

Impact of Technology acceptance and use on quality of Higher education system: technology acceptance models

¹ M. A. SATTAR KHAN
Senior Research Scholar
School of management studies,
University of Hyderabad.

Abstract : The digital based Technology-mediated education becomes increasingly important to all stakeholder of society. Despite of this much importance, very little theoretical development or empirical research has been carried out in this field. Thus, this article draws from research in acceptance and use of information & communication technology, on quality of management and teaching learning systems to develop an initial conceptualization of influences on technology-mediated Quality management & teaching learning outcomes.

Key Words: information and communication technology, quality, Management and teaching, UTAUT

I. INTRODUCTION

The development of any nation in the world measured by its higher education. At the digital age of technological peak, the formal education system moved to e learning where in classroom and teacher is no more required. Although every higher education institution is trying to implement educational technology (Bolton & Nie, 2010) but no consensus on the terminology and definition of education technology.(Luppardini, 2005). There exist criticisms on the subject on quality of educational research in general and for methodology in particular (Bulfin, Henderson, Johnson, & Selwyn, 2014). The question of quality is still stands, weather this technology improving quality of education or not? (Hoffman, 2013) Every single nation is very keen about its higher education as this is the base for development. Educational technology results, tremendous increase in number of students enrolled for higher education globally, but these enrolments does help in getting employment. Even the degree awarded by reputed higher institution doesn't assure any employment in the field graduate attended specialization.(Dragut, 2011) Another issue is policy implications for Accreditation, ratings and quality of higher education in digital age(Hoffman, 2013). Stakeholders does play a vital role not only in quality of teaching but also in policy and management of institution(Bolton & Nie, 2010). All these factors effects Students Satisfaction, who really can prove the quality of their education (Stukalina, 2014) around this our whole study revolves. As quality is, what every higher education is keen for (Karahana & Mete, 2014). Each institution claims to provide quality education, but they really do?

The aim of this study is to answer the clear definition of educational and communication technology in respect of criticism made on the methodology of educational technology (Graham, Woodfield, & Harrison, 2013), and how Education & Communication Technology effects on the quality of Higher Education management and teaching. And to which extent academic users are involved in the decision-making processes of technological tools and their implementing methods (Habib & Johannesen, 2014). What are enabling factors (Best practices) that facilitates and efficient edu –tech quality management process?

Literature review

This section discuss definition and explanation of Terminologies of the subject to get a clear understanding of study. The word “Technology” creates confusion, as the engineers, technologist and technicians view is very different from social sciences view. The former's view of technology is “process of material construction based on systematic engineering knowledge of how to design artifacts.” Whereas the latter's view broader the employment of the term “technology” from material construction to and social and intellectual contexts. It discusses to the organization of information for the attainment of practical purposes as well as any tool or technique of doing or making, by which capability is explored.

Definitions:-

1. Educational Technology: The processes and resources for learning which involves design, development, utilization, management, and evaluation.

2. Educational Technology in Society: “A problem-solving goal oriented systems approach using tools, techniques, theories, and methods from multiple knowledge domains, to: (a) design, develop, and evaluate, human and mechanical resources efficiently and effectively in order to facilitate and leverage all aspects of learning. (b) Guide change agency and transformation of educational systems and practices in order to contribute to influencing change in society.”

3. System: “The total parts which are interrelated to each another and to the structure or organization as whole.”

4. Systems Approach: “A logical strategy or process which identifies needs, analyze problems and possible solutions, or design procedures to improve systems operations and eliminate needs.”

5. Technology (process): “The use and organization of knowledge for the attainment of practical purposes in social and intellectual contexts.”

6. Technology (tool): “Operations and material construction of physical systems based on systematic knowledge of how to design artifacts.” (Luppini, 2005)

7. Information & Communication Technology (ICT)

ICT (information and communications technology - or technologies) is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as video conferencing and distance learning. ICTs are often spoken of in a particular context, such as ICTs in education, health care, or libraries. The term is somewhat more common outside of the United States.

These are the key terms used in the study; therefore, their conception should be very much clear in one’s mind before moving towards to next important term used in this study.

Quality assurance depends on institutional self-evaluation and the reports of Higher Evaluation authorities. Despite of abundant work is done in the name of higher education quality, but concept of quality is still ambiguous and contested (Zou, Du, & Rasmussen, 2012). First have a look on what is Quality?

