

Smart Trader: A Simulation Game in Accumulating Wealth

Nor Aziah Abd Kadir
Faculty of Business Management
UiTM Cawangan Pahang Kampus Raub
27600 Raub, Pahang, Malaysia
aziahkadir@pahang.uitm.edu.my

Khalid Mat Pardi
Academy of Language Studies
UiTM Cawangan Pahang Kampus Raub
27600 Raub, Pahang, Malaysia
khalidmp@pahang.uitm.edu.my

Nurul Afzan Najid
Faculty of Accountancy
UiTM Cawangan Pahang Kampus Raub
27600 Raub, Pahang, Malaysia
nurulafzan@pahang.uitm.edu.my

Abstract — Production is a process of transforming resources into goods and services that have exchange value. It is a very tough topic where students need to identify the best production processes, determine the significant selling price of the product and services and plan the competitive strategies in order to be efficient and gain more profit. Students may conclude to misunderstand the concept and not confident in making business decision. Too many theories and concepts may hurt students' concentration and contribute to complexity in their study. The introduction of Smart Trader game in class as an interactive learning style may help students a lot compare to the conventional method such as having lecture and reading textbooks. In this game, students are divided into three groups. Each group has been given an envelope consists of different set of resources. They need to produce paper boxes and sell them to the trader to get the best selling price. At this stage, students need to determine the cost of production, set mark-up price and sell the product to a local market trader with agreed selling price. Students also have to prepare the financial statement as a document to disclose the financial activities and position of a business. Using an experimental approach, this paper compares the performance of students when they learn through the game and lecture. The result shows that students can increase their understanding in production theory and achieve higher grade when game is applied in the class compare to traditional method of learning.

Keywords — *accumulation wealth; costing; production; simulation game; trade*

I. INTRODUCTION

Production is a common topic discussed in the economics and accounting subjects. Students often hold misconception and confusion about this topic as it relates to the business trade activities. Too many formulas, concepts and theories need to be memorized in this topic. Since the process of learning all these seems too complex, lecturers need to find an alternative way to make it easier and more interesting for the students.

In many business courses, simulation games are becoming a popular choice of pedagogical technique. Yet, research is beginning to consider how these simulation games could affect student's performance. The objective of this paper is to identify the effectiveness of the innovative learning style using a simulation game as proposed the 'Smart Trader Game' compared to the conventional method such as having lecture and reading textbooks. The traditional class format, based on lectures and problem sets are inadequate in meeting the learning needs of current students [1]. Other previous researchers [2] also opined that, there should be a paradigm shift in collegiate teaching where teacher-centered learning environment seems ineffective for teaching accounting subject. Hence, they implied that learning-centered approach should be practiced as a way to encourage students to have a better learning experience in class, achieve good results and able to produce significant and lasting change.

Furthermore, every student should be treated as an individual since they have different levels of motivation, commitment, ability, and learning styles or approaches. Because of that they receive and process information differently [3]. Therefore, educational practitioners need to find alternatives for the teaching and learning process, so that it can be delivered effectively. The best learning styles which suit students' characteristics may increase their motivation and lead to better learning experience. The closest alternative that can be referred to this situation is by adopting the 'learning through play' environment during the teaching and learning process. This is because everybody does understand the language of 'play' regardless of age, ethnic, economic or social background [4]. Therefore, games can be a suitable medium for students to explore and collect information in a fun and interactive ways.

The Smart Trader Game has been proposed to create an active and innovative learning as an alternative to the conventional learning style. This Smart Trader Game is an improvisation of the Trade Game [5] where in this version the element of costing is included. The game introduced was easy

to conduct and flexible to be played with respond to the number of students. Furthermore, by using real life production output, the concept of trade becomes immediately relevant as students truly wish to improve production skills and finally maximize their profits. The best output produced can accumulate wealth as it can be sold at higher price. The game will lead to a discussion of the efficiency of production, cost of production, specialization and profit maximization. This Innovative Learning Experience seems to help students understand fundamental concepts more easily. Thus, making the topic more comprehensible and helping students can place the social facts into a structured scheme [6].

