



ADAPTABILITY TO VIRTUAL LEARNING ENVIRONMENT IN HIGHER EDUCATIONAL INSTITUTIONS: TEACHERS' PERSPECTIVE

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Abstract: Digitalisation has revolutionised the educational world right from designing the course structure, course content to the delivery and assessment of the learners. While the developing countries had long adapted to the digital environment in the field of higher education, the onslaught of the current pandemic has made it a necessity in the Indian scenario. This paper seeks to examine teachers' adaptability towards learning in a virtual environment in higher educational institutions in Guwahati. The research focuses on three vital aspects regarding the teachers' perspective namely, their attitude, personal innovation and style of teaching. The study concludes that the teachers present a positive picture for suitable adaptation to virtual learning environment in the higher educational institutions.

Index Terms - Attitude, higher educational institutions, teachers, virtual learning environment.

I. Introduction

With the advent of the digitalised era, the fundamental aspect of modern life has been revolutionised. The use of modern technologies has become widely popular not only in the economic affairs but also in the day to day activities. The adoption of digital techniques to boost and facilitate the teaching learning practices has been popular in the foreign countries for quite a long time. Many foreign higher educational institutions have resorted to digital platforms for the facilitation of learning and offer innovative online programs. This has increased the educational services without time constraints, location barriers and complementing the traditional offline class with web-based online educational tools. This has led to the emergence of e-learning. The terms e-learning, Virtual Learning Environment, Learning Management System, web-based learning, distance learning, are synonymously used.

Virtual Learning Environment is the employment of electronic media such as the Internet, DVD, CD-ROMs, videotapes, television, cell phones and other technology that are used for teaching and learning at a distance by enabling the learners with the accessibility of learning anywhere, anytime (Engelbrecht, 2005). The principal mechanism of a Virtual Learning Environment package contains curriculum planning (breaking curriculum into sections that can be assigned and assessed), student tracking, online care for both teacher and student, any form of electronic communication via e-mail, discussion forums, chat etc. and Internet links to open resources based on the curriculum. Virtual Learning Environment users are either assigned a teacher ID or a student ID generally. Both the teacher and the student have the same content display, however the teacher has additional privileges to recreate or revise curriculum and observe the actions of the student. Blackboard, Web CT, Lotus Learning Space, and COSE are a few of the profitable Virtual Learning Environment software packages

The concept of Virtual learning Environment is not very new. Many educational institutions have been practicing and working under the Virtual Learning Environment mostly in the European and American countries amongst others. Universities in the developed countries like United Kingdoms and United States have adopted e-learning over time. Virtual Learning Environment has become widespread in USA, Canada and Europe and slowly gaining grounds in Asia at the higher education level (Bhatia, 2011). The usage of new technologies for enriching learning experience cannot be denied. Various educational models exist for dissemination of knowledge in the e-learning environment. The adoption of Virtual Learning Environment by higher educational institutions magnifies the spectrum of educational services casting away the barriers of time and location while complementing the traditional offline class with online educational tools.

The recent outbreak of Covid-19 has revolutionized the way of life and more so the teaching-learning scenario in India. At this juncture, the traditional practices of learning have been disabled and the stakeholders are compelled to adapt themselves to the needs of the current hour. With the challenges brought forward by social distancing and lockdown, the educationists have succumbed to the aid of modern technologies in imparting of education. The increasing popularity of e-learning with the help of modern technologies has transformed the traditional modes of delivery of education. In this digital era, the players in teaching learning need to be adaptable to the innovative models of imparting higher education more effectively and efficiently.

The great advantages of Virtual Learning Environment include liberating interactions for both learners and instructors (Sun, Tsai, Finger, Chen & Yeh, 2008). Three quarters of the institutions surveyed acknowledge that Virtual Learning Environment can change the approach to learning and teaching, and 87 per cent view it as a catalyst for changes in teaching methods while some of them endorse its potential for enhancing learning in mass education settings (Gaebel, Kupriyanova, Morais & Colucci, 2014). Moreover, Virtual Learning Environment helps to decrease the educational costs and it is more effective learning than traditional learning. The virtual system does not demand the physical presence of the students in the classroom thereby, giving them increased flexibility to learn and interact with other students and lecturers (Zakaria & Daud, 2013). Virtual Learning Environment provide user with fast and easy to learning environment and learners will definitely evaluate this benefit based on their experience interacting with the web page. Virtual Learning Environment also provides easily accessible at all times on their portal. Technology helps the students by instilling inquiry, enriching communication, and self-expression (Gilakjani, 2013). Some authors define Virtual Learning Environment occurs from the parallel concept of e-mail. Virtual Learning Environment is a web-based system that bridges the distance in time and geography and makes information available to users.

