroom like when and how to use, students not depending on textbook and teaching. Teachers need to learn from students the hardware and software of laptops and other gadgets. Teacher familiarity, confidence, and skill in choosing software and integrating technology into the curriculum are dependent on teacher training (Robin, 2008).

5. CONCLUSION AND FUTURE RESEARCH
Management education in India is in deep trouble where mass production of unemployable students’ is the foremost concern. The negative growth rate in students’ enrolment between 2013 and 2018 has stopped and now many low-grade institutes are closing down with enrolment started to decline. Along with many factors contributing to this change, the traditional teaching-learning process is seen as one of the notable factors. The traditional form of lecturing and assessment are obsolete. The new age students are internet-savvy and are versatile in handling different ICT tools. In institutes of higher learning, the role of Teachers’ is redefined where, they
are seen as facilitators, not lecturers. The review of past researches has thrown light on many issues on the usage of technologies inside and outside the classrooms. Some of the areas are selected with the scope of further research. The Learning style greatly affects the time spent on the Internet, which decides the type of activity in the pedagogy. Not all assessments give varying results with traditional and online platforms, so correct usage of technology needs to be studied well. The changing attitude of students adopting technology in learning needs to be explored. More direction is needed in terms of students’ expectations of different components of technology-enhanced pedagogy. Courses can be broadly categorized in terms of the utilization of different technologies. This will greatly aid the faculty in preparing the course plan. The orientation and bridging the beginners to acclimatize technology-based learning becomes crucial and Teachers assume the role of coach. ICT tools hook students 24×7 to the platform that disseminates knowledge and allows the practice. To the changing needs, many new models and methods of team task can be generated in the course plan. Unlike traditional pedagogy, learning with higher-order thinking skills is possible with ICT tools, which make learners, collaborate. The website learning differences for students’ demographic characteristics their home country needs are to be studied for better adaptation. Students’ preference to the face-to-face in-class discussion over virtual discussion in general needs to be analyzed along with the differences in blogging with native languages and foreign languages.

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