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## CONTENTS

<b>ID</b>	<b>PROJECT TITLE</b>	<b>PAGE</b>
JM008	Automation in Pneumonia Detection	1
JM017	Terengganu Cultural Trail: Using Videography in a Participant-observer Study to Enhance Cultural Heritage Appreciation Among Children.	5
JM019	Cassava Leaf Disease Detection System using Support Vector Machine	8
JM021	Learning Mathematics using Fun-Math Mobile Application for Pre-School	12
JM024	OSH-DBG as a Method of Digital Problem-Solving for Learning Construction Safety and Health Course	16
JM026	“What to Cook?” Mobile Application	19
JM028	Learning Arabic Communication Skill Through Mobile Application	23
JM034	Enhanced Gamification in Study Skills	27
JM039	Flexible Learning Using ANATEKS Flexi e-Content Medium: An Innovative Effort in Times of Covid-19 Pandemic	31
JM043	Web-Application for Securing Message Using LSB Algorithm Steganography and Hybrid Encryption	35
JM045	Web-Based Science Lab Inventory System for Faculty of Pharmacy in UiTM Bertam	39
JM046	Dental Treatment Orientation for Children using Role Playing Game	43
JM047	EZ Forecast 2.0: A System of Univariate Models	47
JM048	Arduino-based Farm Feeder Helper	51
JM050	PictoEZodit (E-Comic In Teaching Practice)	55
JM054	i-CHEMTORIALS (Interactive Chemistry Tutorials)	59

JM056	Chemical Composition and Biological Activity of Momordica charantia (Bitter Melon)	63
JM059	Lima Sekawan: An Entrepreneurial App Based Introductory Tools for Kids	66
JM064	A Study on Factors Toward Household Willingness on E-Waste Recycling in Seremban	69
JM070	PEFE (Plant Eco-Friendly Energizer)	73
JM071	An Intelligent of ANN Towards Agarwood Oil Compounds Pre-processing Based on Stepwise Regression Method to Improve the Oil Quality	76
JM080	Paddyville: Learning Paddy Cultivation through Role-Playing Game	80
JM089	Agarwood Oil Quality Classification Using One Versus All Strategies in Multiclass on SVM Model	84
JM099	The Development of E-Content 'Sci-Anime2021'for PDPR during Covid-19 Era	87

## Enhanced Gamification in Study Skills

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**Abstract**— Educators are facing challenges when face-to-face teaching method cannot be implemented due to the Covid-19 pandemic outbreak. In order to ensure learning outcome is achieved, they have to shift from traditional to online distance learning method to teach the students. This raises concerns in regards to students' performance and engagement. Hence, gamification was introduced in Study Skills to allow students to engage with the learning materials in a new and dynamic way and essentially improve their performance. Gamification can be considered as one of the technologies used to support the traditional ways of teaching and learning. This study aims to apply the gamification techniques in Study Skills course. Kahoot!, Quizizz and QuizWhizzer were the tools used in creating the gamified learning activities. A questionnaire was conducted to gather responses from the students after the completion of the course.

**Keywords**—*Study Skills, Gamification, Online Distance Learning*

### I. INTRODUCTION

The social distancing procedure that has been globally implemented to curb the spread of Covid-19 has caused a sudden change in the operation of educational institutions worldwide. Since the face-to-face elements are taken out, it is a challenge to monitor the participation of students. Despite the difficulties, educators need to deliver their teaching method as effective as possible with respect to the current predicament. In previous research, students acknowledged having issues that dampen their progress such as excuse, stress, bored and lazy [1]. Students also hoped that lecturers can design interesting, persuasive, communicative and artistic content so that the communication can be felt even though they were not physically present [2]. As such, active learning is a strategy that can be adopted especially when student's motivation has decreased due to the absence of physical communication with their lecturers and peers. One of the methods of active learning that could potentially be helpful in enhancing the effectiveness of online class is gamification. The term 'gamification' is defined as the technique used in a non-game setting [3].

## II. MATERIALS

There are a lot of free online interactive games available such as Kahoot!, Quizizz, Quiznetic, Quizlet, QuizWhizzer and others that can make learning process more interesting. These tools are free and can be easily accessed through tablets, computers, laptops or even any smartphone with an internet connection. The user-friendly interface and features of these interactive games like avatars and music provide a game-like experience to their users. These interactive games allow users to create their own questions related to their course.

