

Utilization of ED Puzzle: An interactive tool in teaching practices

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ABSTRACT: Brining into effect an interactive and student-oriented learning environment can be an important tool in teaching practices. However, as limited research corroborates the inclusion of flipped learning by using an interactive tool like EDPuzzle, the current study, therefore, conducted the survey on 53 students for a Civil Engineering, structural based problematic module. Further, it implemented a qualitative as well as quantitative methodology. In-class and out-class activities were undertaken to keep the students engaged and assess student performance. Enhancing the students' mathematical and analytical skills was then evaluated by the researcher. A survey was conducted using survey monkey, and it contained close-ended questions. When assessing the group from Spring 2019 before implementing the EDPuzzle to Fall 2019, after implementation, the results showed an increased percentage of exam pass rate from 85.11% to 97.06%. Lastly, in order to ameliorate classroom engagement, teachers can take recourse to a flipped classroom model. Moreover, owing to the constant change of technology, EDPuzzle will furnish an idea to the teachers about the incorporation and use of this technology.

Keywords: EDPuzzle, student engagement, out-class activities, coursework assessments, in-class activities, out-class activities.

I. INTRODUCTION:

Over the last few years, a surge in the total number of students partaking and getting themselves admitted in higher education has been observed. However, what has remained inevitable is the stark decline in the academic standards owing to the diversification of the education sector with respect to the types of universities and the population of students (**Altbach, Reisberg & Rumbley, 2009 [3]**) Colleges and universities still have a plethora of dedicated, determined and assiduous learners who are held back because they are not deemed fit to attain higher education (**Biggs & Tang, 2011 [11]**). This has invariably enabled the teachers cutting across domains and universities to introduce novel teaching methods to cope up with the ineptitude hitherto plaguing education.

The problems in the area of engineering are graver and merit special attention so that the students do not suffer beyond a point. In engineering, dropout rates are relatively higher as compared to other courses, and hence the reduced rate of success. As asserted by **Paura and Arhipova (2016) [33]**, abysmal quality of teaching along with the high level of difficulty of the curricula of engineering accounted for the main reasons that drove some students to drop out as they could not keep up with the remainder of the students in their class. Subjects such as Physics, Mathematics and Computer Science are the ones that caused the major problems to students during the course of their engineering. The extant literature suggests that the dropout

rate of students is heavily based on the subject and course they are enrolled into and the educational qualification they have obtained before (**Arulampalam, Naylor & Smith, 2005 [6]**). The students in the current scenario tend to exhibit a vast amount of practical knowledge. However, this kind of knowledge is not recognized and acknowledged by the instructors and educators belonging to higher education. This has also been one of the major reasons for a stark rise in the dropout rate in the field of engineering. In the wake of rapid technological changes and advancements, it has become incumbent upon the teachers across colleges and universities to engender a driver to further the technological construct encompassing the students and the classrooms in which they are expected to adjust themselves, especially in higher education. Their proximity with ICT has well acquainted them with the intricacies of technology. According to **Considine, Horton and Moorman (2009) [17]**, “to develop a curriculum that is relevant to this generation, educators need to acknowledge and respect the skills, attitudes, and knowledge that students bring with them to school and build on those to ensure success in the academic disciplines. Thus, students will become engaged and connected to the traditional curriculum while developing crucial technological skills” (**Considine, Horton & Moorman, 2009 [17]**). An enhanced attentiveness to improve the learning capacity of students by the integration of the digital tools in the curriculum have been observed in the past few years (**Baker, 2016 [8]**). Inclusion of such tools thus improves the dynamics in comparison to the traditional way of Teaching and creates enhanced learning spaces (**Alvarado, Coelho, & Dougherty, 2016 [4]**). This paper will, therefore, focus on how these interactive tools address and support learning. With the advent of game-based learning, education has come out of the manacles of banality and become interesting. Thus, the advantages of a plethora of games and several mobile technologies like EDPuzzle have been realized and utilized in the education sector as well. EDPuzzle is an instrument that allows teachers to make use of videos in order to facilitate an interactive and engaging learning session. The tool makes it viable to do the following: edit videos and insert questions, audio, text and links wherever one likes. Sharing videos by teachers, answering the questions posted by the teachers and reviewing the answers of the students by teachers are made possible through EDPuzzle. Reams of studies conducted on video supported learning favours vicarious learning (**Bandura, 1969 [9], 1971 [10]**; Manz & Sims, 1981) and learning by means of videos (**Kay, 2012 [24]**). Several studies have been conducted by **Bandura (1969 [9], 1971 [10])** wherein he affirmed the advantages of learning by watching others. The results of his research showed the tendency of students to understand better by observing others than by doing an activity themselves. It has also been corroborated by research that watching videos not only inside but also outside the classroom improves and elevates the learning experience. A total number of 53 peer-reviewed articles written between 2002 and 2011 were summarized by **Kay (2012 [24])** and all the articles depicted that videos led to better understanding of concepts and ideas and consequently, better results. Some studies have reported the students' opinions that their performance was positively affected by the use of the videos (**Brittain, Glowacki, Van Ittersum, & Johnson, 2006 [12]**; **Crippen & Earl, 2004 [18]**; **Dupagne, Millette, & Grinfeder, 2009 [19]**). According to **Alpay and Gulati (2010) [2]** and **Armstrong, Massad, and Tucker (2009) [5]**, the use of videos makes way for students to improve their analytic, communication, cooperation, creativity, and technology skills. Thus, the paper analyzes the use of the tool of EDPuzzle vis-a-vis education. As mentioned, EDPuzzle enables teachers to either get a video uploaded from their computer or

