"EXECUTIVE STUDENT'S ATTITUDE TOWARDS TECHNOLOGICAL CHANGE"

A Case Study of Allama Iqbal Open University

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ABSTRACT

Allama Iqbal Open University (AIOU) in collaboration and support of Commonwealth of Learning (COL) offered MBA/MPA Programme, in the year 2003. The programme has been running all over the country successfully and the university has planned to offer E-learning mode of COL EMBA/EMPA programme using Information and Communication Technology (ICT). Therefore, this study was designed to investigate the attitude of, students towards ICT. The Technology Acceptance Model (TAM) was found to be reliable and user friendly model in predicting the information system acceptability and usage, therefore, a modified version of TAM was used with independent variables of perceived ease of use, perceived usefulness and subjective norms while attitude towards ICT was treated as dependent variable and behavior intentions as an outcome. The population of the study comprised all students of COL MBA/MPA Programme. By adopting stratified sampling method, the whole population was divided into four stratums, i.e. total enrollment in 1st, 2nd, 3rd and 4th semesters. 25% responses from each semester were taken randomly through self constructed questionnaire. Data collected with the help of questionnaire was analyzed with the help of SPSS.

INTRODUCTION

Allama Iqbal Open University was established in 1974 as a first open university in Asia. It provides education through open and distance learning mode which is specifically targeted at working adults who need to take care of their families as well as manage their careers while pursuing higher education. This philosophy of AIOU underlies the belief that education should be made available to all, regardless of time, place, age and social economic background. During the last 34 years, the university has achieved different milestones and now an active member of 17 member mega university club[3]. The biggest university in the country with course enrolment of more than 1,806,214, with around 1000 courses being offered. The university serves the nation with 36 regional campuses and centers in various parts of the country to coordinate and facilitate decentralized system of education of the university (AIOU, 1998).

Allama Iqbal Open University achieved a landmark when it offered Commonwealth MBA/MPA programme for Executives (MBA/MPA), a new initiative in executive education for citizens of the Commonwealth. This programme was offered first launched in 2003 with the support and collaboration between the Commonwealth of Learning and the national open universities of Bangladesh, India, Pakistan and Sri Lanka. The COL MBA/MPA was designed to cater the need of the 21st century business perspective and for part-time study by busy working professionals. The main idea, behind this program, is to support various functional areas of business and public sectors activities which helps professionals and busy executives to understand how business integration is achieved through managerial education and techniques. Presently the department is going to enroll the tenth intake of this comprehensive program that has been running all over Pakistan successfully.

The department has planned to launch the COL MBA/MPA Programme in E-Learning mode for those students who can't attend the classes due one or another reasons. E-Learning implies the delivery of learning, training or education program by electronic means (Derek Stockley 2003). It includes the delivery of content via Internet, intranet/extranet (LAN/WAN), audio and videotape, satellite broadcast and CD-ROM (simpatico, 2008). ICT and e-Government initiatives all over the world endeavor to integrate Information and Communication Technologies (ICT) to transform delivery of government services to their stakeholders by improving quality of services, accountability and efficiency (Gupta, 2008).

Since the conversion and subsequent launch of this programme in E-learning context requires drastic change, therefore this study was carried out to evaluate the student's attitude towards technological change. A previous study was conduct by Riaz (2007) to evaluate the employee's attitude towards ICT and found positive attitude of employees. This study was an extension of the same to know how existing executive students think about E-Teaching and learning

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[3] Mega University means where the number of admissions exceed one hundred thousands annually.

