

Determinants of E-Learning: A Learner's Perspective

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Abstract

In the service industry, activities are designed to fulfill the needs of the customers and an efficient and effective 'service model' cannot be developed without users' input. Similarly, in academics, educational objectives cannot be achieved without incorporating the requirements of the learners. However, up to some extent, students' contribution, to the development of learning tools exists in blended learning but their participation in the improvement of the e-learning environment is missing. The consequences of this missing link are less students' satisfaction and a high dropout ratio in the e-learning institutes. The purpose of this study is to identify the key determinants of online education, through students' participation, which can improve enrollment in e-learning programs with a high level of satisfaction. By using the 'purposeful sampling technique' 10 participants were selected from the Virtual University of Pakistan for in-depth interviews. The subsequent transcriptions were examined through NVivo 12. This study suggests that blended learning, the latest teaching pedagogies, instructors' support, and updated course contents can increase students' satisfaction and retention in e-learning programs. It is expected that if the missing services are not made available to students in near future, the need for e-learning will diminish and Google generation in Pakistan will not be in a position to take advantage of online education.

Keywords: Virtual University of Pakistan, e-learning, blended learning.

Introduction

In a service organization, there is little or no participation of users in designing a 'service model', which results in customer dissatisfaction and product failure. This problem also exists in educational institutes where students' requirements are ignored; and policies and procedures are built on the basis of government instructions. In the e-learning system, this problem is more severe where the service providers (e-learning institutes) and customers (e-learners) are away from each other. This gap develops an immature e-learning environment with a high level of frustration.

This study is conducted to identify the significant determinants of e-learning of the Virtual University of Pakistan from the learners' perspective. The Virtual University of Pakistan was established in

2002 on the modern communication system to meet the growing needs of society. For imparting the knowledge, it uses different instructional tools like video lectures, slides, and e-handouts. For the assessment and evaluation purpose, it conducts online exams. Moreover, it has 175 facilitation centers that provide the facility of watching video lectures, reading online study material, and to appear in the online exams.

The reason for selecting Virtual University as a case study is there declining student strength. The Virtual University of Pakistan achieved the milestone of 50,000 students in 2009, its strength reached 100,000 in 2012 but unfortunately from the last eight years its strength is continuously decreasing and in 2019 its strength declined to 72,000. However, in the rest of the world, the statistics of e-learning shows positive results. It is expected that in U.S. online education market will reach to 6.22 billion dollars by 2022. While in European countries Germany is leading in e-learning where the e-learning market is growing at the rate of 8.5% but the country's whole annual growth rate is 1.9%. In addition, India, China, South Korea, United Kingdom, and the U.S. have already decided to invest in e-learning.

The e-learning system is significantly different from traditional educational practices. In the conventional educational system, instructors and administrators are available to answer the students' queries immediately, however, in e-learning; most of the student requests remain unaddressed due to the non-availability of instructors. (Roopnarinesingh & Whiteman, 2020) stated that e-learning has a unique nature of troubles in it as compared to conventional education. Firstly, sometimes the communications pedagogies are insufficient to meet the emerging needs of students which ultimately has a negative influence on the flow of the learning process. Secondly, the diversity of e-learners' demographic (age, gender, academic background, geographic areas, income status, culture, and traditions) also requires a flexible and comprehensive e-learning policy. Thirdly, the rigid policies of e-learning institutes also enhance the gap between students and teachers that disturb the learning process (Sohrabi, Vanani, & Iraj, 2019). Finally, weak relationships among students, peers, and teachers also affect the learning environment (Baker, Unni, Kerr-Sims, & Marquis, 2020). Tanis (2020) stated that the dynamic approach of e-learning requires continuous improvement in strategies, approaches, and processes.

Setting quality guidelines for e-learning is very important for the recognition of online education in Pakistan. At present, due to the absence of a comprehensive online education policy, e-learning institutes are bound to follow

the instructions of the Higher Education Commission, which are developed for the conventional education system. This situation creates unrest among e-learners because of their requirements which are entirely different from conventional education. So, there is a need to develop a comprehensive online education policy that addresses all the issues of e-learners.