use a video hosting website to find a public video (**Monk & Silmon, 2013 [30]**). It contains a video editing process that allows instructors to do various things, ranging from adding audio that can completely replace the original sound, to cropping the video according to own requirements. EDPuzzle also aids in adding audio notes, by keeping the original audio track intact, and also aids in adding instructor comments or assessment questions, either open-ended or multiple choice at the end or intermittently (**Fayombo, 2012 [21], Kolas, 2015 [26]**). Apart from this, EDPuzzle also provides direct access to a plethora of online educational shows that inspire students to learn and explore more avenues that may assist them in acquiring knowledge about their academic subjects and beyond. The shows that come under EDPuzzle are TED Talks, Khan Academy, National Geographic and so on. The teachers have the freedom to choose a particular video, edit it and send it to the students. For the students harbouring an alacrity to study English as a second language, EDPuzzle is especially helpful. According to **Alvarado, Coelho and Dougherty (2016) [4]**, students exhibit the ability to be motivated by platforms like these and appreciate the extent of flexibility and independence ascribed to them on account of the tools like EDPuzzle. Although this is an exciting platform for students, few researchers and scholars were of the opinion that platforms like EDPuzzle are not suitable for students pursuing higher education. However, the broad consensus remains that it is an excellent tool that bolsters practical understanding of the students and makes them capable of grasping most difficult concepts on their own. Despite the presence and utilization of EDPuzzle in imparting knowledge among the learners and acquainting them with the more advanced technological means, the literature affirming the effectiveness of this method across all the subjects and courses is scant. Self-regulated learning (SRL) is garnering attention in the wake of the changing learning environments. This new form of learning and education has come into being to cater to the needs of the society that highlights the importance of erudition that lasts a lifetime and views informal learning ecosystems as best platforms since they thrive on self-regulation skills (**Yot-Domínguez & Marcelo, 2017 [39]**). Several ways have been ruminated upon to encourage regulation of learning among low achievers. The most common way that has been introduced is with the help of instructional activities that heavily rely on technology and incorporating them into the curriculum (**Al-Ammary, 2012 [1]**). Needless to say, proper and dexterous use of technology in the realm of content delivery has the potential to not only intellectually stimulate and empower the learners but position them in a place where they become responsible and accountable for their own learning with limited supervision from the end of the teacher. Not only this, utilizing technology in the field of education serves to improve learning that is concerted in nature and cultivates other skills such as social skills, a sense of responsibility, problem-solving skills, confidence and various other skills that transcend the mechanical learning that learners are otherwise acclimatized with (**Ghavifekr & Rosdy, 2015 [22]**). The conventional way to deal with the low achievers in the classrooms has been isolating them from their peers which tends to do more harm than good. This deliberate segregation and isolation can instill inferiority complex as it explicitly focuses on their flaws and brings them to the forefront (**Chakrabarty & Saha, 2014 [15]**). Since technology allows the learning process to take place virtually, students get the leeway of making mistakes while maintaining their anonymity and are thus saved from the guilt of embarrassing themselves in front of their peers (**Ghavifekr & Rosdy, 2015 [22]**).

The predominant aim of a teacher is to engender such an environment in the classroom that drives students to learn in a way that does not make the process of learning burdensome and monotonous. It is imperative for a teacher to ensure comfort, safety and security in the classroom environment so that the students' learning is not impeded with. This also includes lessening the workload and an amplified focus on building skills in the children. Per se, there is no tangible way to implement this form of learning as it is starkly opposed to the traditional classroom teaching which essentially is bereft of the aforementioned points. However, as discussed earlier, online platforms can act as the required substitutes. Online platforms like EDPuzzles not only help students gain better understanding of academic concepts but also help in reducing the excessive workload on teachers. According to **Goldacre (2013) [23]**, it is the job of a teacher or an instructor to scour through the available means of improving the teaching practices and delve into the potential of EdTech in imparting knowledge of all the domains. To find more feasible ways of assessment also becomes paramount for the teachers. It is essential to discover a solution so that the process of assessment is not compromised even when the learning takes place online. For instance, a study by (**McKavanagh, 2017 [32]**) analyzes the use of EDPuzzle for student assessment. In the study, students were asked to go through the videos which were laced with certain questions. The students watched the video and answered the questions at different rates. The interface was not absolutely student friendly. Once they arrived at a particular question, they had to answer it as there was no option to skip it and they had no option to go backwards to verify the answer as well. The scores were securely recorded by EDPuzzle. In the same study, a comparison of EDPuzzle with the conventional learning that utilizes pen and paper showed that earners gave precedence to the former. It was revealed from the questionnaires that 85% of the respondents were unabashed about preferring EDpuzzle. This is because of the ease of use of the technology and relative flexibility that accompanies learning from EDPuzzle. The results of this study were critical in proving the impact of EDPuzzle in the process of teaching and learning. Suffice it to say, EDpuzzle involved students in a way that could not have been possible by conventional methods. The tool enabled the teachers to not only conduct diligently directed classes but also allowed them to deliver detailed and elaborate feedback adequately corroborated by real-time data which ultimately led to considerable reduction in time that was spent on assessing the student performance.

