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Integrated education model of information technology and accounting: A new approach to accounting education

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Abstract
Accounting Education requires attention for the development of cross-cutting knowledge. It is paramount to change the traditional paradigm of education, for developing such knowledge or cross-cutting competencies among the student this paper will analyze the various research evidence available under different teaching pedagogies, the role of technology, and the 4-dimensional integrated model in education & virtual environments. This paper also pinpoints various challenges and opportunities in accounting education under virtualisation and suggests possible solutions for facilitating the change and integration of technology based virtual learning environments to improve the teaching learning process.

Keywords: Accounting education, traditional paradigm, teaching pedagogies, virtual learning

Introduction
According to Late Dr. APJ Abdul Kalam, "Education is the most important element for the growth and prosperity of a nation". So, every country tries to develop an education system that will help the nation to achieve both economic and social objectives. The growth of technology and infrastructure has created a different form of education i.e. virtual education. It uses technological and other information communication networks to conduct teaching and learning processes. "A virtual learning environment (VLE) is a set of teaching and learning tools designed to enhance a student's learning experience by including computers and the internet in the learning process". With the help of VLE, students can sit in front of the screen of their computer, tablet, mobile, and laptop and acquire the knowledge delivered by their teachers. The components of VLE are breaking curriculum into sections, student tracking, online support for both teacher and student, electronic communication, and internet links. MOOCs will prove the quality of accounting education and the knowledge level of students (Ambadkar *et al.* 2015) [2]. Virtual learning environments have not added any value to the students' accounting knowledge level (Love & Fry 2006) [26]. Broad *et al.* (2004) [9] focused on the adoption of technology in an accounting course and they mentioned that students found it more interesting. The present study attempts to explore different opportunities and challenges in virtual education and the possible solutions to overcome the challenges.

Research Evidence
Traditional teaching methods
Cullen *et al.* (2004) [12] discovered that case studies had a positive impact on students' research abilities. The aforementioned conclusions are supported by Weil *et al.* (2004) [36], Hwang *et al.* (2005) [21], and Braun and Simpson (2004) [8]. According to Nouri and Shahid (2005) [29], using PowerPoint to instruct students enhances their performance. According to Arquero-Montano *et al.* (2004) [4], traditional teaching techniques have no impact on students' academic performance. The aforementioned conclusions were corroborated by Hosal-Akman and Sigma-Mugan (2010) [20] and Clinton & Kohlmeyer (2005) [10].

Contemporary teaching methods
Gujarathi (2005) [17] illustrated how ERP software affects students' motivation for studying accounting. According to Marriott (2004) [27-28], the use of simulation games in accounting education improves students' learning and critical thinking skills.

The above findings were supported by Hoffjan (2005) as well as Green and Calderon (2005) [16].

Web-based education

According to Lindquist and Olsen (2007) [25], studying online enhances students' ability to solve accounting-related problems. The findings above were corroborated by Peng (2009) [31] as well as Kopel and Dudley (2003) [23]. However, Abdolmohammadi *et al*. (2003) [1] depicted that the internet did not improve the understanding level of students.

Distance Teaching Methods

According to Tirovouzis (2006) [38], virtual teaching has a good impact on students' performance. The aforementioned conclusions are supported by Stanley and Edwards (2005) [34], Dunbar (2004) [15], Sidiropoulos (2008) [32], and Koukoufiki (2009) [24]. According to Marriott *et al*. (2004) [27-28] and Wells *et al*. (2008) [37], students have a preference for both traditional and online teaching. Virtual teaching, according to Halabi *et al*. (2002) [19], Halabi (2005) [18], and Basioudis and De Lange (2009) [16], has no effect on students' performance.

Hybrid Systems

The hybrid model has a good impact on students' performance, according to research by Dowling *et al*. (2003) [14]. The aforementioned conclusions are supported by Barsky and Catanach (2005) [5] and Spathis (2004) [33]. Internships have been shown to improve student proficiency, according to Anderson and Bauman (2004) [3] and Still and Clayton (2004) [35].

