Bringing Adaptability in Online Learning

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Abstract—Successful online learning requires a reconstruction of the roles, responsibilities, and practices of online instructors and their online students. It is essential to understand the dynamics of a range of online learning environments, the perceptions and pre-conceptions that exist, and how best to utilize the potential of current technology to overcome barriers to successful learning. Promoting student readiness is essential for successful learning experiences. Students need to be prepared for changing demands related to online learning with respect to technology, learning management, pedagogical practice and social roles. The purpose of this article is to examine and discuss student roles and responsibilities for learning online and strategies to promote student readiness. A case study at Vidyalankar Polytechnic is related; as to how educational institutes bring out the technique of blended learning in the current COVID crisis.

Keywords—COVID-19, MSBTE, PBL, VAC

I. INTRODUCTION

Traditional teaching and learning process (class room teaching) in the world has been developed for the last so many years with sincere efforts by educational and government planners with a very vast infrastructure in terms of students, teachers and institutions. In the recent years, with the growth of technological expansion, one of the approaches found helpful to increase the effectiveness and efficiency of education is the use of Information and Communications Technology (ICT) that changed our lives and our perspective of the world in an unimaginable way. Distance education, E-learning and Virtual Universities are the ICT's new achievements that may provide the desired solutions to overcome the complications of traditional methods. In the other words continuous development in the field of communication technologies has resulted in more efficient and cost effective methods of learning as compared to traditional approaches to learning [1]. The acceleration of knowledge development in the world has been so rapid; that in the near future, e-learning is not only a possible choice but also an essential element in the educational development [2]

Online teaching is gaining its acceptability due to its many advocated advantageous characteristics like adjusting to pace of learning, repeatability of contents, availability of

same contents from different resources, focused on learning contents, anywhere & anytime availability, convenient learning schedule and many more. With all these advantages, online teaching and learning process was gaining acceptability in masses with time but situation created by COVID-19 pandemic for the last 3-4 months all over the world, educationists, educational institutions and students seems more enthusiastic about online learning and with the COVID-19 pandemic lockdowns, craze and necessity for online learning has increased many folds. What would have happened in years; COVID-19 did in weeks.

The paper aims to study the challenges faced by the students with online learning and bring the adaptability in students gracefully.

II. ONLINE LEARNING

2.1 Overview

1. INTRODUCTION

Industrial placement or internships are beginning to be considered vital to be included in a higher education curriculum. More students and companies are aware of the benefits of practical experiences obtained during internships by making part of a course programme. It has been reported 1 that students increasingly demand internship programmes so they can acquire professional skills before looking for a job while at the same time, companies train students in their organization and use internships to reduce uncertainty in the hiring process after graduation. Thus, internships serve the needs of three parties: students, academic institutions and companies Online learning is a form of technology that can be utilized in the field of education. According to [3], technology is one approach to develop knowledge more effectively as well as to solve related problems. The term "online" refers to "connected to and under the control of a central processor" which means any activity that is normally carried out in a computer or other electronic device as well as information that can be sent and received online by internet with the purpose of learning and so on.

The use of technologies; particularly that of online technology, has strongly given a positive impact on students [4], for example, students able to interact with

other students Education can become transformative when teachers and students synthesize information across subjects and experiences, critically weigh significantly different perspectives, and incorporate various inquiries. Educators are able to construct such possibilities by fostering critical learning spaces, in which students are encouraged to increase their capacities of analysis, imagination, critical synthesis, creative expression, self-awareness, and intentionality. [3]

India has been one of the largest sectors in the world when it comes to higher education. Though online and distance courses have been there from a long time, introduction of the online mode of taking classes in comparison to the traditional face to face classroom approach in universities and colleges have been considered only in the last few years in India. When it comes to the Indian educational system, face to face classroom approach has always been the most prominently used. Familiarity and ease of using offline methods and lack of requirement for online channels of teaching has been the major barriers for adoption of online channels of education. However, in the wake of current COVID-19 pandemic situation conduction of online classes at college and university level has been made mandatory by the educational boards. COVID-19 has brought out a drastic change in the educational system not only in India but rather the entire world. Universities across India as well as around the globe have moved to the virtual classes suspending physical classrooms.