There are a lot of Virtual Learning Environment systems available such as Web Board, WebCT, Blackboard, Moodle, and Sakai. There are several learning management systems or virtual learning environment commercially available on the market such as Blackboard, WebCT and Desire while there are also many open-source or free Virtual Learning Environment, such as Moodle, Coursework, Atutor and Interact (Zakaria & Daud, 2013).

The classic components of any Virtual Learning Environment include the involvement of people namely, teachers, students and administrators. The students are the end users of the Virtual Learning Environment while the teachers mediate the teaching learning process. The administrators facilitate this official process of learning and provide approval for the course. The role of teachers/instructors is very significant in a virtual environment as he needs to be a facilitator to enrich the learning process through proper design of the course and personalizing the student engagement process. The lack of such facilitation would invariably incapacitate the entire teaching learning process. Their attitude towards Virtual Learning Environment services and skills play an important role in shaping of the online classes, course structure and delivery. Their innovation and teaching style matters significantly in spiking the students' interest in the classes and keeping them engaged. The adaptability to such dynamic and evolving practice of learning in a virtual environment needs to be studied carefully for proper implementation. The convention modes of offline teaching has held ground for many centuries and shifting to an alternative virtual platform needs to be made systematically. The question which arises is that whether the transcendence from traditional to virtual learning is here to stay or is it just a temporary practice adopted due to the ongoing crisis thwarted during the pandemic.

Tsai, Machado, & Corporation (2001) and Bhatia (2011) elaborate the inherent of e-learning and its features and effectiveness. Goi & Ng (2009), Gilakjani (2013), Sun et al (2008), Alhomod & Shafi (2013), Al-Busaidi (2010) in his work provide a comprehensive examination of success factors that influence and promote e-learning programmes. Hetty Rohayani & Sharipuddin (2015) in their critical review paper reveal that skills and attitude are the most significant factors influencing e-learning readiness.

Imran (2012) focussed on importance of e-learning in higher education in India and concluded that it depicted a positive scenario considering the demand for e-learning in India is no less than that in developed countries. Vivekananda & RUVN (2017) stressed on introducing new and innovative methodologies for e-learning like micro learning, mobile learning, cloud based e-learning, gamification etc. to enrich virtual learning.

Several conceptual models of virtual learning environment exist for measuring its success and acceptance but application of these models for validation purpose is little found. Further, not much research could be found in the Indian context regarding the application of such models especially from the teacher's or instructor's perspective in higher education. This paper has been organized as follows; Section II explains the specific objective and methodology of the study. Section III reports analysis and findings and conclusion.

II. Objective of the study

The objective of the study is to examine the teachers' acceptance of Virtual Learning Environment in the Higher Educational Institutions in Guwahati. Kasim, Adila & Arif (2015) have developed a conceptual model of Virtual Learning Environment acceptance and success which comprises of three factors viz., Organization influence, Technological Influence and Users' influence.

In this paper, an attempt has been made to examine the users' influence from the teacher's perspective to adapt to the Virtual Learning Environment as per the recommendation of the cited model. Thus, *the prime objective* of the study is to examine the following aspects – (i) *the attitude of teachers towards Virtual Learning Environment services* (ii) *personal innovation* and (iii) *teachers' style*.

III. Methodology

The current research is based on the teachers providing educational services in the higher education institutions in Guwahati. The present study identifies all the teachers in the private as well as public higher educational institutions as the population units. Snowball technique is adopted for collecting data for the sample units. A total of 100 respondents have been deemed appropriate for the purpose of the current study which comprises of working professionals in public as well as private higher educational institutions. A total of 90 respondents form a part of the study with incomplete responses from 10 respondents serving as bad samples.

The research puts emphasis on measuring the qualitative aspect of the teachers – their adaptability to Virtual Learning Environment based on three attributes viz., (i) *the attitude of teachers towards Virtual Learning Environment services* (ii) *personal innovation* and (iii) *teachers' style*. This research makes use of data collected through a structured questionnaire involving close ended questions. The respondents were asked to rate their responses using 1-5 scale ranging from *Strongly Agree* to *Strongly Disagree* on the following - (Virtual teaching facilitates data storage – A₁; Virtual teaching facilitates access to stored data - A₂; Virtual Learning is an Organisational/Institutional requirement – A₃; Virtual teaching facilitates data recording – A₄; Virtual learning imbibes professionalism – A₅; Virtual learning is a more organized way of imparting knowledge – A₆; Virtual impart of knowledge is an Easy and Effective way of teaching – A₇; Virtual teaching is superior to classroom teaching – A₈.)