LITERATURE REVIEW

A critical review of the literature shows that there are mainly four leading theories that explain the acceptance process (Venkatesh & Brown, 2001), such as (1) the Theory of Reasoned Action (TRA); (2) The Theory Of Planned Behaviour (TPB); (3) The Innovation Diffusion Theory (IDT) and (4) The Technology Acceptance Model (TAM) The Theory of Reasoned Action (TRA) claims that the intension to perform behavior is the key determinant of a person's Behavior. Intention to perform behavior further depends on two conceptually independent factors like Attitude towards behavior and subjective norms. Attitude is defined as "*a personal factor that considers the degree to which a person has about positive or negatively evaluating a specific Behavior; while the* Subjective Norm (SN), *a social factor that refers to the apprehended social pressure to either perform or not to perform the behavior in question.* (Ajzen & Fishbein, 1975; Ajzen and Fishbein, 1980; Ajzen & Madden, 1986).
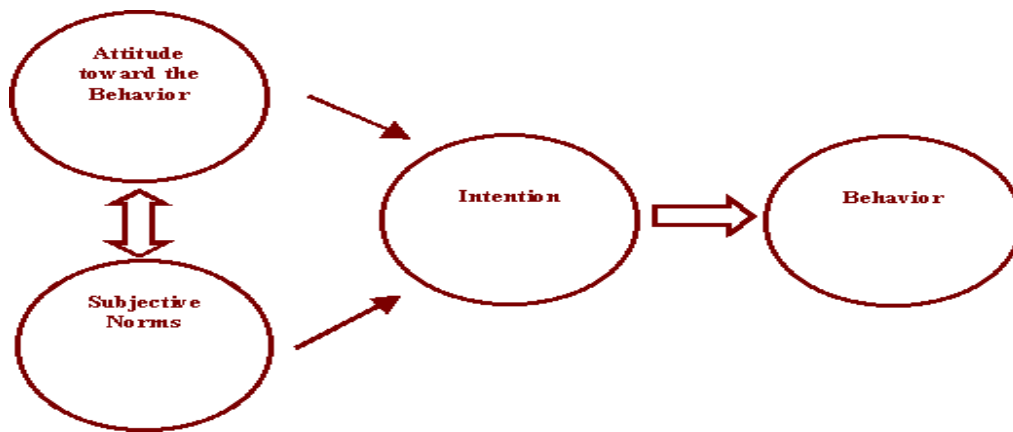

Figure 1. Theory of Reasoned Action (TRA)
(Based on Fishbein & Ajzen 1975)

Theory of Planned Behavior (TPB) is the extension of TRA wherein Ajzen (1991) proposed an additional construct, Perceived Behavioral Control (PBC) to the model in order to account for situations where an individual has less than complete control over the behavior. "PBC is defined as people's perceptions of their ability to perform a given behavior. It is an individual's the perceived ease or difficulty of performing the particular behavior "(Ajzen, 1991; Taylor and Todd, 1995).
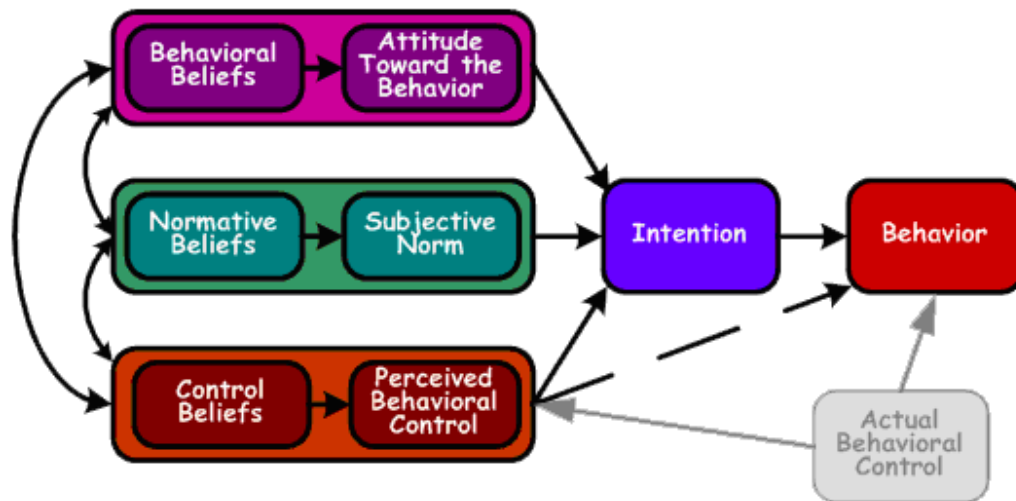
Figure 2. Theory of Planned Behavior (TPB),
(Based on Icek Ajzen, 1991)