2.2 Challenges

With COVID-19 pandemic, it has become clearer that education system is susceptible to external dangers (Bozkurt & Sharma, 2020). Ribeiro (2020) rightly noted that this digital transformation of instructional delivery came with several logistical challenges and attitudinal modifications. Feldman (n.d.) while addressing student assessment during this pandemic on how districts can legislate unbiased and evenhanded grading policies based on these recommendations; (i) pandemic-related anxiety will have negative effects on student academic performance, (ii) academic performance of students might be affect by racial, economic and resource differences, and (iii) the larger parts of instructors were not effectively ready to deliver high-quality instruction remotely. The challenges discussed here are limited to digital transformation of instructional operations during the period of COVID-19 pandemic. [5]

To overcome the challenges, a SWOT analysis was done to achieve a concrete solution towards the challenges.

III. SWOT ANALYSIS

The acronym SWOT stands for strength, weakness, opportunities and threats. It is also known as SWOT Matrix which is used to analyses the current state of product/service or objective with four elements – Strength, weakness, opportunities and threats. Strength represents positive aspects, weakness represents the negative aspects or the disadvantages, opportunities represents favorable condition prevails for its growth and threats as limitations or unfavorable conditions. In this study analysis online-learning in higher education with the help of SWOT analysis is done & suggestions are given to bring adaptability in learning.

3.1 Strengths of online learning

There are many reasons why online programs have become a popular form of learning today. The online environment offers unprecedented opportunities for people who would otherwise have limited access to education, as well as a new paradigm for educators in which dynamic courses of the highest quality can be developed. Here is a list of some of the major benefits of online programs:

Anywhere: The main advantage of asynchronous online learning is that it allows students to participate in high quality learning situations when distance and schedule make on-ground learning difficult-to-impossible. Students can participate in classes from anywhere in the world provided they have a computer and Internet connection. In addition, the online format allows physically challenged students (and teachers) more freedom to participate in class.

Anytime: The virtual classroom is accessible 24 hours a day, seven days a week. Students can access their courses at any time of day or night. Further, they have continuous access to lectures, course materials, and class discussions. This is particularly convenient for those who may need to reread a lecture or take more time to reflect on some material before moving on.

Synergy: The online format allows a dynamic interaction between the instructor and students and among the students themselves. Resources and ideas are shared, and continuous synergy will be generated through the learning process. Each individual can contribute to the course discussions and comments on the work of others.

High quality dialog: Within an online discussion structure, the learner may reflect on comments from others before responding or moving on to the next item. This structure allows students time to articulate responses with much more depth and forethought than in a traditional face-to-face discussion situation.

Student centered: Within an online discussion, the individual student can respond to the course material and to comments from other students. These situations result in smaller conversations taking place simultaneously within the group. In this way, students control their own learning experience and tailor the class discussions to meet their own specific needs.

Equality: In the online environment, learners have a certain measure of anonymity. Discriminating factors such as age, dress, physical appearance, disabilities, race and gender are largely absent. Instead, the focus of attention is clearly on the content of the discussion and the individual's ability to respond and contribute thoughtfully and intelligently to the material at hand.

Access to resources: It is easy to include distinguished guest experts or students from other institutions in an online class. Further, today's students have access to resources and materials that may be physically located anywhere in the world. An instructor can compile a resource section online with links to scholarly articles, institutions, and other materials relevant to the course topic for students to access for research, extension, or in depth analysis of course content material.

Creative teaching: Online teaching and learning should not be based on lectures and rote memorization of material but must support the use of interactive learning environments as contributing to self-direction and critical thinking. In the online environment, the facilitator and student collaborate to create a dynamic learning experience.