The Virtual University of Pakistan is struggling for the last 18 years in improving its academic system and increasing student satisfaction. However, it is still unsuccessful in achieving these goals, so there is a need to devise a solution to their problems. The emerging dimensions of student services can help them in improving students' satisfaction and retention. Besides this, identification of key determinants of online education will also be helpful for the 'Directorate of Distance Learning', (a distance learning authority) who is working for devising policy for online education and establishing new e-learning institutes in Pakistan.

The objectives of this study are:

- a) To explore the students' perceptions regarding online education.
- b) To explore the determinant of quality enhancement in e-learning.
- c) To explore the relationship between student participation and dropouts.
- d) To develop a conceptual model for an e-learning institute that can pull the e-learning institution from the transitional phase to the developing phase.

Literature Review

In the competitive world, institutions are aware of the significance of students' satisfaction. Statistics show that students' involvement in designing academic policies increases retention rates (Ali & Mohammad, 2019). Williams and Glisson (2020) selected student services as an indicator of students' retention and satisfaction.

Gupta, Loiacono, Dutchak, and Thatcher (2019) use the term "support" for student services, "learner support" (Fields, 2019), "tutor support" (Saha & Cutting, 2019) "student support" (Lambert, 2020). Dampson, Owusu-Mensah, Apau, and Osei-Owusu (2019) revealed that the support needs of the learners are largely unmet. They identify the key components of an e-learning environment which include a dynamic e-learning portal with a comprehensive learning management system, communication with course instructors (through the portal or e-mail), face-to-face interaction (occasionally), services of career counseling, and guidance at the time of

admission.

Ouma (2019) determined some important constructs of learner support, namely; academic advising support, library and technology support, grading system, career counseling, and communication service support.

Lange and Costley (2020) agreed that the learner support services and interaction with learners are the two most significant factors among the eight determinants of e-learning. Hanif (2019) published 24 criteria as a benchmark to encourage the policy work on post-secondary education among which nine are related to 'student services' and these services are known as course contents, course delivery modes, blended learning, assessment mechanism the impact of the orientation program, lab support, library support, retentions program, and technological support.

Jamil and Isiaq (2019) mentioned that weak admission policies in universities develop complexity in the learning process. They concluded that students with irrelevant last education, poor academic records, and language issues are unable to achieve program objectives. They suggested that through proper screening at the time of admission these deficiencies can be identified and through counseling these problems can be resolved.

Pham, Limbu, Bui, Nguyen, and Pham (2019) suggested that access to the relevant authority, communication with learning teams, opportunities for deep discussions, and entry in global resource groups are the possibilities that can improve the e-learning process. Athanases, Sanchez, and Martin (2020) pointed out the fact that deficiency in student support services affected the learning of the students

Krise Jr (2020) concluded that 100% online education is unable to address students' requirements; he suggested blended teaching especially face-to-face meetings. He also concluded that blended teaching is the most motivating and satisfying factor in e-learning. Boice (2020) stated that the structure of interpersonal-communication and response from students in distance learning guarantee the validity of the educational process.

Chow and Croxton (2017) concluded that fast technological devices, availability of online study material, e-library, and facilitation centers for lab works are the fundamental requirements of e-learning.

Watfa (2016) described that e-learning universities have students from all over the world, and they expected the latest curriculum from online universities. He suggested that universities should review their curriculum at regular intervals. Besides, he also recommended a program based curriculum committee who met twice a year to review the

curriculum.

Bilodeau and Meissner (2018) concluded that the availability of academic counselors and placement cells reduces the grievances of the students and ensure their employability in the market.

Mah (2016) identified a high dropout ratio in the first semester of undergraduate programs because most of the university students have little or no experience of a online education system. This deficiency creates hurdles in understanding the dynamics of e-learning and semester system. He suggested a detailed orientation for the new intake.

