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Enhancing Student Learning and Engagement in Financial Management: An Assessment of the Impact of the ED Puzzle Application

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Abstract

An effective learning environment and digital video application that emphasizes interaction with students can be useful tools in the classroom. Due to the declining student score results in financial management for the last two semesters, the ED puzzle method was highlighted to attract students. This research study examines the impact of using the Ed Puzzle application as an effective learning tool in the financial management classroom. The study aims to assess the students' understanding of financial management concepts and the teaching effectiveness of instructors at Commerce Department Politeknik Mukah Sarawak's. Additionally, the study aims to improve student learning and engagement using e-tools and provide insights into the integration of technology in education to enhance academic performance. A total of 79 students enrolled in financial management courses participated in the study. A quantitative method was employed, and a questionnaire was distributed to the students using a Google form. The results indicated that the implementation of the Ed Puzzle application led to a significant improvement in the exam pass rate, increasing from 52% to 70%. The positive response from students suggests the potential acceptance of Ed Puzzle in other educational institutions. These findings provide valuable guidance for lecturers in optimizing their teaching methods and improving students' exam results. Future research can focus on evaluating the transferability of skills and knowledge acquired through the Ed Puzzle application to real-world financial management contexts.

Keywords: - ED puzzle, student engagement, academic performance

1. Introduction

The emergence of COVID-19 has prompted many polytechnic lecturers to adopt a teaching approach that combines stand-alone video modules with live teaching sessions. The use of digital video as a progressive teaching method highlights the importance of student-centered teaching. In accounting, the dropout rate is relatively high compared to other subjects, leading to a lower pass rate. Subjects such as financial management, economics, and management accounting are the subjects that cause the most difficulties for students in the learning process. According to the material that is currently accessible, a student's likelihood of dropping out depends significantly on the subject and programme that they are enrolled in as well as the degree that they have already earned (Graham, 2016). ED puzzle is a video-sharing platform that allows the lecturer to improve the instructional quality of web videos by incorporating questions, annotations, and audio explanations into existing content. In addition, it provides the ability to record and analyze data on student progress and performance. In a financial management course, researchers found that implementing ED puzzle for homework and assessments resulted in positive student feedback and improved attention throughout the course. Digital natives, or Generation Z, are those who were born between 1995 and 2012 (Singh, 2014), making them the first generation to grow up with smartphones and internet

access (Williams, 2015). Surveys have shown that the use of digital media has a significant impact on students' skills, interests, and attitudes. With a focus on the use of internet-connected mobile devices, digital natives have seen continuous improvements in technology (Considine, Horton & Moorman, 2009). It is acknowledged that traditional education needs to be improved, considering the advantage of the use of internet platforms, mobile devices, and innovative teaching methods utilizing mobile learning (Szymkowiak et al., 2021). The aim of this study was to assess the impact of using the Ed Puzzle application on students' understanding of financial management concepts and the teaching effectiveness of financial management instructors at Politeknik Mukah Sarawak's Commerce Department. Additionally, the study aimed to improve the quality of student learning and engagement using e-tools and provide insights into the integration of technology in education to enhance academic performance. By examining the effect of a quiz platform on performance of Financial Management students, this study may also close this gap. The research findings can be used by a lecturer to develop instructional materials that get over obstacles to using ED puzzles in the classroom. Flipped classroom techniques can also be used to increase student engagement. Additionally, flipped classroom techniques can be used to increase student engagement.