3.2 Weaknesses of online learning

While online programs have significant strengths and offer unprecedented accessibility to quality education, there are weaknesses inherent in the use of this medium that can pose potential threats to the success of any online program and the problems are mentioned here:

Equity and accessibility to technology: Before any online program can hope to succeed, it must have students who are able to access the online learning environment. Lack of access to technology (computer, internet etc.) on the basis of economical or logistic reasons will exclude otherwise eligible students from the course in general and in rural parts of the country in particular.

Computer literacy: Both students and facilitators must possess a minimum level of computer knowledge in order to function successfully in an online environment.

Limitations of technology: Availability of user friendly and reliable technology is critical to a successful online program.

The students: While an online method of education can be a highly effective alternative medium of education for dedicated, education enthusiast, mature, self-disciplined student, it is an inappropriate learning environment for more dependent learners. Whereas, self-control over learning and flexibility of study schedules can be a simple way out for non-serious students to skip learning. In order to successfully participate in an online program, student must be well organized, self-motivated, and possess a high degree of time management skills in order to keep up with the pace of the course. For these reasons, online education is not appropriate for younger students (i.e. elementary or secondary school age), and other students who are dependent learners and have difficulty assuming responsibilities required by the online paradigm.

Lack of essential online qualities: An instructor must be able to communicate well in writing and in the language in which the course is offered. If facilitators are not properly trained in online delivery and methodologies, the success of the online program will be compromised. An online instructor must be able to compensate for lack of physical presence by creating a supportive environment in the Virtual Classroom where all students feel comfortable participating and especially where students know that their instructor is accessible.

The administration and faculty: Administrators and/or faculty members who are uncomfortable with change and working with technology or feel that online programs cannot offer quality education often inhibit the process of implementation.

Levels of synergy: Online learning has its most promising potential in the high synergy represented by active dialog among the participants but in case of large classes, the synergy level for each student will be different because dialog is limited as well as interaction among participants and the facilitator.

What should not be taught online: In the excitement and enthusiasm for online programs, academicians are fast enough to prepare videos for each and every topic and upload the same on the internet just as routines without going into the detail description of the contents. Moreover, it is also important to recognize that some subjects should not be taught online because the electronic medium in its current state of development does not permit the best method on instruction. Examples are hands-on subjects such as public speaking, surgery, dental hygiene, application based subjects and sports where physical movement and practice contribute to the achievement of the learning objectives. These subjects are probably best taught in a face-to-face traditional learning environment.

The curriculum: The curriculum of any online program must be carefully considered and developed in order to be successful. Most of the times, in haste to develop online education programs, the importance of the curriculum and the need for qualified professionals to develop it is overlooked. Online curriculum must reflect the use of dialog among students (in the form of written communication), and group interaction and participation. Education of the highest quality can and will occur in an online program provided that the curriculum has been developed or converted to meet the needs of the online medium.

3.3 Suggestions for implementation

Online teaching and learning process is not a so simple activity of preparing videos and uploading them on internet leaving it all to students to read them. Online teaching and learning program should report improved student outcomes such as scores on year-end tests, graduation rates, and attendance rates despite serving a broad spectrum of students-from failing and struggling students to mainstream and advanced students seeking a personalized educational experience. Students should not feel much of a difference between regular classes and online learning. Online teaching and learning process seamlessly helping students and teachers to improve their knowledge with quality educational content by offering education to all without any partiality. It also gives extra opportunity to learn the subjects across disciplines. The success of online teaching and learning process will be governed by factors like:

Best-in-class instructors: Empowering students with knowledge and skills.

Weekly assignments: Ensuring progress of students in timely manner.

Systematic approach: Enabling students towards desired learning goals.

Online curriculum as primary source of instruction: Online courses should be appropriately rigorous and provide a highly engaging learning experience for students and can work on these courses at their own pace.

In-person and virtual instructional support: Most students would like to interact with their teachers frequently each day, whether the interaction was in-person or virtual. Students should get equal if not more personal attention from their teachers in these programs than in a traditional school setting.