Another study was successful in tapping into the potential of EDPuzzle activities and solidified their role in strengthening self-regulated skills of the students. It showed that these activities allow low-achievers to learn those skills since they create a student-friendly environment that calls for their SRL development. Therefore, the tool serves to equip the learners with adequate competence, ability and skills that last beyond the boundaries of the classroom. Today, a major task in front of the educators is to keep the learners engaged and engrossed in their education. In order to combat this challenge, teachers are introducing and integrating new concepts to keep up with the changing trends. They have been mulling over a plethora of gaming principles and methods to incorporate in the education sector. This process has been popularly known as Gamification and adopted by companies that seek an increased engagement, brand awareness and customer loyalty. Gamification can be aptly described as the process of integrating various gaming mechanisms and making it conducive to the current learning environment. For instance, it can be equated to an application that drives people to alter their behaviour in a non-

game environment as well. Visual progression is one of the most popularly used mechanisms in gaming softwares and applications. Like gamers, students also like to get immediate results instead of waiting for an inordinate amount of time to get them (**Pereira, Martins, Morgado, Benjamim & Esteves, 2017 [34]**). Another mechanism that gamers use to inspire the gamers is the rewards. Keeping in view the context of education, the function of a reward system is to push students to perform their best and make them mindful of their abilities. Gamer expertise is publicly acknowledged and recognized by the use of the leaderboards in games. In the same vein, students also like to be publicly recognized for all their accomplishments, by their classmates and teachers alike. Acknowledge gives them a sense of purpose and motivates them to stay on the right path and not sway (**Lopes, Esteves & Mesquita, 2012 [27]**). Another significant genre of gaming is the Massively Multiplayer Online Role-Playing Game (MMORPG). A game of this kind enables the user to interact with people all over the world harbouring similar interests (**Esteves, Antunes, Fonseca, Morgado & Martins, 2008 [20]**). This can also be applied to the classroom context in that the projects and tasks allocated to students can be done while working in a team. Going a step further, it can also enable the students to interact with students in different countries. Suffice it to say, integrating gaming mechanisms and strategies into education can prove to be revolutionary. Game-Based Learning can make the ordinary and mundane lessons more interesting, conversational and efficacious. This is because it ushers in a change by making the process of learning student-centric instead of teacher-centric (**Biggs & Tang, 2011 [11]**). In recent years, the increasing deployment of GBL in learning and education has been adequately explored. It has been discovered that incorporation of GBL in the field of education pushes the students to realize their potential (Mayer et al., 2014; **Whitton & Moseley, 2012 [38]**). As emphasized by **Whitton and Moseley (2012) [38]**, GBL is not only useful in allowing the students to expand their knowledge base but also in inspiring them to learn about new technologies and pursue additional content along with what the curriculum prescribes. Moreover, the greatest advantage lies in the fact that GBL, unlike mechanical learning, helps students with the retention of concepts and principles (Kapp, 2012).

According to Cheng and Su (2012), GBL has a significant impact on students' retention capacities and their motivation to learn as opposed to the traditional face-to-face teaching approaches. Thus, GBL plays a critical role in helping educators and students in achieving their objective of bringing about the necessary changes for an improved and enhanced learning environment. By fostering the importance of collaboration, GBL tends to offer students with the support of their peers, which is impossible otherwise in the traditional form of learning since it lacks a framework seeking holistic development of the child. Collaborating instills several useful skills like team-spirit, cultivates an atmosphere of oneness and creates a safe space where no student hesitates from voicing his/her opinion. In the present technologically charged world, students have been increasingly using mobile technology to complete their assignments. The utilization of mobile computing devices owned by students popularly called Bring Your Own Device (BYOD), has helped change the way instruction methods are perceived in the field of education. EDPuzzle, Kahoot and Socrative are some of the Game-Based Learning tools that make use of the BYOD principles, thereby enabling students to obtain the advantages of games and mobile technologies. Although the study dwells upon the

