The Challenges Faced in Technology-Driven Classes During COVID-19

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ABSTRACT

In the wake of coronavirus pandemic, social distancing became a mandate that led to the transition from traditional classroom-based lectures to computer-based learning. This paper extensively deals with the ranking of the challenges faced by instructors and students. Primary data from 624 participants (399 students and 225 instructors) is collected through a questionnaire. To assign the ranking to the challenges, Technique of Order Preference Similarity to Ideal Solution (TOPSIS) is deployed. A contextual model is developed by using Interpretive Structural Model (ISM) technique that further provides recommendations for prioritizing the challenges that need to be addressed to mitigate the problems faced in online lectures in coronavirus situation. The number of variables is reduced to simplify the interpretation by exploratory factor analysis. The study also provides the basis to formulate the strategies for policymakers and administration after identifying which challenges need to be addressed first for mitigating all the other challenges.

KEYWORDS

Classroom-Based Lectures, Computer-Based Learning, Coronavirus, Exploratory Factor Analysis, ISM, Lectures, Social Distancing, TOPSIS

INTRODUCTION

Education can be imparted through multiple platforms such as traditional face to face delivery, E-education and mixed methods. Today, universities are banking on online media completely for their distance learning programs that are completely executed through computers, laptops or mobile phones on platforms like Zoom, Google Meet, Cisco Webex etc. However, in traditional classroom which involves face to face delivery, the instructors sometimes would switch to online resources to illustrate the concepts graphically. However, this coronavirus pandemic propelled the instructors to switchover completely to the online mode of teaching as social distancing became a norm.

In India, the decision for lockdown which started from March 25th 2020 was sudden. As a result of coronavirus pandemic, the academic calendar could not be followed as planned and students and teachers were both left in uncertainties and tribulations for the future. The course content was not completed and it required immediate measures to complete the content and continue the classes amidst lockdown. In this scenario, online classes were considered as the best possible alternative for

the traditional classes as many of the past studies by Bernard et al. (2004), Jahng et al. (2007) have concluded that learning outcomes of traditional and online classes are similar. This platform was also the most feasible to launch, keeping in mind the constraints of social distancing presented by COVID-19 situation, while following the same time schedule as of traditional classes as the time to prepare and gather resources for online classes was negligible for both students and instructors. The students and instructors were present in different geographical locations, which also led to difficulties in conducting traditional classes. All these aspects contributed to a decision of organizing online classes.

Online classes encouraged students to attend the lectures as the content in video lectures incorporates interesting features such as the integration of audio and visual media that make the lectures interactive. Although online classes provided a lucrative alternative for traditional classes, they were ridden with many challenges. The immediate problems were lack of access to resources and infrastructure to conduct online classes, increased workload at home, mental stress and uncertainties due to Corona pandemic. Other problems were related to inadequate training and responsiveness of administrative authorities which limited the use of online platforms. Further, the lack of response by authorities led to anxiety in students especially who were about to receive their degree or certification. Some of the students and faculty members did not have access to the internet because of remote locations and incessant power failures. Motivation level of students was at a low ebb due to disconnect from friends, instructors and forced departure to their homes. This presented a unique challenge for the instructors as they had to improve the motivation levels of students as in the past studies by Deimann and Bastiaens (2010), high level of motivation in students is needed in order to make online classes successful.

It is necessary to understand these challenges as it would allow the government, administration and policy makers to provide solutions and facilities to instructors and students to make online classes successful and maximize the learning outcome. This paper aims to present a ranking for the challenges to the technology aided classes for students and instructors by using the Technique for Order of Preference by Similarity to Ideal Solution (TOPSIS) method. As the number of challenges identified are large, Exploratory Factor Analysis (EFA) is used in order to combine some of the challenges under latent variables facilitating easy interpretations and analysis. The paper also presents recommendations on how to mitigate the challenges by using an Interpretive Structural Model (ISM) based approach. The recommendations were further validated by students and instructors in order to select most effective one.

The interpretations of the study will allow to understand the various challenges faced during online classes from the perspective of students and instructors and enable effective strategy formulation in order to maximize the learning outcome. This can be accomplished by understanding the ranking of the challenges which identifies the impact created by the individual challenges. Further, by analyzing the contextual relationships between the challenges, the challenges having a higher influence or driving ability can be identified. The stakeholders involved in pedagogy can make efforts to mitigate the challenges which have a higher impact and have a greater power to drive other challenges.

BACKGROUND

Traditional vs Online Classes

Online classrooms are inevitably blended with the education system and are considered as an alternative to traditional classrooms. The past studies by Picciano and Seaman (2009), Kim et al. (2011), and Nacu et al. (2016) have supported the claim that the number of students enrolled in online classes is continuously increasing. Online classrooms gain leverage over traditional classrooms by providing several benefits such as flexibility over time, convenience, path, the pace of learning, and cost-effectiveness (Carnevale, 2000). The content in online classes is delivered through audio as well as visual media that allows the use of various forms of videos, animations, illustrations in online

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