Better relationships with students: Establishing deep and meaningful teacher-student relationships is an essential component to success and to be a priority. When teachers had a better understanding of both a student's academic capability and his or her personal and family situations, they will better able to tailor their teaching and counseling activities to fit that student's individual needs.

3.4 Barriers of online learning

- Overloaded of educational contents
- Reports of depression in week students
- Non-availability of technology and reliable network
- Facilitator's incompetence and unwillingness
- Breeds limitations and shuts down critical thinking

- Online education has failed to reduce costs and improve outcomes for students
- Faculty, academic leaders, the public and employers continue to perceive online degrees less favorably than traditional degrees
- Regular and substantive student-instructor interactivity is a key determinant of quality in online education, leading to improved student satisfaction, learning and outcomes
- Poor planning and project management
- Courses unaligned with learner needs
- Using course completion status to measure success
- Lack of adequate quality checks

IV. CASE STUDY

4.1 Introduction to Vidyalnkar Polytechnic:

A case study of Vidyalankar polytechnic, Wadala, Mumbai, MSBTE affiliated (Maharashtra State Board of Technical Education) (having all programs NBA accredited to its accolades), is illustrated below. Vidyalankar Dyanpeet Trust was established in 1960 by Prof. Chandrashekhar S. Deshpande, a person blessed with extraordinary academic talent and immaculate engineering skills. Vidyalankar Polytechnic' mission is to provide an educational environment where students can reach their full potential in their chosen discipline and become responsible citizens without compromising in ethics and a scholarly environment where the talents of both, the faculty members and students are nurtured. The vision of the institute is to establish a leading center of imparting Quality Education in the field of Science, Technology and Management with emphasis on ensuring that students learn the fundamental concepts in various disciplines. [5]

4.2 Action Plan:

When COVID-19 struck and lockdown was enforced, institutes and educational establishments were forced to go for online teaching to continue the remaining academic procedures. Vidyalankar; an epitome to educational marvel came out with the wonderful procedures to give blended learning to the students. Various methodologies were tried and the outcome was an effective teaching learning standard established.

Itinerary of the activities done prior to begin the online learning:

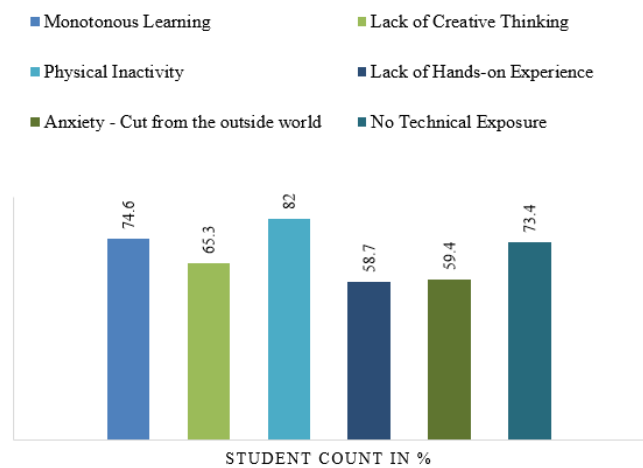a. An evaluating team was established before the faculty were entrusted to teach the students online.

b.   The evaluating team comprised of HOD, Academic Coordinator, Cluster head and subject experts.

c.   The evaluation procedures involved:

   i)   Presentation skills to deliver the concept effectively.

   ii) Level of animations and graphics used for elaborating the topic

   iii) Adaptability in the new method of teaching.

   iv) A training session on the platform used was conducted (MS-TEAMS was used).

4.3 Implementation:

   i.   At Vidyalankar, a team of respective classes was created and a class in-charge was appointed.

   ii. The class material was uploaded and students were given a trial session.

   iii. When the online lectures were conducted, an observer was appointed to monitor any issues from the student's end during the lectures and accordingly inform the session in-charge.

   iv. The methodology was blended learning wherein students could anytime ask doubts by raise hand option, write in chat box or interactive session at the end of the lecture.

   v.   A weekly doubt session was kept for special subjects like mathematics and engineering application based subjects.

   vi. A regular test was conducted on Microsoft forms and written assessments were assigned on the teams group.