use of EDPuzzle in teaching practices, it is equally important to learn of other GBL tools like Kahoot and Socrative. Kahoot can be immensely helpful in facilitating collaboration among students. Kahoot is a popular game-based learning platform that is usually selected by students who are enrolled in university field studies in subjects ranging from Math, Physics, Chemistry to Languages. However, its use in education has also been an area of contention among various scholars and academicians as they contend that the use of mobile technology may fail to produce effective learning outcomes. But the fact remains that despite the doubts and misgivings surrounding the use of Kahoot, it has been profusely used, especially in the context of higher education. Studies have corroborated the positive impact of using Kahoot and have shown that it is a suitable tool for classroom activities since it has also proven useful in encouraging student participation by developing a positive association among the students of different nature, backgrounds and competencies (**Zarzycka-Piskorz, 2016 [40]**). Further, a study has underscored that student attendance rate is starkly high in a classroom that makes use of Kahoot as one of the learning tools (**Cerro Gómez, 2015 [15]**). According to Buchanan, **Wolanczyk and Zinghini (2011) [13]**, it is essential that there is a consistency between learning aim and objectives and the game design. This can be duly achieved with Kahoot GBL. The best part about Kahoot is that it comes with a free and a plus version. Both the versions serve different fictions; the premium allows instructors to access a private organization area, a space meant only for the teachers while the free version is more frequently used to carry out the activities of the classroom. Almost like EDPuzzle, Kahoot also helps teachers and instructors in making quizzes, jumbles, surveys, discussions and also to obtain feedback from students.

Another GBL tool that can be integrated into education to further revolutionize the process of teaching and learning is Socrative. This tool is functional in all kinds of electronic devices, like computers, laptops, and smartphones and so on. Not only can students use it to gain knowledge in the most convenient manner, they can also use it to compete and challenge each other, thereby allowing them to collaborate in a healthy way. This tool consists of quizzes and a space race; the former is used by the teachers to ask questions from students that need short answers and the latter is used by the students to give fierce competition to each other as they get to work in teams. Additionally, Socrative allows teachers to monitor the progress of the learners and keep a tab on the extent of their understanding of a concept. They can then prepare reports addressing the developments of the classroom and taking account of various concerns which can be downloaded and shared via mail or Drive. As per **Kokina and Juras (2017) [25]**, like EDPuzzle and Kahoot, Socrative has also received positive feedback from teachers and students alike. The study, however, apprises us of the challenges of using Socrative as well. Although “students react positively to the use of Socrative, the main challenge for the instructor is to make sure that the software enhances the learning process and does not become a distractor” (**Kokina & Juras, 2017 [25]**). There have been arguments comparing EDPuzzle, Kahoot and Socrative. Although EdPuzzle is a more interesting space for students in terms of providing wholesome learning experience, it is not recommended by researchers for students studying in higher education. The component of gamification is stronger in Kahoot than both EDPuzzle and Socrative. Personal feedback to students makes Kahoot a more viable choice from the three options. Like mentioned earlier, more gaming options available in Kahoot serve

to make education exciting and extricate it from the clutches of monotony. However, each tool is accompanied by its own set of advantages and disadvantages. This study elucidates the use of EDPuzzle as an interactive tool in teaching practices. Thus, it is necessary to realize the advantages of using technology in lieu of traditional teaching methods. The predominant benefit is that it ensures increased engagement with the students. For a classroom environment to be productive and for the learners to yield best results, the quality of learning offered plays an enormous role. If students are deprived of quality education, the learning they will attain would not make any significant difference to their state of being. Even though children are more familiar with the traditional methods, upgrading and keeping up with the changing times is critical to enhance the quality of education provided to students. However, a few studies have also highlighted the glaring disadvantages of using technology in learning as students are averse to an environment where a physical and metaphorical screen is placed between the teacher and themselves. This may give rise to a feeling of exclusion among some students who are not technologically sharp. But in spite of these concerns, they still prefer it to traditional methods of assessment. As put forth by **Umass (2019) [36]**, different types of learning can take place through EDPuzzle. These are listed as Behaviorism, Social Constructivism, Teaching with Technology, Connectivism, and Cognitive Constructivism. The key features of EDPuzzle, as identified by **Baker (2016) [8]** includes:

Cost: It is free of charge.

Availability: By means of an EDpuzzle, Google or Edmodo account, instructors can make the best use of this tool. Also, guests can access without any necessary login.

Accessibility: Video editors cannot attach transcripts or captions to the videos due to the option of closed captioning for videos that have that let on the video-sharing site.

Analytics: The teachers can check and give a suitable response to the student's assessment results in EDpuzzle. The student's progress bars can also be viewed along with the video sections that were watched and the number of times each section of a video was watched.