At the other hand, the Diffusion of Innovations Model (DIM) (Agarwal and Prasad, 1998) suggest that the implementation of Information system success depends upon three factor that is the technical complexity, technical compatibility and relative advantage of the information success.
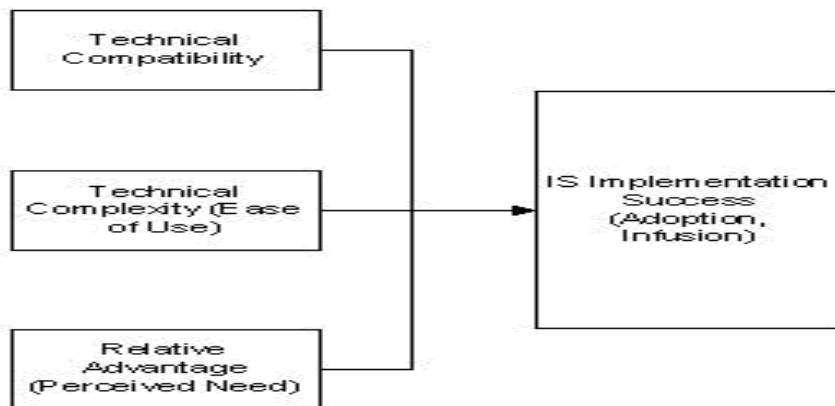
Figure 3. Diffusion of Innovations Model (DIM)),
(Based on Agarwal and Prasad, 1998; Cooper and Zmud, 1990, Crum et.al. 1996)

Davis (1989) presented Technology Acceptance Model (TAM) which was a modified version of TRA that helps to predict user acceptance rather mere attitude towards information systems or information technology, because organizations have a strong interest in understanding why people accept information technology (ICT), and a strong prediction be made about responses, while introducing technological change (Dillion and Morris, 1997). TAM posit attitude on the basis of two factors: *perceived usefulness* and *perceived ease of use*. The construct attitude is defined "*as feelings of favorableness or unfavorableness toward the system*". Perceived usefulness (U) is

defined *"as the degree to which a user believes that using the system will enhance his or her performance.* Perceived ease of use (EOU) is defined *"as the degree to which the user believes that using the system will be free from effort"* (Dillon and Morris, 1996). The differentiating factor between TAM and TRA is Subjective Norm Davis et al (1989), which was dropped in TAM by Davis et al (1989), arguing that the subjective norm construct is context-driven. However in this study a customized TAM was used by taking subjective norm as an additional variable along with PEU and PU to know its relationship with attitude.
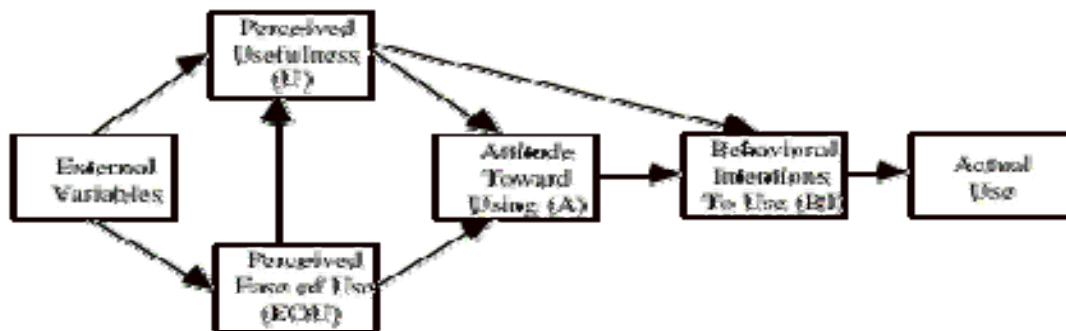

Figure 4. Technology Acceptance Model
(Davis et al., 1989)

Despite respective benefits offered by each model to predict the user acceptance such as the TRA, TPB, IDT, and TAM, this study undertakes TAM as research model. TAM is found to be reliable, effective and simple to predict attitude (Dillon and Morris, 1997; Adams, Nelson, and Todd, 1992; Mathieson, 1991, Legris, *et al* 2003). As Hernandez (2008) used TAM to know the attitude towards implementation of management software in business setting and found that IT should be considered useful to enhance the performance of a business function and easy to apply, for positive attitude development towards acceptance of business software. Despite all benefits associated with TAM, there exists other constraints, such as time, environmental or organizational constraints and unconscious habits, which limit the freedom to act (Davis, 1989). Therefore mostly researchers used extended TAM model by adding another variable to avoid such constraints in different settings. For example, Shang (2004) extended TAM with two other factors namely Fashion Involvement and Cognitive absorption along with PU and PEU to know the relationship with attitude towards online shopping. Results showed that perceived usefulness is not an antecedent of on-line shopping, while fashion and a cognitive absorption experiences on the web were more importance in explaining on-line consuming behavior. In the same way Ong *et al.* (2004) proposed an extended TAM model with a new construct, "perceived credibility" to examine factors affecting engineers acceptance of E-learning. Results showed that perceived usefulness had most significant effect on user's acceptance of E-learning. Perceived ease of use was found to be an important antecedent to perceived usefulness and perceived credibility. In contrast, when TAM was used to know the Internet utilization behavior of individuals, perceived ease of use found to be the strongest determinant of user attitude towards Internet use (Shih, 2004).