II. METHODOLOGY

80 final year students from the Faculty of Business Management were chosen as the respondents for this study in order to compare their performance on the target topic based on two different teaching and learning styles, namely traditional way (lecture and reading textbook) and innovative way (through Smart Trader Game). The respondents later were divided into two groups which are Group A and Group B. For Group A, the respondents were introduced to the topic through a normal teaching and learning styles, where the lecturer explained and discussed the topic with them based on the notes taken from the textbook. On the other hand, the respondents in Group B learnt the same topic by playing their roles in the Smart Trader game while the lecturer acted as a facilitator to ensure that they followed the rules of the game. After the learning session, the respondents in each group were given a set of questions based on the topic in order to test their performance or level of understanding of the topic that they have just learnt. Their results were then compared to see the effectiveness of both teaching and learning styles

III. CONCEPT OF THE GAME

Some researchers [7]-[9] have suggested that changes in learning styles make the use of games and simulations even more important. They further suggested that where past generation of students may have poured over textbooks, the current generation who is groomed on television and computers are more accustomed to other modes of education. Since GenY students are more visual than verbal [10], games and simulations could be one of the best methods to fulfill their needs for active engagement [11]. They also found that games do promote active engagement in the learning process while providing opportunities for the students to practice and apply the concepts without needing a lot of memorization. This type of pedagogy is called "edutainment" as games and simulations capitalize on the entertainment value of the activity to support academic learning[8].

Thus, the Smart Trader: A Simulation Game has been developed to capture various learning styles of students by adopting the Neil Fleming's VAK/VARK model. Different types of learning styles are reflected throughout this game. This simulation game can be conducted in a classroom with loose tables and chairs. Students are divided into three groups consist of 5 members (a Financial Manager, an Operation Manager and three production labors) in order to play this game. Each group will be awarded with an amount of opening capital. They need to produce simple paper baskets and sell

them to the traders to get maximum profit. Each group will start the production by buying the production materials from the trader. At this stage, the students need to record and determine the cost of production, set mark-up price and sell the product to a local market trader upon agreed selling price. They have to discuss among themselves to fix the mark-up percentage in order to ensure their profits. A lecturer (facilitator) is required to be the game leader and two additional persons are required to act as a commodity trader and banker. Each group is allowed to make a business loan with the banker if they need to do so but 10% interest will be charged on the loan. Additionally, it is also useful to have one or two 'observers' for this game. The observers should monitor the way they negotiate the prices of the paper (resources) and other materials. They should note the formation and operation of any alliances and deals or any cheating that takes place. The observers also should report to the game leader of any malpractice, such as stealing other resources, materials or the output produced. Then, the leader needs to decide either to ignore or to punish the executors such as suspending them from making productions for five minutes or any other relevant penalties.

At the end of the games, students have to prepare the financial statement as a document to disclose the financial activities and position of their business. The students will be given one hour to finish the task. This is followed by scoring, reporting by students and adjudication by the lecturer. Perhaps, another twenty to thirty minutes will be needed to draw the lessons learnt from the game.

The Smart Trader is a simple exercise but has a potential to be a powerful assessment tool. The instructor may use this game as a pre-test at the beginning of the course and as a post-test at the end of the term to measure any gains attributed to students' learning experiences. This academic experience goes beyond the added knowledge gained from the assigned materials because it also includes ethical consequences.

IV. EXPERIMENTAL RESULT

As an experimental design of study, the results of the respondents' performance are compared after they finished the tests. The result is presented as in Table 1. Group A who answered the test based on the traditional of teaching and learning method (lecture) gained low grade compared to Group B who answered the test based on an innovative way (playing the Smart Trader Game). The number of participants who scored grade A also increases as they play the game compared to the traditional method of learning. None of the participants in Group B failed in the test. The average grade obtained by Group A participants are C whereas most of the participants in Group B managed to get grade B. Learning through an innovative way as playing the Smart Traders Game will increase the student's' grade. The level of understanding the topic and completing the assessment will be better as they apply all the concepts of production while playing the game. The discussions conducted after the game also helped the students to understand how to prepare the required financial statement and gain more profits.