2. Literature Review

The most important goal of the Commerce Department is to create such an environment in the classroom to inspire learning among students in a way that does not make the learning process tedious and monotonous. The lecturer must ensure comfort, safety, and security in the classroom environment so that student learning is not hindered. Online platforms like ED puzzle not only help students better understand academic concepts but also help reduce the undue workload of lecturers. According to Gray (2016), the lecturer must navigate the available means to improve teaching methods and enhance the potential of EdTech to impart knowledge in all aspects. The search for more feasible assessment methods is also becoming necessary for lecturers. Finding a solution is crucial to ensuring that the evaluation procedure is unaffected even when learning occurs online. Findings from Baker (2016) examined how the ED puzzle is used for student evaluation. Students were required to watch movies that were interspersed with a series of questions as part of the study. Different students view the movie and complete the questions at various rates. Students should not use the interface. When faced with a specific question, they must answer it because there is no skip or back option to check the answer. Scores are securely saved by ED puzzle. In the same study, comparing the ED puzzle with the conventional pen-and-paper learning method showed that employees prefer the learning method. From the questionnaires, it was found that 85% of the respondents were not ashamed to prefer the ED puzzle. This is a result of how simple the technology is to use and how knowing the ED problem allows for some flexibility. To show how the ED conundrum affects teaching and learning, the study's findings must be presented. Let's just say that ED puzzles engage pupils in ways that are not possible with traditional teaching techniques. This tool allows lecturers to not only conduct carefully guided lessons but also provide detailed, well-structured feedback accurately represented by real-time data, ultimately helping to significantly reduce teaching time and assess student learning outcomes.

Furthermore, the ED puzzle is an interactive tool in teaching practice. Therefore, it is important to understand the advantages of employing technology in place of conventional teaching techniques. More student participation is the primary benefit (Mischel, 2019). The calibre of the instruction offered is crucial for a constructive learning environment and for pupils to provide their best effort. If kids don't receive a great education, the knowledge they learn won't have a big impact on their situation. The quality of education for pupils must be improved, even though children are more accustomed to traditional techniques (Schwartz, Cappella, & Aber, 2019). However, numerous studies have also highlighted the obvious drawbacks of utilising technology in the learning process since students are hesitant to utilise a setting where there is a literal and figurative screen between them and the teacher. Some less tech-savvy pupils may feel excluded because of this. However, they still favour conventional assessment techniques despite these worries. The ED puzzle can facilitate a variety of learning processes, according to University of Massachusetts Amherst's study from 2019. Behaviourism, social constructivism, technology-enhanced learning, connectedness, and cognitive constructivism are presented as examples.

Assigning quizzes to specific students or classes, or embedding them in websites like Blackboard or Moodle, is another function of ED puzzle (Mischel, 2019). The platform can keep track of the information provided about each student's performance. Students can readily access any of the films allocated to them in the classroom or at home once they register an ED puzzle student account, which boosts the capacity to flip the classroom. The movie will immediately stop playing if the learner opens new tabs in the same window while watching it. Unfortunately, the videos continue playing even after opening a new window (Mu & Paparas, 2016). Because the video is public, teachers are free to utilize or alter other people's ED puzzle videos however they see fit (Aydin & Demirer, 2016). Moreover, the ED puzzle lets you keep track of how many times a student has seen a certain segment of a video. This enables teachers to investigate the areas where students are having difficulty. Children can gain a deeper comprehension of the complicated elements of videos by having the ability to rewatch them. Additionally, the application enables teachers to gather data on each student's test-taking strategies as well as their answers to a particular question.

This enables lecturers to gauge how well their pupils comprehend the material using Bloom's taxonomy. The goal of the study is to become an expert user of the ED puzzle and discover applications for it both inside and outside the classroom. The study also examined how to engage students of various levels and enhance their performance when utilizing the tool to prepare for examinations. It has been demonstrated that ED puzzle can assist them in enhancing their confidence and problem-solving abilities.

D'Aquila, Wang & Mattia (2019) state students show that these types of platforms may drive them, and they value the degree of independence and flexibility that tools like ED puzzle allow them. Even though students may find this platform to be intriguing, some academics and researchers contend that websites like ED Puzzle are inappropriate for college students. However, there is general agreement that it is a terrific tool to support students' practical knowledge and enable them to independently master the most challenging subjects.

