Enhancement of Technology in Pedagogy and Practice in Higher Education during Covid-19

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Abstract

The Spread of new forms of technology has inundated the learning System of the student at all levels, especially the higher education level. The efficacy of teaching students to keep pace with evolution without understanding how they will learn. This is the start of an endless journey. Students are always fascinated by digital gadgets and interact more when they find new things; this is one of the reasons integrating new technologies, and interactive tools is very important in this stage of the learning process.

Adopting technology in higher education is an innovation that does not cause any disruption to traditional learning mechanisms but rather contributes to the learning evolution. Higher education institutions face many challenges when adopting new technology to their pedagogical style and teaching method because of the growing student numbers and the application of these techniques and methods for students from Different categories and timing.

The flipped learning approach we adopted helped us start our Journey smoothly during the Covid 19 pandemic. In continuation to the approach that we adopted of giving students a different and fulfilling learning experience, Middle East College is working on improving the implementation of flipped learning redefined in the context of Online and blended learning.

During this phase, the main aim is to enhance the effectiveness of flipped learning in online teaching in delivering and planning synchronous and asynchronous Activities. Also, it helps to improve the interaction of the students with the given materials.

This study focuses on enhancing technology in pedagogy and practice in higher education. Where will this study identify the staff member's technological needs and how learning was influenced?

In addition, it will highlight the mechanisms used to facilitate the collaboration and interactions between students and Faculties to improve the learning experience, inspire students to learn in an active environment, and encourage Learning Ownership for Lifelong learning.

Keywords): Blended Learning, Technology, Flipped Learning, Employability, pedagogy, innovation.

1. Introduction

The COVID-19 pandemic has become a critical challenge in the higher education sector .challenge of the virus outbreak, and subsequent lockdowns have become more critical than ever.

Many universities across different countries have experienced an unprecedented transition from face-to-face to various forms of online education and remote learning amid the COVID-19 outbreak and subsequent lockdowns.

In this paper, we focus on a case study of improving student learning experience during and post covid 19 in Middle East College and on improving the implementation

of flipped learning redefined in the context of Online Learning and Blended Learning. (Daniel, 2020).

In MEC, they come up with approaches which enhance student-led and institutional. They focus on implementing technology infrastructure and staff development, where they adopt Flipped learning approaches because it was aligned with their teaching and learning philosophy.

During March 2020, needed to the emergency arising out of Covid 19, Middle East College (MEC) transitioned the learning process into a fully online pattern, rapidly and smoothly relying on its strong IT infrastructure and stealth and wealth of its already existing academic practices and policies.

Middle East College's (MEC) aim is to enhance the effectiveness of online learning form of delivery by planning activities in both synchronous and asynchronous modes systematically. It also aims to improve student interaction in the asynchronous mode using pre-materials and communication tools.

The research paper also aims to improve individual and group student learning experiences by analysing student interaction and performance.

2. Methodology

This study aims to evaluate a model for integrating pedagogy and technologies for enhanced online learning experience beyond covid 19 pandemic.

Where 691 Students and 93 participated in this study, the procedure of this study is illustrated in Figure.

Figure1

Research Procedure

The study began by reviewing the learning approaches used in the college (flipped learning) and Identifying the strengths and weaknesses through observations and the survey of students and faculty members.

Then, searching for new tools and methods to enhance student learning and interaction and trained a group of faculty members to use the developed curriculum.

A Selected group was chosen for the Pilot study in which the teaching staff created their materials and taught their students according to the methods developed.

After the pilot study was completed, the learning curricula were evaluated, and the opinions of students and faculty members about the developed methods were taken.

Students being actively involved in learning and taking the lead are key ideas behind creating meaningful learning experiences.

3. Research Objectives

The main objective of this research is to evaluate the indirect and direct educational outcomes of learning approaches, identify pedagogies to improve different types of student interaction during blended learning and identify the suitable technologies and tools that will promote student interaction.
Additionally, to support faculty in analysing student performance and engagement.

4. Educational Outcomes

In academic performance, the faculty and student were asked to improve in group discussions and assignments during covid 19 and increase their understanding during the lockdown.

Additionally, they were for improvement to solve problems, impact on knowledge and understanding, tools and technology that help them to collaborate.

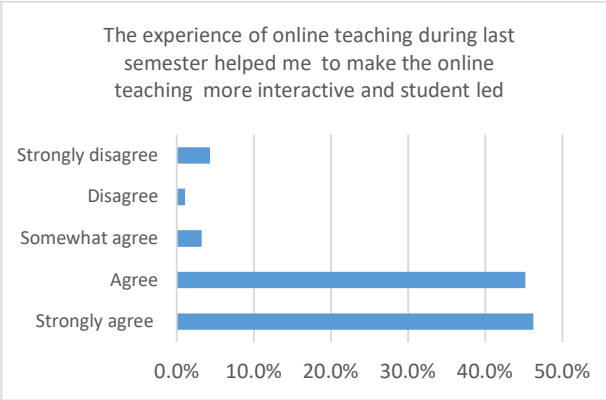
In addition, In the Academic support activity, the student and faculty were asked about the impact of materials uploaded on Moodle and other support activities Such as MOOC, Guest lectures, and Virtual field trips. etc (Daniel, 2020).