Defining Quality

Table 1

“Value”	(Abbott, 1955; Feigenbaum, 1951)
“Conformance to specifications”	(Gilmore, 1974; Levitt, 1972)
“Conformance to requirements”	(Crosby, 1979)
“Fitness for use”	(Juran, 1974, 1988)
“Meeting and/or exceeding customers’ expectations”	(Gronroos, 1984; Parasuraman, Zeithaml, & Berry, 1985)
“Conformity to expectations”	(Mete, 2000)
“A journey to excellence”	(Goetsch ve Davis, 2000)
“Consistently meeting customer’s needs and expectations”	(Ali ve Shastri, 2010)

Technology brought education to student’s doorsteps. Formal and distance education both depends on technology. Regular and distance both types of education requires computers and internet to improve teaching learning process quality. Following are three types of teaching learning process, all of which depends on technology.

I. Formal Education:-

- (i) Specific and particular Planned with end in view.
- (ii) Time Limit (specific period eg, 2 years, 3 years etc.).
- (iii) Student centered, systematic and well-defined curriculum
- (iv) Expert, experienced and qualify teachers.
- (v) Discipline such as Attendance, Assignments homework etc
- (vi) Co-curricular activities includes activities outside the classroom

II. Non-formal education

- (i) It is derived from the word 'formal education'.
- (ii) Different from formal education.
- (iii) Helping the requirement of the identified group
- (iv) Deliberate and Conscious.
- (v) Homogeneous group is required.

III. Informal Education

- (i) Not planned
- (ii) Spontaneous and Identical

- (iii) No specialized agency imparts this.
- (iv) No curriculum or time-table
- (v) It may be positive or negative as well.

There exist three different stages in education pattern. Elementary, secondary and higher education. All these stages are in formal education except higher education where in both formal and informal (open and distance education) is available. Elementary education is basic education starting from class I to V (primary) and VI to IX (upper primary). Secondary education is of X, XI and XII, whereas higher education comprises of general, professional and vocational courses.

The growth of higher education institutions and enrolment increased rapidly because of web 2.0, internet, information and communication technology, social media and other factors such as right to education and free education. Number of universities increased to 634 in 2011 from 256 in 2000. Simultaneously the number of colleges jumped from 12806 in 2000 to 33023 in 2011 (ugc). The students enrolled ratio in higher education is more in arts 36%, sciences 18.6% followed by commerce & management 17.3%.

Higher education authorities in India, under ministry of Human Resource Development such as UGC, AICTE, NAAC, NCERT etc. are keen in quality of higher education. Access, Equity and Quality is the main concern for higher education authorities.

Marshall, Orrell, Cameron, Bosanquet, and Thomas (2011) Found that in quality of educational management conceptions of leadership for learning and teaching were future oriented & concerned with

1. Vision and mission of teaching and learning practice
2. Innovations and new discoveries of teaching and learning process
3. Communication of that vision and aligning stakeholders (students, teaching, non-teaching staff and others)

Blended learning is now proved as a dangerous idea (Moskal, Dziuban, & Hartman, 2013) As rapid growth of online higher education courses began they created a vigorous tension, generating uncertainty in some segments of higher education. One positive effect of that tension include new learning environments, which offers possibility of maximizing the efficiency and effectiveness of contemporary teaching and learning. Although this movement assumed several labels like mixed mode, hybrid, and combined, but blended learning still emerged as the leading label for an educational platform, which represents the combination of both online face-to-face learning.

Technology Acceptance in Higher Education

The presence of technology in organizations today has dramatically increased. This knowledge of Technology usage improves human capacity in every field of human endeavour such as business transactions, industrial operations, educational programs and activities and in all aspects of life. Technology is a teaching tool, that aid education of student both on and off campus. Globally higher education institutions have increasingly adopted Technological tools for teaching, staff development, curriculum development, and student learning. Although the computers have been widely available in education sector for well over two decades, but the concern remains that teachers are neither competent nor confident users of Technology. This failure (to use technology) in the teaching-learning process is of particular concern. The implication of Technology in a university environment is to not only meet the reform agenda & administration efficiencies, but to create such an environment that appropriately supports technological innovation of university teaching and learning process. Excellent and advanced learning materials are required to promote the quality of education and their product. However, the major concern is whether university academicians, student and supporting staff are ready to integrate the technology that is feasible to them. The stage of enlightenment on which Technology could be use in education is still low. Many faculty hardly comprehend the advantage of Technology in education. With the ongoing development of Technology, various theoretical models has been proposed for a better understanding concerning its acceptance, diffusion, adoption, and usage.

The following table shows various technology acceptance model.