RESEARCH METHODOLOGY

Objectives / Aims of the research study
It was an attempt to explore the attitude of executive students' towards ICT. The main objectives were:
- Determining the attitude of Executive Student's towards implementation of ICT.
- To investigate the relationship between Independent variables (Perceived Usefulness, Perceived Ease of Use and Subjective Norm) with dependent variable (Attitude).
- To recognize the relationship between dependent variable (attitude) and the outcome (behavior intention).

Hypothesis
On the basis of Research model, following relationship was hypothesized. The basic assumption was that perceived usefulness, ease of use and subjective norm (independent variables) would have positive relationship with attitude (dependent variable) in AIOU E-Learning setting, which in turn positively affects behavioral intention:

H1   : Executive Students' have positive attitude towards Technological Change (ICT)

      H1 a : Perceived usefulness is positively related to attitude
      H1 b : Perceived ease of use is positively related to attitude
      H1 c : Subjective norm is positively related to attitude

H2   : Attitude is positively related to behavioral Intention

**Figure 5. Research Model,
A modified Technology Acceptance Model (TAM)**
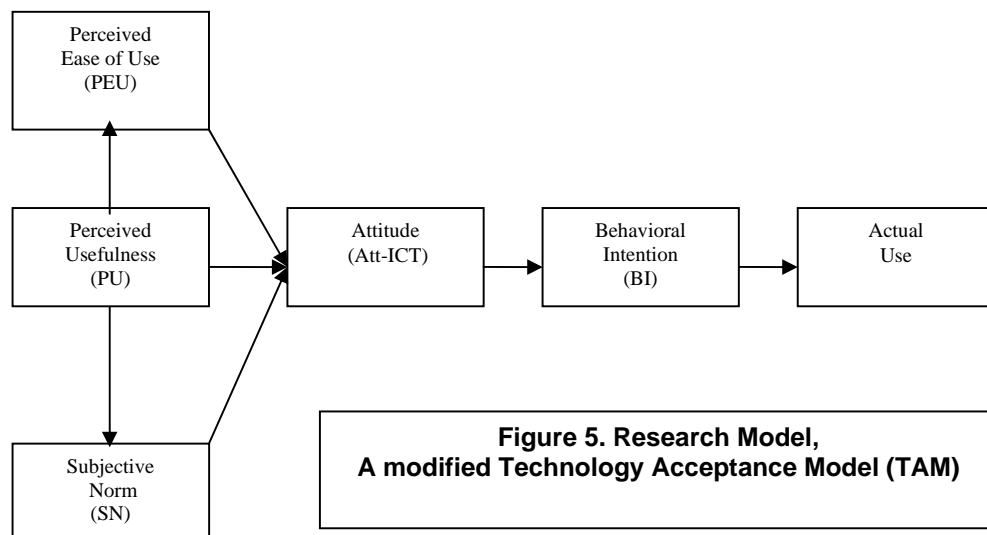
Research Instrument

Primary data was collected through questionnaire. The questionnaire had two sections, one for demographical information and the other was amended TAM section. Demographic section was based on tick-boxes and consisting of seven questions on age, gender, highest level of qualification, organization working with, employment rank, marital status, and total semester completed in COL EMPA/EMPA. The amended TAM section, which was named as attitude measurement section, had five sub-sections to determine score of independent and dependent variables. It was based on five point likert scale developed by Renis Likert to enable respondents to answer questions according to the intensity of their attitude. Initially, 15 questionnaires were distributed as pilot testing, to check the reliability and validity of questionnaire. Then it was distributed to target group of respondents.