Philosophy of Research the Student as a Reflective and Participatory System Designer

Fallace (2020) used the idea of a participatory learning approach; he explained that e-learners can produce better results through their participation in an e-learning environment. Marzano, Lubkina, and Siguencia (2016) concluded that co-created designed services always present a better result. The success of e-learning is to create a platform where the students who couldn't continue their education due to time, cost, culture, geographic and demographic reason found a reason to get education whatever they want to study (Al-Juda, 2017). Different researchers worked on the e-learning education system and concluded the e-learning system cannot be successful without the participation of e-learners (Aziz, Haron, & Harun, 2018). In a participatory learning environment due to the self-efficacy, e-learner struggles at their own and take deep insights about what they are studying and become a success at his own pace (Kujur & Singh, 2017).

This research clarifies the issues related to student participation in student support services by proposing clear critical determinants. These student participation determinants will help the students in satisfying their mode of education and complete their degree program instead of dropout. So, this exploratory research will contribute to the theoretical development of emerging dimensions in student support services.

Research Design

The research design interprets the whole strategy that we use to assimilate the various components of the study logically and coherently. This design helps us in addressing the research problem in an organized way; it includes data collection, measurement, and analysis.

Population and Sample Frame

This research is based on the Virtual University of Pakistan, an online public sector university. All the registered

students are included in the population and for analysis purposes, a sample size of 10 students from four years undergraduate program is selected, who have at least two years of study experience at Virtual University, for an in-depth interview through purposeful sampling technique. A purposeful, purposive, or selected sampling technique is used in qualitative research for in-depth interviews to get rich information from main stakeholders (Renwick & Owen, 2005). To cover the perception of both males and females, an equal number of respondents are selected (Robinson, 2014).

Data Collection Tool

A semi-structured interview is designed for this study. The main feature of this mode of data collection is that it allows more discussion and deep insights than traditional structured interviewing, beside this semi-structured interview method reflects the importance of co-creation between the researcher and interviewee (Barriball & While, 1994). To develop the interviewee's confidence and collect the accurate information, 'interview protocol form' was delivered to the respondent at least one day before the interview. In addition, the theoretical framework was discussed in detail before asking the interview questions

from each participant.

Data Analyses

The data collected from interviews were analyzed through NVivo 12 (Deng & Zhu, 2020). The interviewees' responses were transcribed and uploaded on NVivo 12 to determine the frequency of their themes (Shiny, Karthikeyan, & Barman, 2020). The expectations, perception, and ideas of e-learners regarding placement cell, updated course contents, teaching pedagogies, blended learning, assessment mechanism, orientation, facilitation centers, e-library, peer interaction, technological support, academic advising, recognition, and instructors' support were embedded using the coding facility of NVivo. The coding facility helped in organizing data into respective themes so all the data can be sorted, grouped, and retrieved more appropriately whenever required (Shiny et al., 2020). The nodes were refined and main themes became more apparent when the data analyses were progressed through an iterative process. As more data is grouped more node categories are developed in hierarchical layers.