Table 2 : Technology Acceptance Model

S.No.	Theory / Model	Author/Researcher
1	Theory of Reasoned Action (TRA)	(Ajzen and Fishbein 1980)
2	Theory of Planned Behaviour (TPB)	(Ajzen 1985)
3	Technology Acceptance Model (TAM)	(Davis 1989)
4	Model of PC Utilization (MPU)	(Thompson et al. 1991)
5	Motivational Model (MM)	(Davis et al. 1992)
6	Social Cognitive Theory (SCT)	(Brown 1999)
7	Extension of the Technology Acceptance Model (TAM2)	(Venkatesh and Davis 2000)
8	Diffusion of Innovation Model (DOI)	(Rogers 2003)
9	Unified Theory of Acceptance and Use of Technology (UTAUT)	(Venkatesh et al. 2003)

Suggestion and need for the future research

Although there are various technology acceptance models which are tested and validated, but still they have some flaws. The most updated and advanced technology acceptance model is UTAUT. UTAUT Model has been validated successfully across the globe on technology acceptance and use. UTAUT aims to explain user intention to use information systems and subsequently to monitor the behavior of their use. Figure 1, illustrates the UTAUT model that collects all variables from the eight existing models and their additional constructions (intermediaries). The UTAUT theory considers that the model integrates four intermediate factors like gender, age, experience and voluntary use, which have different impacts on basic constructions. By one sentence, we can say that, the UTAUT model condenses 32 variables from eight existing models into four main effects and four intermediate factors. As far Indian Higher education is concerned a very little research has been carried out on technology acceptance and use by using UTAUT Model.

