

The Impact of Interactive Economics Game Board towards Students' Academic Performance

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Abstract—Having Gen Y students nowadays, has become big challenges to the educators including lecturers. Traditional learning method which relies on normal classroom setting now is unable to gain students' interest. The students may feel the subject is difficult, dull and uninteresting since many theories need to be memorized. Because of that, most students were found not to be able to perform well during the examination. Therefore, developing an interactive economics game board named "Catur Ekonomi" is hoped to be able to attract students' attention and interest in learning economics subject. This game provides an interesting way of learning economics subject as the students' understanding towards this topic could be enhanced, and their academic performance could be improved. This paper investigated the relationship of interactive learning by application of "Catur Ekonomi" with students' academic performance. Besides, this article also identified the impact of interactive learning towards students' academic performance. The students were given a set of questionnaires after playing the "Catur Ekonomi". The result showed that there was a relationship between interactive learning with students' academic performance. Besides, the result also showed, there was a positive impact of interactive learning towards students' academic performance.

Keywords—Catur Ekonomi, academic performance, interactive learning

I. INTRODUCTION

Having new generation of students in our classroom today is very challenging for lecturers especially in capturing students' attention. These Gen Y students learn far more in an interactive and collaborative environment. The spread of information technology and games in education has considerably influenced the educational process in ways that complement and sometimes supersede traditional methods like face to face lectures [1]. Sitting at a desk and copying notes from a whiteboard are not playing into their strengths as students. However, the passive learning style still plays a significant role in the learning process as students need to

memorize facts and figures just as ever before. The application of the theories is required to increase students' understanding as they can translate it creatively [2].

Therefore, the researcher tries to develop an interactive board game named 'Catur Ekonomi'. This economics board game may help and provide the efficiency in the learning process and enhance students' performance in economics subject. This board game also provides an interactive way of teaching economics that can capture the students' interest. Therefore, this paper tries to investigate the relationship of the usage of 'Catur Ekonomi' as a medium of teaching with students' academic performance. Also, this paper tries to identify the impact of 'Catur Ekonomi' to the students' academic performance.

Many theoretical theories suggest that the practice of simulation game have the potential to enhance learning outcomes [1], [3], [4], [5] and [6]. They suggest that simulation game may enhance motivation, increase the memory and knowledge.

The findings from this paper may help academicians in building and designing any educational games that could improve student's performance, in particular for the critical subject. Interactive learning nowadays has become an important method in teaching and learning process since we are dealing with "digital native" that learn far more in an interactive and collaborative environment.

II. LITERATURE REVIEW

Interactive learning has become an interest to the researchers nowadays. They try to analyze and search the relationship between interactive learning style and academic performance of students and it was found to be one of the alternatives that may help students in their academic although the interactive learning is not the ultimate cure for problems in the education field. From previous studies as in [7], [8], [9], [10] and [11], it is clear that the positive relationship between interactive learning and students' performance.

One study was done by [11] conducts a test on the usage of interactive learning on two groups of students from two different schools in Kota Bharu, Kelantan. One group was tested using interactive learning, while the other group used usual teaching method. From the analysis, the author found that

the group which uses interactive learning style obtained a better result in “Basic Economics” subject.

On the other hand, a study on students’ perception of using interactive learning has been done to identify the acceptance of students on this teaching method [9]. The research used samples of undergraduate and postgraduate of Health Faculty students. There are two stages of questionnaires that were given to the students after the first lecture and another one after the final lecture. They found that 51% of the students agree with the effectiveness of using interactive learning as learning tools and 74% of the students suggest of having interactive learning style for their next course.

One of the interactive learning is using education game. Gen Y today is more interested in learning something by experience. Therefore, having the educational game can be a good alternative to improve learning outcome and motivations of participants as in [7] and [8]. It is found that education game will create a learning environment and better reach the educational goal. This game board as a teaching method applies the strategies used by both teacher-centered and student-centered approaches, which is lecturer can be as a facilitator during the game session. The subject information produced by the learners is remembered better than the same information presented to the students by the lecturer. Furthermore, this approach encourages the students to search for relevant knowledge rather than the lecturer monopolizing the transmission of information to the learners.