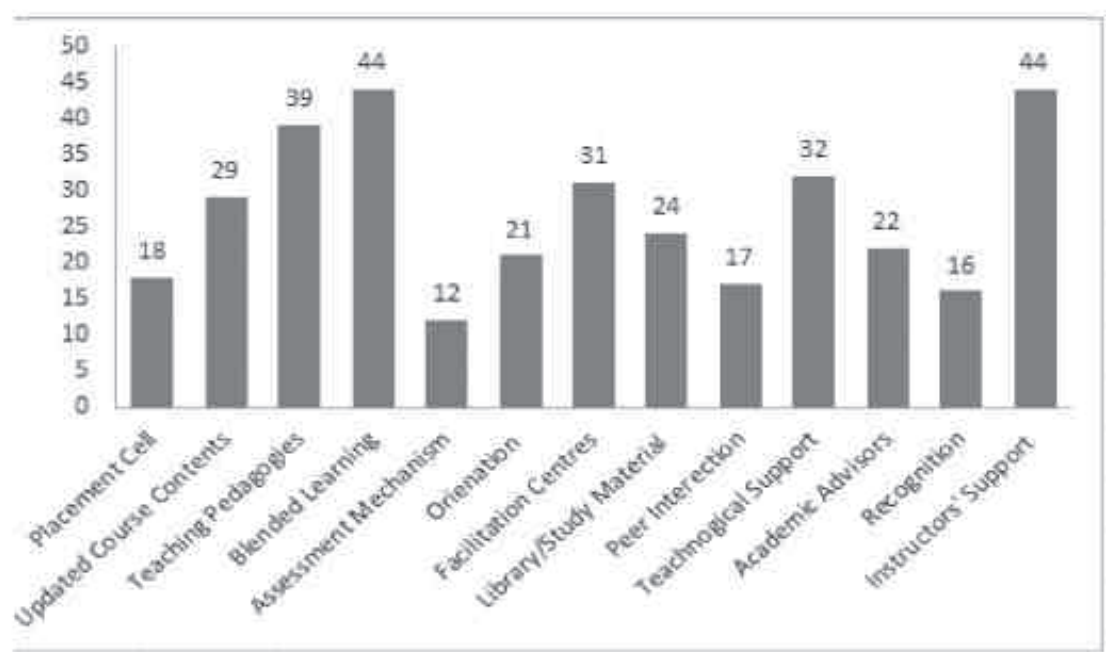
Table 1: Matrix Coding Results of NVivo 12

Students	DETERMINANTS OF E-LEARNING												
	Placement Cell	Updated Course Contents	Teaching Pedagogies	Blended Learning	Assessment Mechanism	Orientation	Facilitation Centres	Library/Study Material	Peer Interaction	Technological Support	Academic Advisors	Recognition	Instructors' Support
Student 1	1	3	4	4	2	3	3	1	2	3	2	2	4
Student 2	3	3	5	5	1	2	3	3	1	4	3	1	2
Student 3	2	2	4	5	1	1	4	2	2	4	3	1	5
Student 4	1	3	3	4	1	2	3	3	3	3	1	4	6
Student 5	2	4	5	5	1	1	4	3	2	2	3	1	3
Student 6	1	4	4	5	1	2	3	2	2	3	1	2	6
Student 7	2	2	3	3	1	1	2	3	1	3	2	1	4
Student 8	2	3	4	4	1	2	2	3	1	4	3	1	3
Student 9	2	2	3	4	2	3	3	2	1	3	1	2	5
Student 10	2	3	4	5	1	4	4	2	2	3	3	1	6
Total	18	29	39	44	12	21	31	24	17	32	22	16	44
SD	0.63	0.7	0.7	0.7	0.4	1	0.7	0.7	0.7	0.6	0.9	1	1.43

Table 1 represents the frequency of the themes collected through semi-structured interviews. High frequency of themes seen in 'Blended Learning' and 'Teaching Pedagogies' with less standard deviation and 'Instructors' Support' with a high standard deviation. It means that most of the students are agreed that 'Blended Learning' and 'Teaching Pedagogies' are the most significant factors of e-learning but whereas 'Instructor Support' concerns students have a different opinion which reduces its importance.

Besides this, 'Technological Support', 'Facilitation Centers', and 'Updated Course Contents' are the second most significant domain of e-learning. However, students have the least concern about placement cell (because their two academic years are ahead) assessment mechanism (high passing ratio), peer interaction, academic advisors, library support (availability of e-books), and recognition.

Figure 1: Matrix Coding Results of NVivo 12



Interpretation of Themes and Topics Extracted from Study

Determinants of e-learning identified in the literature review and the significance of themes determined by using NVivo 12 helped us in locating the areas which need more attention. To understand the expectation of e-learners for completing the degree program, policies must be developed by considering their needs and perspectives.