Over and above those listed in the preceding section include feedback, grading the quizzes, cropping videos, and adding voice in the videos. Another feature of EDpuzzle is the probability of embedding quizzes in sites such as Blackboard or Moodle or the possibility of assigning it to individual students or specific classes (**Mischel, 2018 [29]**). The platform can monitor the data provided on how each student performs. Once students create their EdPuzzle student account, the possibility of flipping the classroom increases as they can easily access any video assigned to them in their classroom or at home. If students work on new tabs in the same window while simultaneously watching the videos, the latter will automatically stop playing. However, when a new window is opened, the videos will not stop (**Mu & Paparas, 2016 [31]**). Due to the public nature of the videos, the teachers have the option of utilising or making changes in anyone else's EDpuzzle videos as they deem fit (**Aydin & Demirer, 2016[7]**). Also, EDpuzzle offers the option of recording the number of times a student watched a certain section of the video. This enabled teachers to find out the areas where the students struggled. The option of re-watching the videos also made it possible for children to reach an advanced understanding of the complicated sections of the videos. Moreover, the tool also makes it

feasible for the educator to extract information on responses of individual students for the quiz along with the student responses for a specific question. This allows the instructor to comprehend the extent of students' understanding of the content based on Bloom's Taxonomy. Hence, the study is guided by a deft utilization of EDpuzzle and seeks to adopt it not only in the class but outside the class as well. The study also examines the use of this tool in preparing assessments by involving students of varying competencies and positively affecting their performance. It was discovered that EDpuzzle served to improve the problem solving skills, communication skills and aided in boosting their self-confidence.

II. METHODOLOGY:

According to, **Shuell (1990) [35]**, one of the fundamental tasks of the teachers involves engaging students in learning activities for students to accomplish the desired outcomes. In the previous semesters, the focus was more on dispensing the information to the students by giving the solved problems from the whiteboard. Thus, it became important to engage students for bolstering their understanding of the mathematical and analytical concepts. The present research was carried out in the Middle East College, Oman in the spring of the year 2019. The research work was analysed carrying out both qualitative and quantitative data like feedback from both students and teachers, end semester performance, in-class and out-class activities, and other relevant information. Survey Monkey was used to analyze and receive feedback from the participants. The current study involved 20 students for the analysis and through in-class and out-class activities, assessed the efficacy of the EDPuzzle. For the out-class activities, the researcher developed 20 lecture-based interactive videos in MEC multimedia laboratory for active and innovative classroom sessions. In-class activities were conducted with the help of popsicle sticks, cardboard, and paper activities in groups. The students were asked to solve the question by joining the EDPuzzle classroom group code. EDPuzzle was used to monitor the progress, assess and grade the students' performance.

III.MODELING AND ANALYSIS:

The primary objective of this research is to improve the quality of student learning experience along with student engagement using e-tools. One of the ways in which MEC institutional strategy impacts the current research is the use of skills that prompt the students in helping one another towards achieving a goal.

The in-class activities were conducted by using the following conceptual model.

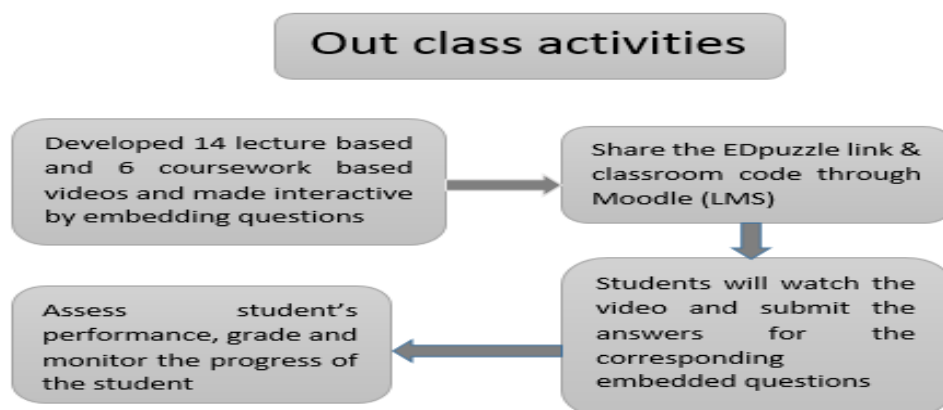


Figure 1: -Out Class Activities

Similarly, the in-class activities used the following model.