A positive attitude of the teachers towards Virtual Learning Environment indicates the user's readiness to adapt and accept Virtual Learning Environment. Positive attitude, describes lecturer's teaching style and their intention to use advance tools in teaching and learning as a part of their self-innovation (Teo, Luan & Chhatiawat, 2011).

Personal innovation in information technology context means person's attitude reflecting the tendency to try and adopt the new information technologies independently from the experience of others; innovative people may realize the usefulness and ease of use of new systems are faster than non-innovative people (Schillewaert, Ahearne, Frambach & Moenaert, 2005). The style of a teacher while providing educational services is indicative of the willingness to incorporate interaction with the students, thereby facilitating student engagement in a virtual environment. Lecturer with interactive teaching style in manipulating the Virtual Learning Environment contents is important for learning outcomes (Al-Busaidi & Al-Shihi, 2010). The respondents were required to make *Yes/No* responses which included the following for **Personal innovation** - (Course content re-modulation – P₁; Learn interactive presentation tools – P₂; Course design modification – P₃; Enrichment with additional resources – P₄; Course Delivery – P₅) and **Teaching Style** - (Encouraging student participation – T₁; Supporting open communication – T₂; Questioning at regular intervals – T₃; Reframing statements to suit students' needs for delivery – T₄; Active listening to improve student engagement – T₅; Active response during session – T₆; Assignment of tasks during the

online session – T₇; Assignment of specific roles and responsibilities to group members – T₈; Usage of assistive technologies – T₉).

Statistical measures like Mean (M) and Standard Deviation (sd) are used for analysis. The application of Chi square test was deemed appropriate to further strengthen the inferences drawn.

Based on the objective of the study, the following research questions (were used as control variables) have been framed considering the three aspects to be examined for the purposes of understanding the teachers' acceptance towards Virtual Learning Environment.

How is the attitude of the teachers towards Virtual Learning Environment?

Are the teachers ready to accept new technologies and systems for facilitating learning?

Is the style of teaching adaptive for student engagement in virtual environment?

IV. Hypothesis

In context with the present study the following null hypotheses are constructed:

H1₀: There is no significant impact of personal innovation on the inherent values towards virtual learning environment.

H2₀: There is no significant impact of personal innovation on the imbibed values towards virtual learning environment.

H3₀: There is no significant impact of teaching style on the inherent values towards virtual learning environment.

H4₀: There is no significant impact of teaching style on the imbibed values towards virtual learning environment.

V. Analysis & Findings

Factor Analysis has been conducted to measure the attitude of the teachers in higher education. The Kaiser-Meyer-Olkin (KMO) test and Bartlett's test of sphericity were used to evaluate adequacy of factor analysis in relationship with the data obtained and the value was assessed as highly significant, KMO=0.602, sig.=0.000, chi-square=495.423, df=36. By applying Principal Components Analysis, the principal independent factors affecting teachers' attitude towards Virtual Learning Environment are identified and presented in Table 1 with suitable names.

Table 1: Structure of factors relating to attitude

<i>Factor 1 - Inherent values</i>		<i>Factor 2 - Imbibed values</i>	
A ₁	A ₃	A ₅	A ₇
A ₂	A ₄	A ₆	A ₈

The descriptive statistics on attitude of teachers reflect that inherent values of Virtual Learning Environment have a higher positive impact on the teachers' adaptability to Virtual Learning Environment while they do not associate much with the imbibed values which is depicted by a lower average mean (2.99). While the inherent values of virtual learning are more or less equally acceptable as indicated by the mean values (see Table 2), there is a high standard deviation (1.062) in virtual learning being an Organisational requirement. This indicates greater variability in the teachers' attitude in terms of accepting virtual environment of learning as an integral requirement of the higher educational institutions. The average mean of inherent values stands at 3.91 indicating a significant positive attitude of the teachers towards Virtual Learning Environment in higher educational institutions. The lowest mean (2.166) in case of the imbibed values exhibits that the teachers do not accept virtual learning to be superior to classroom learning in any respect.

Table 2: Descriptive statistics

<i>Aspects</i>	<i>M</i>	<i>sd</i>
<i>Attitude</i>		
<i>Inherent values</i>		
A ₁	3.966	0.799
A ₂	3.866	0.81
A ₃	3.866	1.062
A ₄	3.933	0.776
<i>Average</i>	3.91	
<i>Imbibed Values</i>		
A ₅	3.366	0.84
A ₆	3	0.899
A ₇	3.433	0.887
A ₈	2.166	0.902
<i>Average</i>	2.99	
<i>Personal Innovation</i>	<i>M</i>	<i>sd</i>
P ₁	1.20	0.40
P ₂	1.00	0.00
P ₃	1.17	0.37
P ₄	1.03	0.18
P ₅	1.20	0.40
<i>Teaching Style</i>	<i>M</i>	<i>sd</i>
T ₁	1.77	0.85
T ₂	1.37	0.76
T ₃	2.07	0.78
T ₄	1.43	0.81
T ₅	1.70	0.79
T ₆	1.77	0.85
T ₇	1.37	0.76
T ₈	1.40	0.67
T ₉	1.70	0.79