The entire outcome has a significant positive impact on the learning approach used in MEC (flipped learning approach)

5. RESULTS

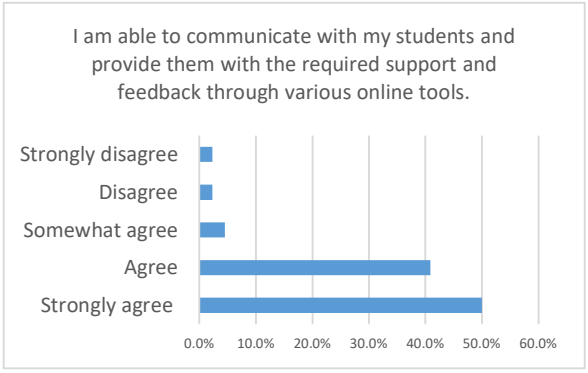
as per the survey conducted in MEC during Covid-19, here are the results of the faculty survey

- the previous experience in using technology in teaching and learning as part of the flipped learning approach affects using different interactive tools for preparing interactive learning materials Positively. Where it was easy for the faculty to create material easily.

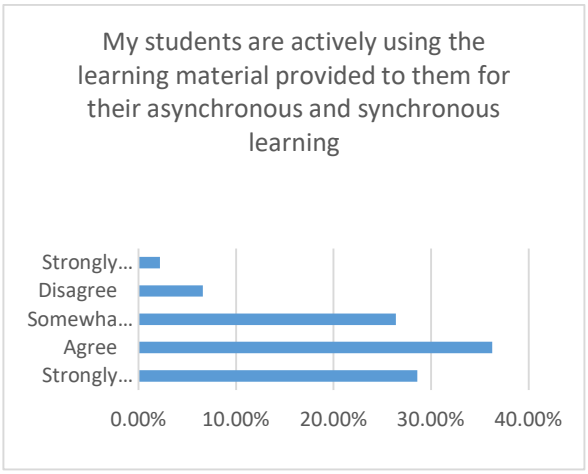


- Where more than 70% have agreed that the use of technology in teaching and learning as part of the flipped learning approach during the previous semesters has helped them for preparing interactive learning materials

- Using various online tools in Moodle could improve Student engagement with Asynchronous learning.



- Where more than 60% of faculty agreed that they could significantly improve student engagement with asynchronous learning materials developed using the H5P feature in MEC Learn (Moodle)



- More than 90% of the faculty has agreed that they can communicate with their students and provide them with the necessary support and feedback through various online tools.
- The use of online sessions to arrange workshops and guest lectures for the students has improved.

- Using online sessions to arrange workshops and guest lectures for the students has helped students learn a lot.

6. Finding

Pedagogy is the driver; technology is the accelerator. Technology alone without pedagogy will not achieve the desired results. Over ten years of experience in education and has managed to change communities through its unique pedagogical solution.

According to our results, MEC developed a new learning model based In line with the adapted flipped learning approach in the college in blended learning mode.

They divided the timeline for the class into three stages and mapped them with synchronous and asynchronous modes, using several tools to enhance student interactivity.

Pre-Class (Asynchronous): allows the student to learn, attempt and interact with prepared materials (narrated presentation, interactive videos, interactive reading materials and quiz), on their own schedule, within a certain timeframe.

In-Class (Synchronous): teachers interact with students through presenting, mini-lectures and activities and formative assessments. Students can

interact with teachers through instant chatting and with peers through faculty-monitored group discussions. **Post-Class (Asynchronous):** students interact with content and attempt post quizzes and activities based on the class activities and interact with teacher/peers through discussion forums.

To improve the students' interaction in three stages, synchronously and asynchronously, have been proposed to include the interaction within the different types of content, peers and teacher and allow the teacher to track and analyse student response and plan the live class accordingly.

Stages and suggested tools

The tools that can support the pedagogy mentioned above are based on the strong IT infrastructure, and the various tools already provided by the college through a virtual learning environment (Moodle) classify them as follows.

Tools Suggested to use for Enhancing Student Learning:

Pre-Class (Asynchronous Mode)

Introductory Narrated Presentations/Videos:

Faculty can prepare a narrated presentation/videos in which s/he introduces the basic concepts of the class topic using Audio/video methods. This presentation should include all links to the videos, formative assessments, activities required to be completed by the student before attending class and any other supporting materials.