TABLE.1.THE STUDENT’S RESULT BASED ON LECTURE AND PLAYING SMART TRADER GAME

Student’s Grade	Lecture (Group A)	Playing Smart Trader Game (Group B)
A (75 - 100 marks)	2 (5%)	5 (12.5%)
B (65 -74 marks)	15(37.5%)	22 (55%)
C (50 - 64 marks)	21 (52.5%)	13 (32.5%)
D (45 - 49 marks)	1(2.5%)	0
F (below 44 marks)	1(2.5%)	0

Table 2 below shows the level of knowledge based on the type of questions that are multiple choice and structured question. A total of 10 marks are required for multiple choice and another 20 marks for structured questions. Respondents who gained 5 to 10 marks are considered as good while marks obtained below than 5 are considered as poor. Similarly for structured questions, marks gained below 10 are considered as poor while marks obtained in the range of 10 to 20 are considered as good. The results are presented in Table 2. Both groups of participants did well in multiple choice questions (MCQ). 75% of the participants from Group A obtained good result in the MCQ while 25% gained poor result. However, the majority of them did poorly in the structured questions. The participants in Group B, on the other hand, obtained good result both in the MCQ (80%) and structured questions (87.5 %). Perhaps, this is due to the application of preparing the financial spreadsheet in the game did help them a lot in answering the questions.

TABLE.2.SCORES BASED ON THE TYPES OF QUESTIONS

Group	Multiple Choice Questions		Structured Questions	
	Poor (below 5)	Good (5-10)	Poor (below 10)	Good (10-20)
Lecture (Group A)	10 (25%)	30 (75%)	30 (75%)	10 (25%)
Play Smart Traders Game (Group B)	8 (20%)	32 (80%)	5 (12.5%)	35 (87.5%)

V. CONCLUSION

The Smart Trader Game is an interesting and fun way of learning a subject matter that is often confusing for students. The lesson learnt after the game will increase students’ understanding of the topic and positively affect students’ performance. Not only that, the Smart Trader Game also allows the instructors to have a fun and easy teaching experience in their teaching style. The authors also believe that Smart Trader Game would help students to bridge the knowledge gap needed to be successful in the production course while enhancing their costing and financial accounting knowledge.

REFERENCES

- [1] M. R. Nitkin, “Game of business: A game for use in introductory accounting”, The Accounting Educators’ Journal, vol. XXI, pp. 131- 152, 2011.
- [2] D. Albrecht, and B. Green, “Using simulation games in financial accounting & managerial accounting”, American Accounting Association Anaheim, vol. 19(4), pp. 22-27, August 5, 2008.
- [3] M.A. Khenissi, F. Essalmi, M. Jemni, S. Graf, and N.S. Chen, “Relationship between learning styles and genres of games”, Computers & Education, vol. 101, pp.1-14, 2016.
- [4] J. Azriel, M. Erthal, and E. Starr, “Answers, questions, and deceptions: What is the role of games in business education”, Journal of Education for Business, vol. 81(1), pp. 9-13, 2005.
- [5] K. S. Brian, and W.S. Claudia, “Illustrating trade in the classroom: How free trade can create wealth and decrease hunger literally”, Journal of Economics and Finance Education, vol. 3(2), pp. 41-45, 2004.
- [6] F. Ceresia, “Interactive learning environments (ILEs) as effective tools for teaching social sciences”, Procedia-Social and Behavioral Sciences, vol. 217, pp. 512-521, 2016.
- [7] S. Robinson, “Learning games from the ground up”, Proceedings of Allied Academies International Conference, vol. 12(1), pp. 43-46, 2007.
- [8] S. Eisner, “The class talk show: A pedagogical tool”, S.A.M. Advanced Management Journal, vol. 69(1), pp. 34-42, 2004.
- [9] A. Arhin, and V. Johnson-Mallard, “Encouraging alternative forms of self-expression in the generation Y student: A strategy for effective learning in the classroom”, ABNF Journal, vol. 14(6), pp. 121-122, 2003.
- [10] B. Lippincott, and T. Pergola, “Use of a job cost simulation to engage gen Y students”, Journal of the International Academy of Case Studies, vol. 15(2), pp. 97-113, 2009.
- [11] M. M. Tanner, and T. M. Lindquist, “Using monopoly and teams-games-tournaments in accounting education: A cooperative learning teaching resource”, Accounting Education, vol. 7(2), pp. 139-162, 1998.