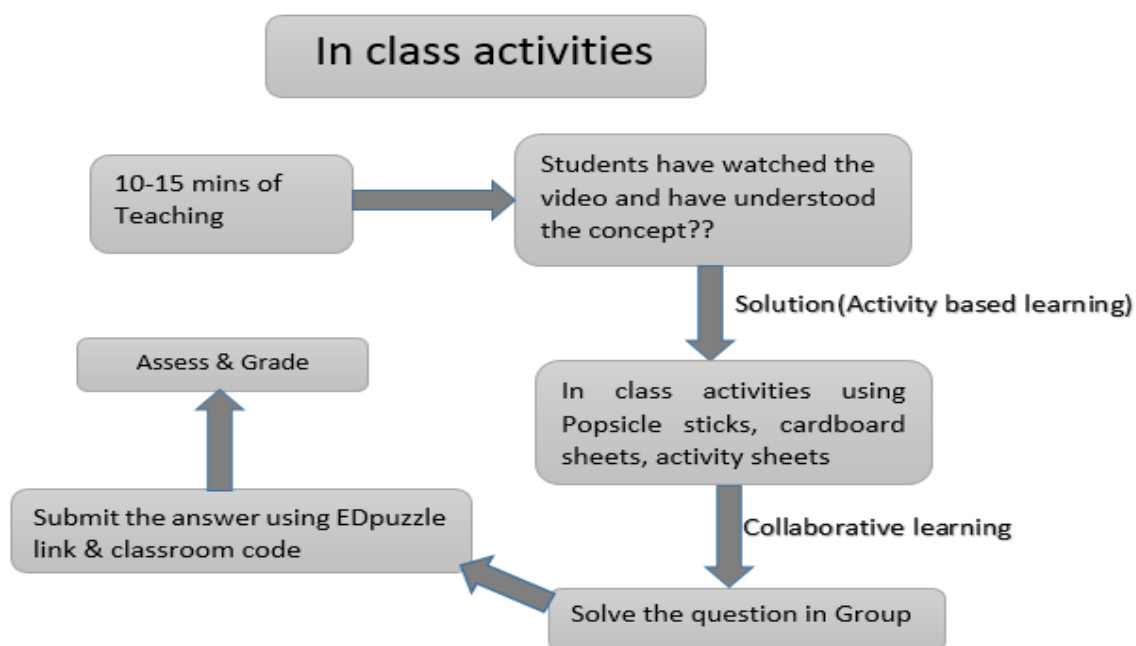


Figure 2: -In Class Activities

The feedback of students was recorded after conducting the activities. One of the students suggested, "Use these types of videos for all modules". Another student said, "Thanks, helped me to interpret and think in completing my coursework". Another student was helped due to regular feedback; the student stated, "Regular feedback given helped me". Another student provided brief feedback saying, "I liked the way in which you made interactive videos, also there were supporting videos related to concept especially from youtube and Khan's academy which helped us to search more videos from it and understand the concept". These observations of the students go in tandem with the results of other studies as well where students found learning from EDPuzzle more enriching and interesting. They were able to retain what they had learnt while thoroughly enjoying the process. Students had shown incredibly positive

results towards the EdTech utilized in the course of the study. A study had revealed the negative response of students towards traditional methods as the participants in that study who were assessed with traditional methods expressed their displeasure and even envy for not being evaluated by means of EdTech. Students are wired in a way that enables them to be more responsive towards EdTech as traditional learning methods are not engaging and interactive enough. The same study was carried out with the hope that greater pupil engagement would result in better performance across cohorts. However, the results were inconsistent with this line of thought as they did not show a significant trend of either EdTech or traditional methods positively or negatively affecting the performance of students. Having mentioned that, the students' unanimous sentiment in favour of using EDPuzzle cannot be overlooked. The study even brought to the fore a myriad of positive factors of EdTech, particularly of EDPuzzle and Plickers. These factors include increasing student motivation, reduction of the workload and the fact that it saves time. Thus, the inference can be made that EdTech did have a positive impact on students and teachers (McKavanagh, 2017 [32]).

IV.RESULT AND DISCUSSION:

Similarly, peer feedback was also taken from 12 individuals for the analysis of the study. A five-point Likert scale was used for qualitative analysis of the results. Two-course works were used to compare and analyse the response.