A quantitative approach through a survey on the feedback of implementation of gamification in Study Skills course was used in collecting the data to investigate the most preferable learning platform between Quizizz, Kahoot!, and QuizWhizzer. The survey was conducted on Diploma students of Mathematics at Universiti Teknologi MARA, Perak Branch, Tapah Campus. These three gamification tools were used during semester October 2020 – February 2021.

## III. METHODS

There are 7 topics in Study Skills course; Topic 1 - Getting Ready to Learn, Topic 2 - Goal Setting and Learning Management, Topic 3 - Time Management and Organization Skills, Topic 4 - Getting to Know the Campus, Topic 5 - Memory, Improving Concentration and Reading, Topic 6 - Taking Lecture Notes and lastly, Topic 7 - Academic Integrity & Performance. Out of all these topics, Topic 1, 3 and 6 were selected to be incorporated with gamification tools while the learning session took place.

Quizizz, Kahoot! and QuizWhizzer are online quiz applications that can be the choice to make learning attractive and joyful [4]. These self-paced learning tools are remarkable in engaging students with others be it used face-to-face or online. In fact, they allow every student to celebrate their achievements in a fun way. Quizizz was used in Learning Styles and Characteristics of Successful Students under Topic 1, while Kahoot! and QuizWhizzer were respectively used in Time Management and Organizational Skills under Topic 3 and Taking Lecture Notes under Topic 6.

There were 87 respondents who took Study Skills course selected to answer the questionnaire to get their feedback after gamification method was adopted in their learning process. The study was made up of 21 items broken down into three parts. The first part was demographics profile which consisted of two questions namely gender and group. This was to find out about the student's background. Part two consisted of items to determine the perceptions of the students on gamification tools, whereas part three measured student's feedback on gamification tools. Four items in part two and all items in part three were measured using a 5 point Likert Scale of the level of agreement.

## IV. RESULTS AND FINDINGS

A total of 87 students from three classes who took Study Skills course participated in this study; 31 from group A (35.6%), 31 from group B (35.6%) and remaining 25 from group C (28.7%). Out of all of the students, 24 were male while 63 were female. The demographic profiles of the students who have responded to the questionnaire are shown in Table 1.

Table 1. Demographic profile

No	Category	Frequency	Percentage (%)	
1	Gender	Male	24	27.6
		Female	63	72.4
2	Group	A	31	35.6
		B	31	35.6
		C	25	28.7

Study Skills is the course introduced in the first semester of diploma for all the respondents. The online interactive game such as Kahoot! has already been introduced to them during their secondary school. Therefore, it can be said that this was not a first-time experience of using gamification as a tool in their learning for more than half of the students.

Out of the three gamification tool options that were used in Study Skills course, 74.7% of the students chose Quizizz, 25.3% chose Kahoot! and none of them chose QuizWhizzer as the most preferred gamification tool. Students chose their preferred gamification tool based on the fun factor and ease of use.

Table 2 summarizes the perceptions of the students towards gamification tools while taking this course. Most students chose to agree (49.4%) and strongly agree (44.8%) that gamification can help them create more engaging experiences. Plus, they also agreed (50.6% agreed and 40.2% strongly agreed) that gamification can make learning more rewarding. A total of 77% of the students agreed and strongly agreed that gamification can give them the opportunity to apply it in real-world situations. One of the advantages of using gamification is that it can improve knowledge and skills in learning. This is reflected by the agreement of the students (47.1% agreed and 46% strongly agreed) that gamification can improve their knowledge in studying skills.