Figure 1. Unified Theory of Acceptance and Use of Technology Model

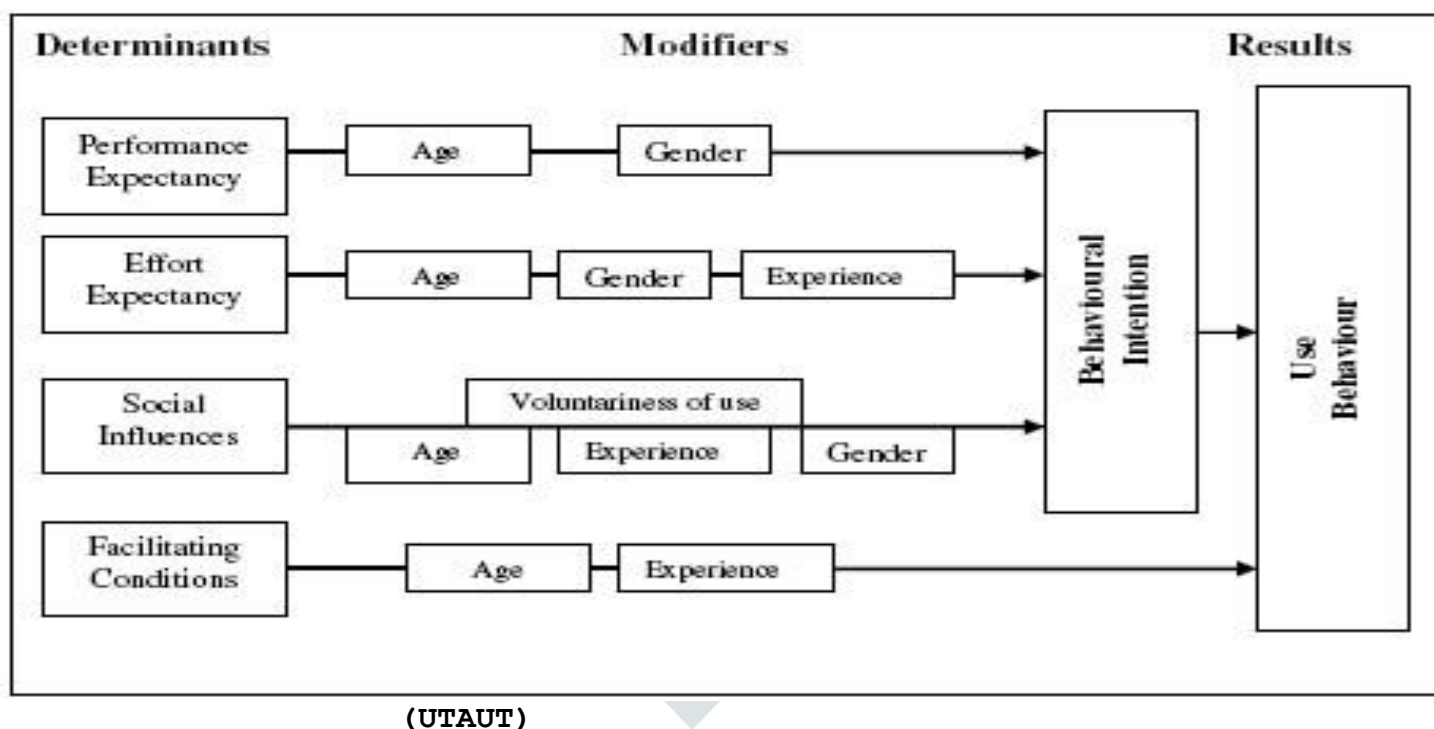


Table 3: Operational Definitions

Construct	Definition	Root Constructs
Performance expectancy	The degree to which an individual believes that using the system will help him or her to attain gains in performance. (P.447)	Perceived Usefulness „from TAM and C-TAMTPB, extrinsic motivation“ from MM, „Job-fit“ from MPCU, relative advantage“ from IDT, and Outcome expectations“ from SCT.
Effort expectancy	The degree of ease associated with the use of the system (P.450)	„Perceived ease of use“ from TAM, „Complexity“ from MPCU, and „ease of use“ from IDT
Social influence	The degree to which an individual perceived that important others believe he or she should use the new system(P.451)	„Subjective norm“ in TRA, TAM2, TPB and C-TAM-TPB, „social factors“ in MPCU, and „Image“ in IDT.
Facilitating conditions	The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system.	„Perceived behavioral control“ from TPB, C-TAMTPB, „facilitating conditions“ from MPCU, and „Compatibility“ from IDT.

(Venkatesh et al. 2003)

References

- Bolton, D., & Nie, R. (2010). Creating value in transnational higher education: The role of stakeholder management. *Academy of Management Learning & Education*, 9(4), 701-714.
- Bulfin, S., Henderson, M., Johnson, N. F., & Selwyn, N. (2014). Methodological capacity within the field of "educational technology" research: an initial investigation. *British Journal of Educational Technology*, 45(3), 403-414. doi: 10.1111/bjet.12145
- Dragut, B. M. (2011). Quality management in higher education services. *Procedia - Social and Behavioral Sciences*, 15, 3366-3368. doi: 10.1016/j.sbspro.2011.04.301
- Graham, C. R., Woodfield, W., & Harrison, J. B. (2013). A framework for institutional adoption and implementation of blended learning in higher education. *The Internet and Higher Education*, 18, 4-14. doi: 10.1016/j.iheeduc.2012.09.003
- Habib, L., & Johannesen, M. (2014). Perspectives on academic staff involvement in the acquisition and implementation of educational technologies. *Teaching in Higher Education*, 19(5), 484-496. doi: 10.1080/13562517.2014.880679
- Hoffman, E. (2013). Ratings, Quality, and Accreditation: Policy Implications for Educational Communications and Technology Programs in a Digital Age. *TechTrends*, 57(5), 47-54. doi: 10.1007/s11528-013-0691-8
- Karahan, M., & Mete, M. (2014). Examination of Total Quality Management Practices in Higher Education in the Context of Quality Sufficiency. *Procedia - Social and Behavioral Sciences*, 109, 1292-1297. doi: 10.1016/j.sbspro.2013.12.627
- Luppardini, R. (2005). A systems definition of educational technology in society. *Educational Technology & Society*, 8(3), 103-109.
- Marshall, S. J., Orrell, J., Cameron, A., Bosanquet, A., & Thomas, S. (2011). Leading and managing learning and teaching in higher education. *Higher Education Research & Development*, 30(2), 87-103. doi: 10.1080/07294360.2010.512631
- Moskal, P., Dziuban, C., & Hartman, J. (2013). Blended learning: A dangerous idea? *The Internet and Higher Education*, 18, 15-23. doi: 10.1016/j.iheeduc.2012.12.001
- Stukalina, Y. (2014). Identifying Predictors of Student Satisfaction and Student Motivation in the Framework of Assuring Quality in the Delivery of Higher Education Services. *Business, Management and Education*, 12(1), 127-137. doi: 10.3846/bme.2014.09
- Venkatesh, V., Morris, M., Davis, G., & Davis, F. (2003). User Acceptance of Information Technology: Toward a Unified View. *MIS Quarterly*, 27(3), 425-478. doi:10.2307/30036540
- Zou, Y., Du, X., & Rasmussen, P. (2012). Quality of higher education: organisational or educational? A content analysis of Chinese university self-evaluation reports. *Quality in Higher Education*, 18(2), 169-184. doi: 10.1080/13538322.2012.708247