Integrated Model in Education

"The proposed model (with a working title Model of integration of virtualization into the education – IVE) operates with three basic dimensions and one integrating dimension, defines the scope of activity of virtualization technology when used as a means for teaching about virtualization and simultaneously as a means for teaching with virtualization" (Klement, 2016) [22].

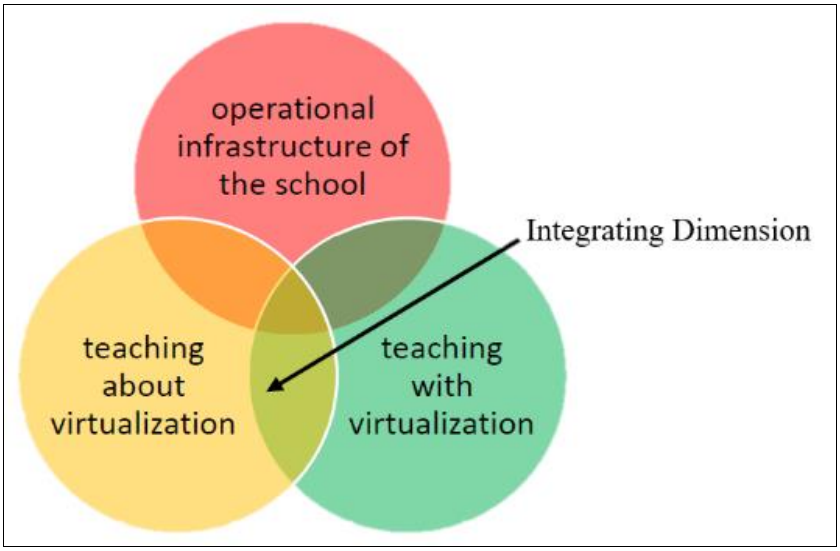

Fig 1: Klement's model of integration of virtualization in education

a) School's Infrastructure

This dimension deals with the use of technology and virtualisation at schools for their activities and operations. It exclusively is concerned with the internal technological operations of the schools. This dimension includes servers' virtualising for economic, accounting, administrative, operational, and other activities & services; infrastructural virtualisation; etc.

b) Teaching regarding Virtualization

The focus of 2nddimension is the inclusion of technology of virtualisation in the course content and curriculum. It makes the pupils and students aware of the practical operation and administration of virtual technology under a given situational setup. The activities of administration, operation, and configuration of virtual technology and its elements are covered under this aspect of the model.

c) Teaching with Virtualisation

The use of virtual technology for the teaching learning process is what this third dimension of the model deals with. Teaching with virtual technology works in line with the previous dimension of teaching about virtualisation, not in isolation. The teaching-learning process in a virtual environment has to be supported with infrastructural and other technological aspects as well. The reproduction of applications and software for educational purposes, installation and configuration of hardware and software and operating systems, testing of systems, etc are the activities and parts of this dimension.

d) Integration

The final dimension of the proposed model is regarding the integration of the 3 basic dimensions into one. The scope of the dimension covers starting from the school-level infrastructure and technology, implementation of virtual technology in the system, and subject content till the use of virtual technology in the teaching-learning process. Operationalization of virtual technology in classrooms, data centers, and within the teaching-learning frameworks, etc are the major activities of the integrating dimension of the proposed model.

Teaching Learning Pedagogy for Accounting Education

Table 1: Traditional vs Modern Pedagogy

Basis	Traditional pedagogy	Modern pedagogy
Teaching	Teachers use chalk, blackboard, whiteboard, and Marker in traditional teaching.	Teachers use smart boards, and power points in modern teaching.
Examinations	Examinations are conducted in offline mode or classroom examination	Examinations are conducted in online mode through online tests or on the online platform
Question and Answer	In traditional mode, question and doubt clear sessions are done through face to face.	In modern pedagogy, students used to email or test the doubts or questions.
Course Material	Students use books, notes, and reports under traditional mode.	Students use e-books, journals, and blogs in modern mode.
Accounting Education	Usually, students use a calculator, pen, pencil, and copies for solving accounting problems.	Students use MS Excel and other accounting software for solving accounting problems.
Assignment	Students deposit an assignment in a physical copy.	Students deposit an assignment in soft copy.
Group Assignments	In traditional mode, group assignments can be done by sitting in a classroom.	In modern mode, it can be done through spreadsheets and Google documents.