Placement Cell

This study is related to the students of the 4th and 5th semesters, whose two more years of education ahead, due to this they have less concerned about the services of placement cell.

But decreasing enrollment rate, represents that employer perception about the institute, also needs to be improved.

Updated Courses Contents

It is also concluded from students' interviews that the contents of many courses have been obsolete, especially the courses of Computer Sciences. Further investigation revealed that Virtual University has to bear a huge cost in recording the video lectures, which is approximately 7 million per course in Pakistani rupees.

It is suggested that the University should hire experienced faculty members to resolve the issue of increased cost and obsolete lectures. Because at present they have only 300 instructors for 72000 enrolled students.

Teaching Pedagogies

The major issue in the learning process of Virtual University is one-way or text based (controlled) communication. Here most of the study material is available in the shape of video lectures, slides, or e-

handouts that do not fulfill the requirement of the learning process.

Communication between instructors and students is very important for building trust among them regarding online education. That communication may be through telephonic conversation or the scheduled meeting. Two-way communication helps in resolving the grievance of the aggrieved party. In Virtual University instructor controlled communication is in practice which doesn't fulfill the requirements of students.

Blended Learning

Students get frustrated and confused if they felt that they have not a proper platform for their educational issues. It is also observed, during the interview, that most of the e-learners face a lot of issues to understand the nature, scope, and objectives of courses.

It is the demand of the students of the Virtual University of Pakistan that at least 20% of initial lectures should be on-campus/facilitation center. During the interview, student number 2 suggested that

“In the evening intermediate colleges of the public sector can also be used for fulfilling the need of blended learning, here requirement of infrastructure can be satisfied, and in the evening experienced faculty can also be hired.”

Student number 7 suggested that

“Sense of isolation and loneliness can be decreased through different workshops, seminars, and training programs.”

Assessment Mechanism

Student number 6 explained that

“Most of the teachers used old assessments, whose manuals are available on the internet. This has increased the passing percentage with high grades.”

No doubt high passing percentage and good grade increase student satisfaction but without effort, it affected students' learning. It is recommended that every year question bank should be updated with new entries.

Orientation

Orientation is considered a primary need of the student to understand the dynamics of the semester system. But during the interview respondents explained that there is no formal orientation. University provides recorded orientation which does not enough for new university students and most students show their disappointment regarding orientation.

It is suggested that orientation is the first impression of the

university. That orientation must be physical through experienced faculty members.

Facilitation Centers

Facilitation Centers provide the facilities of a computer lab for viewing video lectures and accessing online study material; mid-term and final-term exams; and guidance regarding university's issues.

It is suggested that the instructor meeting facility should also be included in these activities

Library/Study Material

Unfortunately, Virtual University has no facility of a library on the campus or facilitation centers. Moreover, the facility of e-library is also not available to the students.

It is recommended that Virtual University should develop an e-library immediately; in the second stage library facility should be extended to facilitation centers.

Peer Interaction

In the cognitive development of e-learner, peer interaction is vital. The student to student networks helps the e-learners in combating the sense of isolation and loneliness. It is found that Virtual University is not providing official service of peer support except those students who are regularly visiting campus but what about those who don't join campus due to their inflexible job schedule, residence in remote areas, and cultural barriers (gender discrimination).

It is recommended that the discussion form should be available on the Learning Management System of Virtual University (VULMS).

Technological Support

Online education requires technological devices with electricity and internet facilities. But in Pakistan, most of the population lives in rural areas where there are issues of the required infrastructure. Student Number 8 belongs to a rural area explained that

“I belong to a rural area where there is a problem of load shedding of electricity and slow internet speed. To cover these deficiencies I have to go to a facilitation center which is 17km away from my location”.

These issues require government attention; however, student grievance can be removed by explaining the technological prerequisites of online education.