Besides, another alternative of interactive learning is using interactive tutorial by applying the interactive multimedia [10]. As the in the technology of internet became more advanced day by day, most education institutions try to adopt this technology in teaching and learning process either by providing online class, electronic book (e-book) or online forum. However, this method is not an interactive learning, since the process of learning is still similar to the traditional way. The difference is only the medium of learning whereby they are using the internet rather than face to face learning in the classroom. Therefore, having an interactive tutorial, students are given the opportunity to explore and interact with a simulation of a real scenario. It is found that, the students achieved better result when they are using interactive tutorial rather than when they are using e-book [10].

III. RESEARCH METHODOLOGY

The objective of this study was to investigate the relationship of interactive learning by application of “Catur Ekonomi” with students’ academic performance. Besides, this paper also tries to identify the impact of “Catur Ekonomi” on students’ academic performance. In this study, a self-structured questionnaire was designed and distributed to 70 students of Faculty Administrative Science and Policy Studies at Universiti Teknologi MARA (UiTM) Pahang, who have used and played the “Catur Ekonomi” during tutorial session.

Every set of “Catur Ekonomi” was played by at least two players during the tutorial session. Each player should have one score card and a token to represent them on the game's board. Another player was picked to be a judge and in charge of all

the questions given to the players and would calculate the total marks collected by the players. All players must follow the instruction stated on the board. Anyone, whose token occupied in the space stated “Performance Card” would take one of the cards in the card’s box and must answer the question. The question on the card is related to economics topic that is covered in the syllabus. Marks would be given for correct answers. No marks would be deducted if the answers were wrong. The player should try his/her best to respond to the question correctly as this is the only chance for him/her to collect his/her marks. Here, the judge would play his/her role by deciding the answer given by the player. At the end of the game, the first player who reached the “FINISH” line would be granted 10 marks, second player, 8 marks, third player 6 marks and last player would get only 4 marks. The player with highest total scores would be announced as the winner.

After playing the “Catur Ekonomi”, the students will be tested in their Test 1. Then, they are required to answer the questionnaires given to them to identify the effectiveness of the game and also to measure the knowledge they get from the “Catur Ekonomi”. The questionnaires contained three sections; Section A, demographic profile including their marks obtained in their Examination Test which as a proxy for academic performance and Section B, knowledge on economics and section C for the usage of “Catur Ekonomi”. Statistical Package for Social Sciences, version 22.0 was used to generate the findings in this study.

IV. FINDINGS AND ANALYSIS

Altogether, there were 70 respondents, consisted of all students of the Faculty of Administrative Sciences and Policy Studies, UiTM Pahang who registered for ECO162 subjects during the Semester December 2015 – April 2016. These students had played the “Catur Ekonomi” during their tutorial class. 80% of the students were female, and another 20% were male. Most of the respondents were between 16 and 20 years old which was 91.4% the rest are between 21 – 25 years old. Only 35.7% of the respondents have some basic knowledge on economics subject while the others do not have any background in economics.

Table I summarizes the correlation values between the usage of “Catur Ekonomi” and the students’ academic achievement. The result shows that both usages of “Catur Ekonomi” and students’ knowledge of economics have the relationship with academic performance. This result proves that the academic performance was significantly related to the basic knowledge that students have in economics and the application of economics board game, “Catur Ekonomi” in learning process and student’s academic performance. However, the correlation coefficients showed a weak correlation between the variables.

TABLE I. CORRELATIONS OF “CATUR EKONOMI” WITH THE STUDENTS’ ACADEMIC PERFORMANCE.