Source: Self Compiled

Opportunities for Virtual Education

a) Students

The content can be downloaded and read at the students' convenience. They can also become more adept at time management, absorb and apply information in accordance with their learning capacities, and become self-regulated learners by using hypermedia and user-friendly documents. By getting over the problem of geographic limitations, online learning can provide students with additional alternative possibilities. Students who are uncomfortable asking questions in class because they are shy or embarrassed can feel more at ease in a virtual learning environment. Additionally, students will have the chance to work together with peers and educators from all across the world.

b) Teachers

By employing electronic documents, educators can save time, enhance the quality of their instruction, reach a wider range of students, and acquire experience with web-based tools and technology.

c) Institutions

A wider range of students may be accessed through virtual education, which will also improve reputation and recognition and aid in the development of a worldwide online community. It aids in cutting expenses.

Challenges of Virtual Education

a) Students

Face-to-face support, student demotivation, and quality assurance issues were all decreased by the virtual learning environment. In order to comprehend shared information more effectively and efficiently, students need to be tech-savvy, able to handle technology and other online networks, have communication skills, and be able to interact virtually with others through the use of electronic technology. They also need to be somewhat independent.

b) Teachers

The faculty will spend more time for preparing the online content and it leads to an additional workload.

c) Institutions

E-learning systems need a number of things, such as course administration systems, enough bandwidth, technologically advanced classrooms which is costly. Faculty resistance and more personnel are needed by the institutions.

Possible Solutions to Overcome the Challenges

It is necessary to design student-friendly software, give computer education to all students, and encourage students to take advantage of virtual learning. Market-oriented accounting courses should be made available, an integration accounting model should be implemented, and the infrastructure for virtual accounting education should be built. The government must offer financial support for the establishment of virtual learning in every institution, and faculty members must receive training in online content preparation and online evaluation.

Conclusion

Enhanced use of virtual environment and technology in the teaching methods in the present accounting education are considered to be repetitive and obsolete, and results in dissatisfaction of both teachers and students, thereby recognizing the significance of promoting enhanced student participation and involvement. Recently, nationally and internationally, there have been distance learning programs (e-learning), in semi-face-to-face systems (e-blended learning) and integrated into the face-to-face teaching-learning process. This is because the need for a change in the traditional teacher-student roles has become evident, where teachers have been considered as designers, managers & evaluators of the training process through exposure to the knowledge, and students reproduce their knowledge as passive spectators of the class. In short, promoting the active participation of students without neglecting the relevance of books to multimedia means, that is, taking the best of each modality (face-to-face and virtual).

In this modern era, traditional education can be replaced with new teaching pedagogical methods which help both students and teachers in the teaching-learning process. "The proposed model (with a working title Model of integration of virtualization into the education – IVE) operates with three basic dimensions and one integrating dimension, defines the scope of activity of virtualization technology when used as a means for teaching about virtualization and simultaneously as a means for teaching with virtualization" (Klement M., 2016) [22].

The available opportunities and prospects of a virtual technological environment can benefit the existing Accounting educational system in India, provided the quality of the course and its content is guaranteed. The practicals associated with the teaching-learning process of accounting subjects like e-accounting and e-filing etc, can be very conveniently handled by imparting training and

awareness. The virtual learning environment may not be a cure for all existing issues in imparting accounting education in India. Exploiting the virtual technology, for imparting accounting education may still be at its infancy and an experimental progress in India.

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