The materials support the efficacy of this method in every subject and course, even though it has appeared and is being used to teach students and acquaint them with the most cutting-edge technical tools. The research is extremely uncommon. After altering learning contexts, self-regulating learning (SRL) draws attention. This innovative approach to education and learning has grown in response to societal demands; it emphasises the value of lifelong scholarships and views the development of informal learning ecosystems as the ideal foundation. development through self-control (Graham, 2016). To promote school regulation of low-achieving children, many strategies have been taken into consideration. It has mostly been introduced through the integration of technology-based instructional activities into curricula (Holtzblatt & Tschakert, 2011). In addition to stimulating and enhancing learners' minds, the proper and effective use of technology in the sphere of information delivery may also place them in a position where they must suffer. responsibility. Self-reliant and answerable for one's education with minimal guidance from a teacher. Additionally, the use of technology in school improves cooperative learning and fosters a variety of other abilities, including social abilities, a sense of responsibility, problem-solving abilities, self-confidence, and more. skills other than machine learning, to which learners have adapted Ghavifekr, Afshari & Amla (2012).

3. Methodology

Participants in this study were Financial Management 1 (DPA30063) students enrolled in Diploma Accountancy Programme, at Politeknik Mukah Sarawak's. There were 79 students who joined the ED puzzle in a formative evaluation to determine their level of understanding of financial management concepts and completed all questions. The formative assessment's average results showed that 65 students got scores of 60% or higher. By Arbaugh (2008), a questionnaire about students' learning experiences was modified. This questionnaire consisted of two sections. The first section of the students' learning experiences on teaching presence, cognitive presence, and social presence featured five-level Likert scale questions with the following response options: 1 = strongly disagrees, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree.

The survey includes 24 closed-ended questions that were modified from da Costa, da Silva, Nasu, Nogueira, & Marques (2021). All the instrument's closed-ended questions used a Likert scale of five points, ranging from strongly disagree (SD) to strongly agree (SA). Participants used ED puzzle outside of the classroom every week to post feedback videos to exercises that complement their classroom learning. The study analysed the responses to investigate students' perceptions of the impact of using ED puzzle on their learning experience and their perceptions of the pros and cons of using ED puzzle in the DPA30063 Financial Management 1 courses. The results analysis using SPSS version 26. The data used in this article is based on a survey of 79 students enrolled in the course DPA30063 Financial Management 1. The study analysed survey responses to investigate students' perceptions of the impact of using the ED puzzle on their learning experience and their perceptions of the pros and cons of using it.

4. Finding and Analysis

Table 1 demographic profile of the respondents showed that 84% of them were female and 16% were male. In addition, 96% of the students identified themselves as members of the Generation Z, often known as the "digital natives," who were born between 1995 and 2012 (Singh, 2014), making them the first generation to be born in an internet-connected world as well as the smartphone era. A total of 79 respondents participated in the survey are semester three students DAT 3A and DAT 3B take DPA 30063 Financial Management 1 for session 1 2021/2022.

Table 1. Respondent demographic profile

Characteristics		**N**	
Age	19	76	96%
	20	3	4%
Gender	Male	13	16%
	Female	66	84%
Class	DAT3A	37	47%
	DAT3B	41	53%

With a mean score of 4.77, respondents agreed, as shown in Table 2, that the ED puzzle increased class engagement. With a mean score of 4.71, it is evident that the tool is beneficial as a learning tool. The use of ED puzzles helped students learn about money management and achieve a mean score of 4.66. According to statistics, students said utilising ED puzzles was easy and that it

helped their general learning. Their mean score is 4.65. Next, the ED puzzle, with a mean score of 4.61, is appropriate for use as a teaching tool and should be used for a variety of subjects. It demonstrates that using ED puzzles in learning exercises is useful for students studying finance. With mean values ranging between 4.49 and 4.58, the level of student satisfaction was moderately good while using the ED puzzle as an interactive tool. The category's highest mean value, 4.58, is a result of an improvement made using the ED puzzle activity.