Sample

For sampling, a combination of two sampling types was used. At first, by adopting stratified sampling method, the whole population was divided into four stratums, i.e. students enrolled $1^{st,}$ 2nd, 3rd and 4th semesters in COL MBA. Such stratification was made to get equal representation from all four semesters. The statistical report shows that the total enrollment in the last semester (Autumn 07) was 902 students. By taking 25% of all enrollment gave the figure of 226, therefore 226 responses were collected from executive MBA/MPA students on random sampling basis. Sample of large respondents were taken so that they could represent the whole population.

Survey Method (Distribution and Response)

The efforts were made to collect primary data, through self-constructed questionnaire. Though it was difficult task to collect responses of about 226 students', in timely and cost effective manner, therefore, total of 500 questionnaires were distributed, through mail on student's home addresses. The questionnaires also contained brief background information about the purpose of the study, description of ICT, instructions and measures for confidentiality. Initially response rate was low, therefore individuals were approached in class setting and wherever required, they were briefed about the importance of research and how to fill in questionnaires in true spirit.

By taking such steps, total responses received were 246. This was 27.27% of total enrollment. However, 20 questionnaires were rejected on different grounds giving 226 responses. Ultimately, responses of 25% of distributed questionnaires were analyzed using SPSS.

RESEARCH ANALYSIS

Demographic Characteristics of Respondents

Demographical analysis shows that 47.30% of respondents were between age 18-35, while 39.7% were between age 36-50. Being the male dominated society, 81.1% representation was obtained from male, while female ratio is as low as mere 18.9%. Col MBA/MPA programme is specifically launched for executive professional segment of Pakistani society. Therefore 62.95% of the respondents were married.

The current economical conditions show high growth in service sector, especially banking and telecom sectors are growing at astounding pace. This may be the reason that individuals working in service sector are further interested to enhance their knowledge and skill by enrolling themselves in international studies. Total of 38.11% students surveyed were from service sector while the second highest figures is from military services 23.2%. Same is also true for educational background. Nearly 47.80% were having defense related educational background. Engineering and IT literated individuals were 29.60% and 16.90%, respectively.

It was assumed that the whole population of the study is normally distributed and 25% from all four semesters enrollment was randomly selected as sample (Table-I). Therefore, representation from each semester is 25 % each.

Age	18-35	47.30%
	36-50	39.70%
	51-60	13.00%
Gender	Male	81.10%
	Female	18.90%
Marital Status	Married	62.95%
	Unmarried	37.05%
Occupation	Civil	2.54
	Army	23.2
	Autonomous	15.25
	Manufacturing	16.32
	Service	38.11
	Others	4.58
Educational Background	Medical	5.80%
	IT	16.90%
	Engineering	29.60%
	Army	47.80%
Current Semester of COL MBA/MPA	1st Semester	25.00%
	2nd Semester	25.00%
	3rd Semester	25.00%
	4th Semester	25.00%

Table-I "Demographical Analysis"

Descriptive Analysis

Descriptive results show positive trend of each variable (Table-II). Nearly all Executive students are found to be positive about the usefulness and ease of use of ICT (E-Learning) comparing conventional educational system. The highest mean value 4.3 of perceived usefulness expresses the flexibility and significance of ICT from student's point of view. They think that through ICT, learning process would be time and cost effective. The student could continue study according to their convenience, for example sitting in home, workplace or anywhere else.

	PEU	PU	BI	SN	ATT-ICT
Mean	3.9	4.3	3.8	3.8	4.1
Median	3.8	4.3	4.0	4.0	4.0
Mode	3.8	4.0	4.0	4.0	4.0
Standard Deviation	0.6	0.7	0.8	0.8	0.6
Sample Variance	0.4	0.5	0.7	0.6	0.4
Range	2.8	4.0	4.0	4.0	3.6
Confidence Level (95.0%)	0.1	0.1	0.1	0.1	0.1

Table-II "Descriptive Analysis"

Second highest mean value 3.9 is derived from perceived ease of use, showing easy interaction with ICT. It is believed that education in E-learning environment would be easy, effortless and simple to be skillful. Mean value of subjective norm is calculated as 3.8, which is also a significant value. It reveals that students' feel a social motivation from friends, colleagues, class fellows and others, to take full advantage of ICT in relation with distance education. AIOU plans to launch MBA/MPA in E-learning mode without discontinuing conventional Scheme of the Programme. However, students feel that most of the people around them socially motivate them to continue study through ICT.