Table 2. Perception towards gamification tools

No	Category	Frequency	Percentage (%)	
1	Is this your first-time using gamification as a tool in your learning?	Yes	38	43.7
		No	49	56.3
2	Please choose the Most Preferred gamification tool in Study Skills.	Quizizz	65	74.7
		Kahoot!	22	25.3
		QuizWhizzer	0	0.0
3	Based on the above answer, what is the Most Reason you chose this gamification tool?	Fun to play	47	54.0
		Easy to use	30	34.5
		It is a free tool	3	3.4
		More user friendly	7	8.1
4	How strongly do you agree with the following statements about gamification?			
a)	Gamification can help create more engaging experiences for students.	Strongly Disagree	1	1.1
		Disagree	2	2.3
		Neither	2	2.3
		Agree	43	49.4
		Strongly Agree	39	44.8
b)	Gamification can make learning more rewarding.	Strongly Disagree	1	1.1
		Disagree	2	2.3
		Neither	5	5.7
		Agree	44	50.6
		Strongly Agree	35	40.2
c)	Gamification can give students the opportunity to apply it in real world situations.	Strongly Disagree	1	1.1
		Disagree	2	2.3
		Neither	17	19.5
		Agree	37	42.5
		Strongly Agree	30	34.5
d)	Gamification can improve your knowledge and skills in learning.	Strongly Disagree	1	1.1
		Disagree	1	1.1
		Neither	4	4.6
		Agree	41	47.1
		Strongly Agree	40	46.0

The students' feedbacks were analysed along three dimensions; student's engagement, enjoyment of learning experience and student's motivation. For each of these dimensions, students indicated their level of agreement on a 5-point Likert scale (strongly disagree (SD), disagree (D), neither agree nor disagree (N), agree (A), strongly agree (SA)) to answer the related statements. The students' feedbacks on gamification tools are summarized in Table 3.

Referring to students' engagement questions, 50.6% of students strongly agreed and 44.8% agreed that they wanted to complete this gamified activity and majority of them (80.5%) found that time passed quickly during the gamification. Only 18.4% stated they did not care how this gamification is ended while 4.6% felt bored when playing it.

When the students were asked about the enjoyment of these gamification activities, majority of them answered that they felt happy (96.5%) and felt entertained (95.4%) while playing it. When they were asked about the negative statement, i.e., if they felt exhausted playing it, 44.9% disagreed and 25.3% strongly disagreed. They also disagreed (37.9%) and strongly disagreed (33.3%) that they felt miserable while playing in this gamification activity.

In this questionnaire, it was also revealed that gamification activity may increase students' motivation. Majority of their responses were positive; 90.8% of the students stated that it is very important for them to do well in this activity, and 73.5% of them felt that they tried very hard on this activity. When they were asked about the unenthusiastic statement, i.e., if they did not pay attention in this activity, 46% disagreed and 37.9% strongly disagreed.

Table 3. Students' feedbacks on gamification tools

No	Items	Level of Agreement (%)				
		SD	D	N	A	SA
1	Student's engagement					
a)	I wanted to complete the game.	0	1.2	3.4	44.8	50.6
b)	I felt time passes quickly.	0	1.1	18.4	49.4	31.1
c)	I did not care how the game ended.	16.1	37.9	27.6	16.1	2.3
d)	I feel bored when playing it.	39.1	46	10.3	2.3	2.3
2	Enjoyment of learning experience					
a)	I feel happy when playing it.	0	2.3	1.1	47.1	49.4
b)	I feel entertained when playing it.	0	2.3	2.3	50.6	44.8
c)	I feel exhausted when playing it.	25.3	44.9	14.9	10.3	4.6
d)	I feel miserable when playing it.	33.3	37.9	15	10.3	3.5
3	Student's motivation					
a)	It was very important to me to do well in this activity.	0	2.3	6.9	44.8	46
b)	I tried very hard on this activity.	1.2	5.8	19.5	40.2	33.3
c)	I did not pay attention in this activity.	37.9	46	12.6	2.3	1.2
d)	I did not use much energy in this activity.	11.5	20.7	20.7	36.8	10.3

## V. CONCLUSIONS

Gamification is an easy and effective method in online learning. Its mechanisms and techniques can be applied in the learning process as one of the activities which purpose to achieve certain learning goals, increase student's motivation to complete them and engage students in a friendly, competitive environment with other students [5].

Examined study showed positive feedbacks from students based on the application of gamification method in Study Skills course. Out of the three tools applied, the majority of the students preferred Quizizz as this tool is easy to use and more fun to play compared to Kahoot!; whereas all of them were reluctant to choose QuizWhizzer. Enhanced gamification in Study Skills is proven to be positively impactful on a student's engagement, learning experience and style, and increases their motivation to improve skills in learning.

Online learning is suitable for easy and effective integration of gamification. The implementation of gamification concept in higher education can make learning activities livelier and engaging. Therefore, it can be adopted to enhance the overall learning experience of students especially in the midst of online learning.

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