	1	2	3
Test	1		
Knowledge on Economics	.237**	1	
The usage of “Catur Ekonomi”	.262**	.294**	1

Note. Coefficients above represents correlations between variables for total sample (N=70); Coefficients printed in bold are significant (p<0.05).

Next, the findings on how interactive learning could impact the students’ academic performance is shown in Table II. All items are stated mean score more than 3. According to this result, it is clearly stated that the usage of “Catur Ekonomi” could improve students’ score in the test. Most of the students agreed that “Catur Ekonomi” may help them in understanding the economics concepts better (means score at 4.1286 and standard deviation at 0.448). Besides, most of the students agree that they can perform better in test and exam by having this interactive learning (means score at 4.1429 and standard deviation at 460).

TABLE II. MEAN AND PERCENTAGE FOR THE USAGE OF CATUR EKONOMI

	Mean	Strongly disagree	Disagree	Agree	Strongly Agree
I am enjoy playing this Catur Ekonomi	4.5714	-	-	30 (42.9%)	40 (57.1%)
I can play and understand the technique needed in Catur Ekonomi	4.4286	-	-	40 (7.10%)	30 (42.9%)
I can get the benefits from this Catur Ekonomi	4.4857	-	-	36 (51.4%)	34 (48.6%)
I do have strengths to complete playing Catur Ekonomi	3.3286	6 (8.6%)	18 (25.7%)	39 (55.7%)	7 (10%)
I can understand the economics concept better by playing Catur Ekonomi	4.1286	-	1 (1.4%)	58 (82.9)	11 (15.7%)
Questions in Catur Ekonomi makes me feel excited to learn this subject.	3.8571	3 (4.3%)	8 (11.4%)	44 (62.9%)	15 (21.4%)
I can perform better in my tests and exam.	4.1429	-	1 (1.4%)	57 (81.4%)	12 (17.1%)
Generally, I really like this Catur Economics.	4.4571	-	-	38 (54.3%)	32 (45.7%)

For further investigation, this study runs the multiple regression analysis to investigate the impact of interactive learning towards academic performance.

$$Academic\ Performance = 8.419 + 6.548KLE + 6.380CE \quad (1)$$

TABLE III. T-STASTICAL VALUE FOR KLE AND CE

Independent variable	KLE	CE
T-statistic value	3.787*	3.420*

Notes: Figure in () denote t-stastical value and ***, ** and *denotes significance level at 1% , 5% and 10% level, respectively

Whereby;

KLE = Knowledge in Economics

CE = The usage of “Catur Ekonomi”

The result of F-Test shows that the overall model is significant at 10% significant level. Having basic knowledge in economics and using the economics board game may help to catch students’ interest and thus assist them in their academic achievement.

Table III shows that both knowledge in economics and the application of interactive learning (Catur Ekonomi) are positively related and contributed significantly to academic performance since t-values are 3.787 and 3.420 respectively (p-values <0.01). This result was consistent with most of the previous studies whereby interactive learning would be significantly related to academic performance [7] and [8].

The study also tests for multicollinearity test since the weak correlation exists between variables, the possibility for multicollinearity may exist between the independent variables. The tests indicated that multicollinearity was not a concern (The usage of CE, Tolerance = 0.914, VIF = 1.094; Knowledge in Economics, Tolerance = 0.914, VIF = 1.094).

V. CONCLUSION

This paper was carried out to investigate the relationship of the usage of “Catur Ekonomi” as a medium of teaching with students’ academic performance, and the results from the analysis revealed that the application of interactive learning was significantly related to the academic performance.

Also, the analysis has been extending to identify the impact of “Catur Ekonomi” to the students’ academic performance. The result from the study showed that knowledge in economics and the application of interactive learning (Catur Ekonomi) are positively related and contributed significantly to academic performance.

Hence, it is proved that the interactive learning can be an effective way of learning that may help students to enhance their understanding. “Catur Ekonomi” can be used as an alternative of teaching aids in the classroom. Students could gain benefits from the “Catur Ekonomi” since it is easily accessible and understood.

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