Mean value of behavior intention is also 3.8. It shows that respondents strongly favor the implementation of ICT in each phase of teaching and learning methodology. this may be mailing of books' soft copies, tutorial through E-chat, discussions, submission of assignments and activities through internet, Each component should be supported with ICT.

The mean value of 4.1 of attitude towards ICT explains the high favorable feeling and emotions of executive students towards ICT. Their general disposition towards ICT is very positive as indicated by high mean value. They think that studying in E-learing mode would be enjoyable and pleasant.

Correlation Results:

Correlation values of all variables are shown in Table-(III). As concluded in previous researches, significant positive correlation amongst the independent and dependent variables was found. The correlation value of 0.68 between PEU with Att-ICT shows that when students' feel that in case learning in virtual environment is easy, especially if it is simple to learn using internet and other digital communication means then the students' would have positive emotional feeling about ICT.

The highest correlation value 0.77 between perceived usefulness and attitude towards ICT reveals that students think education using ICT would be helpful as it offers maximum flexibility. They would be free from all bondages as education can be obtained while sitting in home, work place even if they move to other part of the country they may interact with tutors and take help from study material placed online. Such uniqueness of teaching and learning methodology build strong positive feelings about ICT.

The second highest value between behavior intentions and attitude is 0.70. According to our research model, attitude towards ICT is the dependent variable while behavior intention is the outcome which leads towards actual action or use of ICT. The correlation value explains if students have positive emotional disposition towards ICT and if they think education through E-learning is necessary even essential requirement. Then they are practically willing to accept digital ways of education. Positive attitude further strengthen the ICT acceptability in each phase of learning. Another high correlation value of 0.66 between perceived usefulness and behavior intention, indicates the relationship between independent variable and the outcome. When students are convinced with the usefulness of ICT interms of efficiency an effectiveness it brings in learning environment. Then, it ultimately drive the willingness of student's in practical aspects.

	PEU	PU	BI	SN	ATT-ICT
PEU	1				
PU	0.57	1			
BI	0.54	0.66	1		
SN	0.59	0.51	0.36	1	
ATT-ICT	0.68	0.77	0.70	0.58	1

Table III "Correlation Analysis"

CONCLUSION:

The descriptive statistical analysis results indicate that student's feel learning through ICT would be simple and easy. They would easily get skillful in understanding the virtual methodology of learning. Learning through internet would be pleasant and interesting experience. Furthermore, they feel social obligation from friends, class fellows, teachers and other associates, regarding maximum use of ICT and digital communication means in learning environment.

All these feelings develop positive emotional state of student's towards ICT, that's what we call attitude towards ICT. It is therefore concluded that most of the student's have positive attitude towards ICT and may easily accept better and advanced way of learning.

The correlation results show significant positive correlation between independent variables and dependent variable. Positive correlation is also calculated between dependent variable and the outcome. The relatedness between variables reveal the fact that if ICT is considered as easy to interact with and useful in providing education, then the students' have positive attitude towards ICT. Another significantly high value of correlation coefficient between subjective norm and attitude explains the relationship between social pressure and attitude development. If students feel motivation from people having any association with them to use ICT, then it also helps to mold negative attitude towards positive.

The findings shed light on the significance of Technology Acceptance Model (TAM) in determination of attitude towards ICT. TAM is found easy, simple and reliable in determination of attitude towards ICT.

RECOMMENDATIONS:

Most of the employees are found with positive attitude, as they think ICT would be easy to interact with and useful. There is a strong need to facilitate students by providing training and skills needed to understand and learn in virtual environment. Results may be treated with caution as if student's perception regarding easiness and usefulness is changed; it would ultimately distort the positive attitude.

The department may devise a feedback system to ensure continuous improvement in E-learning system. As the E-learning system is in introductory stage and the student are in better position to identify loopholes and suggest remedial action.

For those reluctant to adopt digital ways of learning, may be given proper counseling and training to cope with their resistance. Some highly motivated student's may also serve as change agent to alleviate resistance towards current technological change. Flexibility and cost effectiveness are the two main advantages associated with E-learning. Until unless students are convinced about these benefits, their attitude would remain positive. Therefore, the department should strive to offer maximum flexibility in learning environment for ever increasing enrollment in COL EMBA/EMPA Programme.

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