Table 2. Mean and Standard Deviation (SD) for perceptions of students

No.	Item	Means	Standard Deviation
	Use of ED puzzle		
1	It's simple to utilise the ED puzzle.	4.65	0.481
2	I found the ED puzzle to be useful as a learning tool.	4.71	0.457
3	The ED puzzle increased class participation.	4.77	0.422
4	ED Puzzle helped me with this course's education.	4.66	0.477
5	I like using the ED puzzle to find the financial management formula.	4.66	0.477
6	This course suitable to use the ED puzzle as a learning tool.	4.61	0.541
7	The ED puzzle ought to be applied to a variety of topics.	4.61	0.541
8	The ED puzzle worked well as an interactive tool.	4.56	0.525
9	The interactivity of the videos in the ED puzzle increased my satisfaction in relation to the traditional classes.	4.52	0.574
10	The amount of time given to answer each question was adequate.	4.54	0.595
11	My satisfaction with the subject increased due to the use of the ED puzzle.	4.58	0.522
12	The way the ED puzzle has been incorporated into the course is satisfactory to me.	4.49	0.677

Table 3. Mean and standard deviation for perceptions of students to improve the quality of learning and student achievement

No.	Item	Means	Standard Deviation
	The quality of learning and student achievement		
1	I constantly practiced remembering the formula before using it for the ED puzzle problem since I needed to remember it for a financial management assignment.	4.47	0.695
2	I use the ED puzzle first and then update the money management calculation.	4.57	0.614
3	My recollection of the financial management formula has improved since using the ED puzzle problem.	4.42	0.672
4	The ED puzzle helped me learn new things.	4.52	0.596
5	The ED puzzle should be used in another program.	4.48	0.658
6	I enjoyed seeing a digital video in ED puzzle.	4.53	0.596
7	Compared to other subjects that do not use the ED puzzle problem, I learned this subject more easily.	4.54	0.616
8	The interaction of the videos and audio notes made by the lecturer in the ED puzzle helped my understanding (if there is an audio note from the lecturer).	4.54	0.616

4. Conclusion

The ED puzzle can be utilized to enhance the present educational system, which underutilizes students' skills and abilities, based on the statistical findings of the study. It is true to say that ED puzzle will be embraced by many more educational institutions if student response is positive. It shows the effectiveness of using the ED Puzzle activities among financial management students at Politeknik Mukah Sarawak's (PMU) Commerce Department. Surveys of the students were used to obtain feedback. Another study may look at the findings of this one (Silverajah & Govindaraj, 2018). According to the quantitative statistics, up to 100% of the students who took part in the survey believed that the ED puzzle material they had access to had effectively prepared them for their final test or assessment. The students appreciated ED puzzle for providing the tools and noted in their remarks that they "really offered us the background knowledge needed to solve the assessment questions." The Ed puzzle has educational value when used in class activities, as shown by a thorough analysis of the findings. The usage of ED puzzles has significantly enhanced student participation in class activities. They have always benefited from this when trying to compute, analyse a situation, or think critically. Furthermore, it was recommended that lecturers create lectures using video content on the ED puzzle platform, providing them the capacity to compile movies from different sources, present quizzes, and assess student performance. Therefore, by including this technology in a few CIDOS courses, the learning environment can be improved. Future research modules and activities would be greatly aided by the organisation of theory courses or practical courses finished with peers. Future studies could examine how well the information and abilities gained through the Ed Puzzle programme translate to actual financial management situations. This could involve assessing students' ability to apply the learned concepts to practical financial decision-making scenarios and evaluating the application's effectiveness in developing practical financial management skills. Investigating these facets will help one get a more thorough grasp of the application's effects, allowing one to make wise judgements about its implementation and potential future

advancements. Due to the study's temporal constraints, it is difficult to evaluate the long-term transferability of the skills and knowledge learned through the Ed Puzzle application. Beyond the purview of the study, transferability may necessitate continual practise and application in real-world situations.

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