Table 2 exhibits the descriptive statistics regarding the inclination of teachers towards personal innovation and teaching style for effective transitioning to a virtual learning environment. Considering this attribute, adequate responses have reflected the possibility of the working teachers to adapt to the changing teaching learning process and thereby creating a conducive environment which is more technology friendly. Their readiness to inculcate newer pedagogies and efficient course structuring ($M=1.17$, $sd=0.37$) and re-modulation ($M=1.20$, $sd=0.40$) for better delivery alongside incorporation of modernised technology ($M=1.03$, $sd=0.18$) and systematised delivery ($M=1.20$, $sd=0.40$) catering to the students' needs as indicated by M values (Table 3) presents a greater adaptability towards a virtual learning environment. The teachers are eager and enthusiastic to adapt themselves and adopt new practices and systems for advancing the field of education as well as their personal capabilities.

Likewise, a greater likelihood of teachers in higher educational institutions is observed owing to the adoption of necessary practices in a virtual environment to boost interaction for better engagement. Nearly all of them support open communication ($M=1.37$, $sd=0.76$) in such a platform which facilitates better interaction and helps to overcome barriers to the learning process. Personalization of students' needs during virtual sessions give an impetus to better understanding and hence the efficiency of teaching learning process maximises. Catering to the diversity of the learners through usage of assistive educational technologies and digital tools and student collaboration holds a strong

footing in their responses. Frequent questioning during the virtual classes enhance the understanding of the learner/student ($M=2.07$, $sd=0.78$). Teachers emphasise mostly on encouraging the students to participate during the discussion ($M=1.77$, $sd=0.85$) along with listening actively ($M=1.70$, $sd=0.79$) and responding ($M=1.77$, $sd=0.85$) to the students' queries, and making use of technological aids ($M=1.70$, $sd=0.79$) for enriching the learning experience. The descriptive statistics reflect that the teachers consider open communication, reframing statements to meet student diversity ($M=1.43$, $sd=0.81$) and assigning responsibilities to them ($M=1.40$, $sd=0.67$) for facilitating the teaching learning process. This is reflective of the fact that the style of teaching is adaptive to an environment of virtual learning.

Also, the application of Chi square leads to the rejection of the null hypotheses H_{10} , H_{20} , H_{30} and H_{40} as Sig. value is less than 0.05 in all the cases. The results pointed out that there was a significant impact of personal innovation on inherent values ($sig.=0.000$, $df=20$) as well as on imbibed values ($sig.=0.000$, $df=18$). This indicates that the attitude of teachers towards virtual learning environment is significantly influenced by the ability and willingness of the teachers to try out newer technologies and adapt better to the virtual environment. Further, it was also observed that the teaching style had a significant impact on inherent values ($sig.=0.000$, $df=100$) as well as imbibed values ($sig.=0.000$, $df=90$). This is reflective of the fact that the willingness of the teachers to incorporate student engagement through interaction and other means in virtual learning significantly influences the teachers' adaptability towards a virtual learning environment.

VI. Conclusion

Virtual learning environment has become the need of the hour in Indian Education System due to the sudden outbreak of pandemic Covid-19 globally. In such a scenario the shift from traditional to virtual mode has become the necessity rather than a fashion. In this grave situation the commitment of teachers and students towards each other has become very significant. So, the present study takes into account three important dimensions to assess the current status of teachers' adaptability towards virtual learning environment. It is found that teachers share a positive attitude towards teaching in a virtual environment. Their inclination to innovate and update the teaching- learning skills and flexible teaching style in convergence with pedagogy and use of technology recorded a high level of acceptance amongst the teachers of both private and public institutions in Guwahati.

The current study draws out the views of a segment of teachers on virtual learning environment and will help to get motivated towards this paradigm-shift with open mind and heart. Change is inevitable, so going with the flow and adapting to virtual teaching-learning techniques is a wise decision at this juncture. This study also paves the way for Virtual Learning Environment as an option to be still followed even after the pandemic is over. This will help realize the advantages fostered by virtual mode of learning to the users. Adopting a comprehensive virtual environment for education and learning may not be possible due to the multifaceted pros that arises from traditional teaching but it can always act as a supplement along with the conventional form hence forth for the teacher- student fraternity to rely on.

VII. References

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