Suggested tools:

Voiceover PowerPoint allows for additional audio explanation and narration.

Prezi video: Free external tool allows faculty to record a video in an Augmented Reality environment with floating presentation content.

E-learning Authoring tools: allows the teacher to produce integrated digital course materials, including different learning materials and activities.

Mind Maps: allows the faculty to create a class plan and summary in an interactive visualise way to help students to understand the links between different concepts and the flow of the module.

Interactive Videos: Videos are essential elements of interactive learning that help students of visual and auditory learning styles to have better comprehension,

and by adding subtitles, reading learning style students are supported.

To enhance students learning experience using interactive videos, including different activities such as short answers, matching multiple choices etc.). Also, it could be embedded in the video, where students can attempt these activities while watching the video and the teacher gets a performance report.

Faculties are advised to prepare videos to enhance the relationship between them and the student and ensure that the learning outcomes are covered.

Suppose they wish to use additional videos that serve the topic and improve the student's understanding. In that case, they advised introducing and summarising the content through short videos which student watched before and after the basic video.

The duration of one video should be at most 5 to 7 minutes, taking into account that the idea is complete.

A teacher can use the following tools to create, share and

add interactive activities to their videos. Screen cast-o-Matic: allows to capture teacher screen with/without webcam and record 15 min video for free.

MS Stream: MS Teams integrated video sharing platform allows a teacher to upload and edit the videos and can generate auto subtitles.

H5P: free and integrated with Moodle content collaboration framework allows teachers to add interactive components and activities to their videos and get reports on the performance.

Moodle Quiz: allows teachers to create a formative assessment and quizzes that students can attempt on Moodle. Provides performance statistics.

Discussions: Using Moodle forums, Chats, Emails, MS Teams chat, and MS Kaizala.

In-Class (synchronous mode)

Online live class: based on MEC experience in online teaching during spring 2020, it is found that MS Teams is very effective in conducting synchronous classes using channel meetings. Using some additional tools, which are integrated with MS Teams, can make learning more interactive. All online sessions should be recorded, which allows the teacher to add interactive activities to the recording using the H5P tool, share with students for asynchronous access, and interact.

However, MS Teams still does not meet the expectation for the live event since it does not support multiple videos feeds and suffers some delays.

Interactive live presentation: faculty is recommended to prepare a presentation for class time, which form with the pre-class narrated presentation and integrated material rather than using the same narrated presentation that has been shared before the class. In addition, faculty should start with a reflection on the results of interactions on the pre-class materials. (Murphy, 2021).

In class, the presentation should contain polls and activities to engage students during the class.

Here are some tools, which have been identified to improve student engagement.

Suggested tools:

Poll Everywhere PowerPoint Add-in: Free add-in allows a teacher to add polls to the presentation and show the result immediately in the slides.

Kahoot: Game-based external free quiz tool that allows the teacher to give an interesting synchronous quiz for students (free edition doesn't support offline quizzes).

Collaborative workspace: allows students to collaboratively interact with each other, content and teacher under teacher observation and guidance.

MS Teams Whiteboard / Microsoft Whiteboard: free MS Teams integrated whiteboard allows the participant to draw and write on the shared content.

Breakout Rooms: The faculty will have the ability to divide the class into subgroups for any kind of activity. The faculty will have the ability to move from one group to another to mentor and control the discussion between students.

Post Class:

Adding interactive activities to the recorded session: faculty to be requested to add interactive questions and activities to the recorded session using H5P.

Summary interactive Videos and Podcasts: teacher is recommended to prepare a video that summarises the class and reflects on interaction.

Post quiz: using Moodle Quiz, Socrative. Assignments: using TD (Teacher Dashboard) Assignments which is an MS Teams Integrated tool to admin new assignments and view a snapshot of progress.

Brain Booster: MS Teams Integrated AI chatbot. Approximately once a day (or less), students receive communication from Brain Bot with a question, interaction, or reinforcement tool based on the key takeaways from the selected course.

Discussions: Using Moodle forums, Chats, Emails, MS Teams chat, and MS Kaizala .

Insights App: MS Teams Integrated tool allows a teacher to access analytics data on student engagement and performance. Class Insights collects student activity in Teams, like grades, assignment turn-in, communication activity, and file collaboration, creating an analytics dashboard surfacing actionable data visuals.

7. Conclusion

This is the conclusion. Asynchronous learning activities are effective in motivating students to use asynchronous learning materials. However, it is more suitable for developing a self-learning culture in Students. This study proved that the use of synchronous and asynchronous activities with flipped learning and Various Learning tools had enhanced Pedagogy and Practice in Middle East College.

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