

Challenges of Teaching and Learning Mathematics Courses in Online Platforms

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ABSTRACT

The study investigated the challenges encountered by mathematics postgraduate students' learning courses via online platforms. An online survey included 31 postgraduate mathematics students. Mean responses and regression analysis were used for data evaluation. The results indicate social-related challenges are the most important factor to learn mathematics in an online platform, although the challenges including accessibility of online learning resource, course nature, online learning skill, and instructor-related challenges are confirmed with a higher mean response. Moreover, a multiple regression analysis has indicated that social and instructor related challenges are significant predictors of students' overall expectation of learning mathematics courses on the online platform. The study concluded that students prefer learning mathematics courses via face-to-face approach over online platforms, and students do not want to extend semester courses with an online approach. From the finding, adapting a blended approach is recommended for a similar situation of the current study.

KEYWORDS

Blended Approach, Challenges, COVID-19, Face-to-Face Teaching, Online Learning, Teaching Mathematics

INTRODUCTION

It is clear that the global impact of the COVID-19 pandemic on education at all levels led to conventional face-to-face teaching and learning processes suddenly shifting to emergency distance learning and teaching in many countries. This sudden shift to emergency remote teaching and learning was mainly conducted via the online platform after the closing of schools around the world (Azzihuck & Shmis, 2020). Education industries adopting the technologies available such as digital video conferencing platforms like Zoom, Microsoft platform, Webex Blackboard, and Google Classroom to enhance online learning globally (Shahzad et al., 2020).

This situation is similar to that experienced in the Ethiopian education system. Following the COVID-19 pandemic in the country in the middle of Feb.2020, all schools and universities suddenly closed. However, after a month the MoSHE (Ministry of Science and Higher Education) currently named the Ministry of Education (MoE) of Ethiopia gave direction to continue the classes for its postgraduate students in an online platform. This sudden shift to online was in the absence of adequate preparation. problems encountered in managing the online platform since it was a new environment for both students and teachers.

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In the process of delivering a course, teachers and students often mention various reasons for the challenges they face. These reasons may include a lack of experience, insufficient internet access, inadequate training, and a lack of specifically designed materials for online learning. However, with these all-constraints students and teachers suddenly found themselves in an online learning environment. At university level there was a leaflet that includes some points of consideration while conducting courses online. Some of these points were, teachers need to provide softcopy teaching and learning material for the students through e-mail, students need to avail themselves by affording their own Internet cost, instructors needed to prepare lecture notes and course reference books in softcopy to send to each student registered for the courses through their e-mail.

Additionally, it was required for instructors to conduct online lectures once every week for each course through various open-source video conferencing platforms such as Google Meet, Zoom, Meet.jei.si, and others similar online medium. As described in the study by Shahzad et al. (2020), students were requested to provide their email addresses to instructors and were subsequently able to take part in virtual lectures by joining the online sessions. Moreover, students must attend above 75% to qualify for sitting for the final examination. This new situation was similar for the mathematics courses in postgraduate program. There are different problems that Different problems happened in many ways to finish the courses up to the required standard. According to university legislation, it is required to cover above 75% of the course contents. However, in the online platform, several courses covered only 50% of the standard and others contents were left for students to cover by their reading. Access to the Internet both from teachers and students' side, the nature of the course, experience, skill of using the Internet for education purpose, assessment problem, and satisfying the students' understanding of the concept was most visible while conducting the course. However, it was required for the current research to formally document to what extent these stated problems affected students learning mathematics courses in online platform.

Research Gap

According to Hamdan and Amorri (2022), technology method of teaching is not new issue there are other academic issues that need to be investigated deeply such as the perspectives of higher education quality focusing on the study of cultural, emotional, technological, ethical, health, financial or academic achievements. Moreover, in most cases online teaching approach is easier and suited for non-mathematical courses.

However, there is literature gap that particularly investigated the challenge faced by students learning mathematics in an online platform during such a pandemic situation. In particular, at post graduate course level the current study contributes a lot. Furthermore, more academic research should be done about online learning to truly improvise a new and adequate teaching/learning approach (Hamdan & Amorri, 2022).

The Objective of the Study

The specific objectives of the study were:

- To investigate the challenges related to accessibility of resources for online learning, the nature of the courses related, social-related, online learning skills, instructor-related challenges, and
- To identify predictors amongst the group of challenges for students' overall expectation of learning mathematics on an online platform.

Significance of the Study

This research work contributes to all stakeholders with specific regard to the challenges of the teaching and learning process of mathematics through online learning. In particular, it will inform teachers, policy makers and university officials regarding how to manage online teaching at the university

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