4.4 Survey :

When it comes to the Indian educational setup, online classes are a newly introduced mode of teaching and not something that has been a part of regular classes. [6] Investigating and analyzing how online classes are being perceived and experienced by students and faculties survey was done using google forms, verbal discussion & interaction in class group to find out problems faced by the students in online learning.

A detailed analysis & study was done on it by the same evaluating team. The survey was done to understand how well this new method is being taken by both teachers and students, what are the general problems faced by them while taking online classes so as to help educational instructors and facilitators and the institute to understand the modifications that can be brought to make online

teaching more effective so that in future it can be integrated along with classroom teaching. The responses from this survey aims to improve or enhance online mode of classes in order to provide a better learning experience for students and a better teaching experience for the teachers.

A graphical representation of the survey is shown below:

STUDENT POLL ON ONLINE LEARNING WITH RESPECT TO THE PARAMETERS MENTIONED BELLOW

4.5 Endurance in system:

Since the method of online teaching became inevitable in the education system; bringing adaptability in the new learning method was the need of the hour. Hence new devised techniques were used to benefit the students to keep their vested interest of learning in a better way. For the pointers of survey are listed below the action taken to bring a dynamic change in learning method to suit the online education environment.

   i.   **Monotonous learning:** The immobility introduced by the new method of learning created lack of interest; hence two new methods were introduced in the system**:**

        PBL (Problem based learning) approach was initiated to beat the boredom in learning and brainstorm their minds towards conceptual learning.

        BSA (Beyond syllabus activity) improved their thinking skills.

   ii. **Lack of peer Interaction:** With lockdown imposed & mandatory social isolation; group activities were scheduled virtually.

        Micro project & Capstone project groups were formed and students were given innovative topics with respect to the need in situation & weekly

group presentations were scheduled on MS TEAMS. It improved their emotional quotient & kept them well occupied.

iii. **Need for Creative thinking: The increase in screen time was well balanced by our VAC (value added courses):**

Students were trained for different intensive value added programs such as Household wiring, Household equipment & appliances, mobile repairing, circuit designing. It gave them hands-on at their residential premises itself & provided food for thought to improve any circuit in their residence itself**.**

iv. **Physical Inactivity:** The sedentary lifestyle forced on the common people disturbed the mental wellbeing alarming the health of all the individuals across the globe:

Yoga & fitness sessions along with healthy eating habits sessions were virtually conducted on a weekly basis to keep our students hale & hearty.

v. **Lack of technical exposure & Lack of hands-on:**

The trend of conducting practical along with theory was kept alive with our own online lab methodology developed in-house by our technical team.

Also practical were regularly conducted by simulations, online kits, free software available for the practical of the given curriculum, & demonstrations via video recordings at our lab premise.

vi. **Decline in reading habit:** The most alarming thing; found out was decline in reading habit due to increase in screen time.

Hence a book reading & book review competition was organized for the students. The students were supposed to read books available at their home premises & give review on the same. The category of books could be of any type including philosophy, spiritual, technical, fiction & written in any language. It gave an insight of a range of books; to the students to read.

CONCLUSION

The current generation faculties need to learn the challenges of online learning & only then they can prepare themselves properly for teaching the generation next students. Teachers need to evaluate the student behavior and the class strength by a small survey to introduce dynamic learning and students need to understand online learning and how to behave in online settings to obtain maximum active learning strategies in their learning

Understanding student characteristics is important to prepare students for the teachers in online learning.

Learner autonomy as well as collaborative strategies needs to be negotiated for the effectiveness of learning. Group processes and how collaboration can be facilitated need to be taught to students during their education. Instructors need to know the group processes and dynamics as well as strategies of how to engage students in effective communication and learning. Recognition of a student's capabilities and limitations, an understanding of student expectations and motivations, and the personas they may take during online learning can help encourage active learning.

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