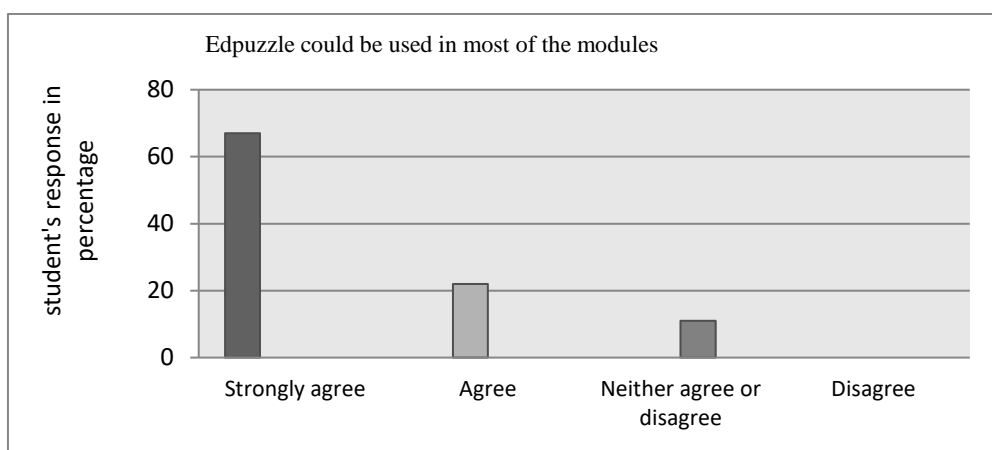


Figure 3

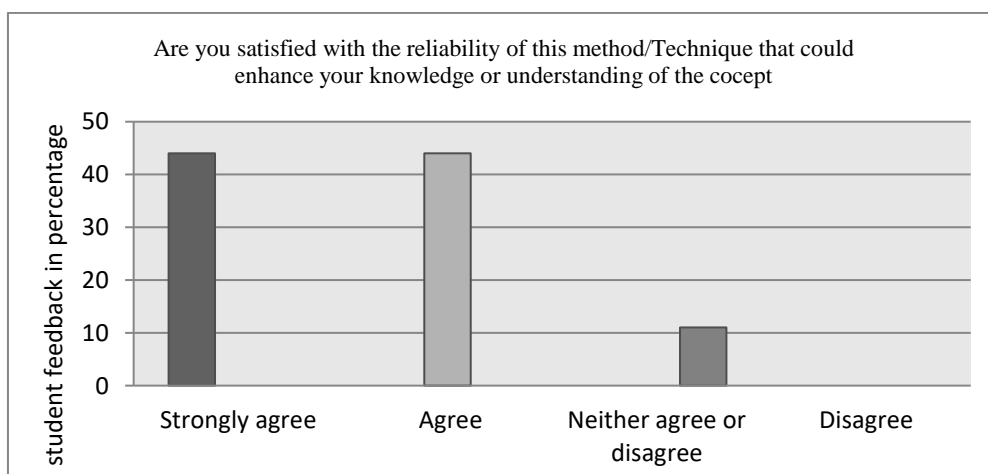


Figure 4

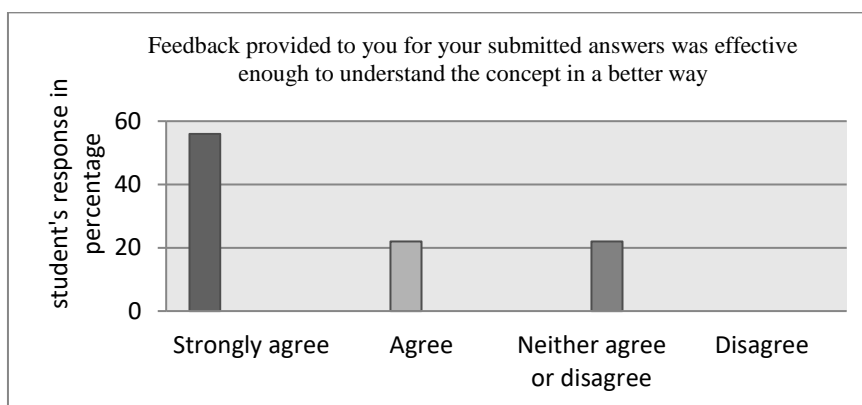


Figure 5

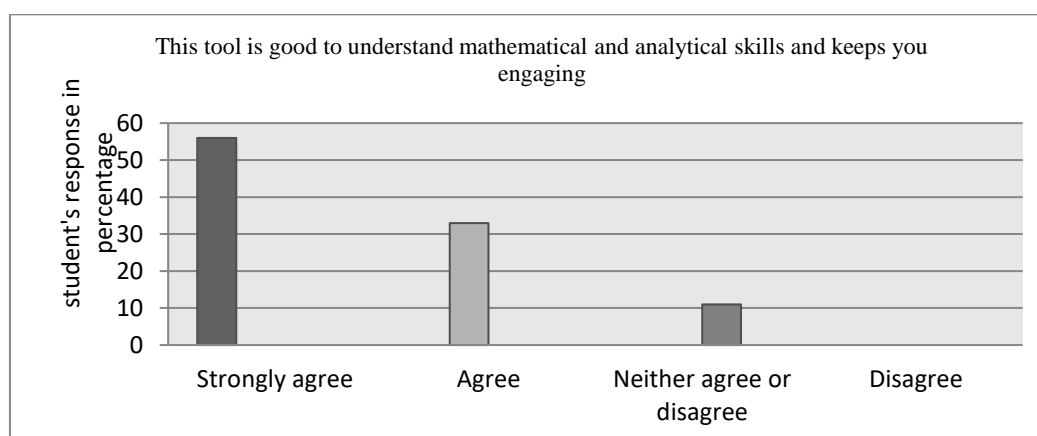


Figure 6

Average coursework marks were also observed to have been increased owing to more student participation and understanding of the concepts. When students were asked if Edpuzzle could be used in most of the Modules, 67% of the students 'strongly agreed' to it, 22% 'agreed' on it, whereas 11% responded that they 'neither agree nor disagree' as shown in Figure 3. This shows that all the respondents showed positive propensities towards EDpuzzle. With most of the students either agreeing or strongly agreeing with the usage of EDpuzzle in most of the modules, it can be gauged that participants preferred it over traditional teaching methods. When asked if the students were satisfied with the reliability of this teaching method, 45% and 44% marked 'Strongly agree' and 'agree' respectively. The high percentage of students opting for 'Strongly Agree' and 'Agree' reveals an increasing reliance of students on this method as opposed to traditional teaching methods. The remaining 11% opted for 'disagree' as shown in Figure 4. This may be because of their inability to understand the intricacies of technology