Academic Advisor

Academic advisors/academic counselors or batch advisors guide a particular batch of students during their academic

careers. They provide career guidance, inform students about policies and procedures, monitor students' performance, conduct orientation, and inform the student about resources. During the interview, students suggest that the university must provide an academic advisor at the time of admission.

Recognition

Student number 1 explained that:

“There is no semester wise, course wise, or annual wise award and reward for the encouragement of e-learners. The University just invites the overall position holders, at the end of the program, for their recognition. To promote learning and competition, the university should adopt semester wise recognition system.”

Instructor Support

The frustration of students of the Virtual University of Pakistan is increasing rapidly due to the unavailability of instructor support. Many students who are not satisfied with text-based communication want to meet with the instructor. But due to the high student-teacher ratio 300 teachers for 72000 students in different areas) and availability of instructor at limited places instructors are not allowed to meeting the students because it disturbs the other task (exams, marking, etc.,) of instructors.

Others

Retention Program

Student 5 suggested that:

Student's participation in engagement activities and interaction with faculty and administration personnel can increase retention rate.

Accreditation and Ranking Problems

Students 7 explained that:

“Deficiency of accreditation and ranking also creates doubts about the acceptability of programs in the market”

Recommendations

Based on student responses from interviews, it is found that Virtual University must redesign its academic policies for student retention in e-learning. There is a need to formulate key performance measures for student support services.

It is recommended that the batch advisor should remain available to the students from the admission to degree completion after that student's responsibility should be shifted to the placement cell (Schultz, 2020).

Improvement in the student-teacher ratio will resolve most

of the student grievance. A previous study suggested that the ideal student-teacher ratio should be 1:20 (Koshy, 1973).

The need for blended learning can be fulfilled through workshops, seminars, and training programs (Ibrahim & Nat, 2019).

Teaching pedagogies can be improved by adding simulation, case studies, interesting videos, group assignments, or web-links to the lectures of other online universities (Sale, 2020).

Peer discussion form on LMS and a scheduled meeting with instructors or academic advisors will help the students in resolving their academic issues (Almoeather, 2020).

Engagement facilities also reduce the gap among students, peers, teachers, and administrators (Sarker, Al Mahmud, Islam, & Islam, 2019).

Program accreditation also enhances the quality of education (Delva et al., 2019). So, it is recommended that the institute should go for it.

The initial experience of e-learning plays an important role in developing a sense of self-driven which should be completely assisted by the instructors' help. It should be the responsibility of the instructors to ensure the elements of the active participation of the student in the e-learning environment by dividing the students into small groups from the very beginning so students can talk and understand each other (Sanz-Martínez, Er, Martínez-Monés, Dimitriadis, & Bote-Lorenzo, 2019).

Infrastructural facilities and guidance about the best internet services can reduce the barrier of online education. It is suggested that devices on installment or at a cheaper rate should be available to students and guidance should be provided to the students about the best internet services in their locality (Samsudeen & Mohamed, 2019). Moreover, the facility of e-library and availability of research journals will help the student in improving their education (Tijjani, 2019)

Updated course content also attracts International students, professionals, and intellectuals so it is recommended to update course content regularly (Haase, Franco, & Pedro, 2020)

Instructors should be available at facilitation centers

Limitation

This study examines propositions in the context of a student of e-learning in only one university and one country. Generalizations of findings to other e-learning institutions are applicable within Pakistan but not

warranted to other countries.

This study includes only students of four years of undergraduate programs. In the future research can be conducted on postgraduate students or students of the whole university.

This study was based on a semi-structured interview, so a sample size of 10 was reasonable. But in the future sample size can be increased through 'survey form'.

This study is based on students' perceptions that may be right or wrong. In the future, the scope of research can be extended by involving expert opinion also.

Conclusion

No, doubt to meet the evolving needs of e-learners there participation in learning process should be mandatory as they are the main stakeholders. But institutions should not rely only on the students' input, they should also take the opinion of an academic expert and discuss significant matters in their statutory bodies before making any change in organizations policy and procedures.

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