or a sense of comfort they feel in the physical presence of a teacher. When students were asked for the efficacy of the feedback, 56% marked 'agree', 22% opted for 'strongly agree' whereas 22% chose 'neither agree nor disagree' as shown in Figure 5. Lastly, when asked if EDPuzzle is good to understand mathematical and analytical skills and keeps you engaging, 56% 'strongly

agree', 33% marked 'agree', and 11% opted for 'disagree' as shown in Figure 6.

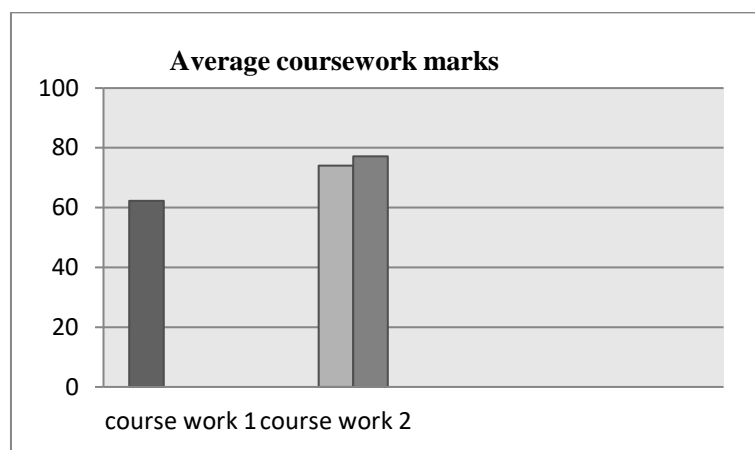


Figure 7

The analysis showed that average marks scored in coursework-2 have increased by almost 13.32% as compared to coursework-1 as shown in Figure 7. Also, the practice was started in Fall 2018, and when compared to the results of the same study from Spring 2018, the pass percentage has increased from 85.11% to 97.06%.

The results of this study can be analyzed with respect to another study (Silverajah & Govindaraj, 2018). Quantitative responses of the aforementioned study revealed that as high as 50% of the participating students felt that the material provided through Edpuzzle was sufficient to help them prepare for their final exams, that is, summative assessment. Students answered in favour of Edpuzzle and expressed their appreciation by stating that the resources were “effective in giving us the basic knowledge that is required to answer exam questions”. Further, it was indicated through the quantitative responses that 33.4% students showed their agreement with the statement: “I learn more with the Edpuzzle activities”, whereby 38.9% agreed to these statements: “I understand more using the Edpuzzle activities” and “I am more motivated to learn using the Edpuzzle activities”. However, the study did include some respondents who found Edpuzzle boring and remained unmotivated as they thought that the content provided through it was either too easy or too difficult. They responded: “To be honest it’s kind of boring because it’s really easy but I still get caught off guard with careless mistakes”. But 66.7% admitted to completing their tasks despite the bouts of monotony and boredom intermittently hitting them. Apart from that, quantitative responses of that study also showed that 66.7% students agreed to the statement: “I am engaged with the Edpuzzle activities” primarily because “the videos are really interactive” and “short and simple, as well as detailed” as stated in the qualitative responses. The findings of this study, thus, bolstered the idea that the best way to educate the learners is through technology integrated materials as they enable them to realize their potential and function at their highest levels. Suffice it to say, the results of the aforementioned study and this study show similarities in that the respondents preferred Edpuzzle and EdTech tools over traditional methods.

V.CONCLUSIONAND RECOMMENDATION:

The data collected from the research clearly indicates the use and efficacy of EDPuzzle in the current educational environment where the skills and talents of the students are not adequately tapped into. The response of the students towards EDPuzzle has been positive which rightly suggests its incorporation in a majority of schools and other institutions of learning. With the help of faculty and surveys collected from students, the feedback was received. An in-depth analysis of the results speaks volumes of the positive impact of EDPuzzle on teaching practices. The utilization of EDPuzzle helped immensely in enhancing the quality of student involvement in an activity inside or outside the classroom. This invariably helped in the increasing development of their mathematical, analytical and cognitive skills. It has also been found that the platform of EDPuzzle allows teachers to plan their lessons in accordance with the video content, give them the ability to extract videos from various sources, embed quizzes, and assess students' performance. Enhancing the learning environment can thus be done by utilizing this tool in different modules with LMS or MEC Moodle. In the future, hands-on training or workshops will be conducted with peers and will come handy in future in a myriad of research activities and modules.

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