



The effectiveness of board game towards soft skills development for higher education

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Abstract. The aim of this study is to present a board game design which are based on the hotel management concepts, and assess its effectiveness towards soft skills development for higher education. Soft skills play a major role during social interaction in the society as well as maintaining a successful career. 5-ST☆R: The Hotel Management Game was proposed as a platform to develop soft skills among students in higher learning as to implement game-based learning and simulation-based learning for post-learning activity. A quasi-experimental research design was used as to measure the effectiveness of the board game in the development of soft skills. A sample of 64 students were being selected and assigned into two groups, one of which used the board game (Experimental, n = 32), while the other are the non-gaming (Control, n = 32). A questionnaire was used in the pre-test and post-test phase. During the intervention session, students were being observed and their scores and objectives achieved for each game session were recorded. Data analysis from the study support that the use of board game was effective in the development of the respondents' soft skills. The results from the study recommend that within the higher learning environment, the use of board game can be exploited as an effective post-learning activity as the students also may be able to discover the knowledge on its own in a non-threatening environment.

Keywords: Board game, game-based learning, simulation-based learning, soft skills development

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INTRODUCTION

In general, soft skills are defined as an interpersonal, human or behavioural skills needed to apply knowledge in the society (Weber, Finley, & Crawford, 2009). Soft skills are one of the important components of producing a holistic and competitive student. Therefore, soft skills are highly regarded as a complement to hard skills and are known as the main requirement for a successful workplace performance. A few studies have been done in emphasizing the importance of soft skills especially for management studies and career development (Adnan, Daud, Alias, & Razali, 2012; Goswami, 2013; Suci & Lacatus, 2014). To achieve this objective, soft skills based programs and courses have been designed and conducted at the university level to train students. Many of these programs and courses have produced training modules as medium of delivery. However, module-guided learning session has created a passive learning environment, as well as subjective assessment scores and lack of engagement, hence making the delivery of soft skills through traditional teaching and learning methods less effective. Thus, there is a need for an innovative alternative learning medium which can attract students to participate actively in every learning session so that their interest will always at a high level. This simply because every time the students' interest increase in a learning session, the content of the knowledge that the students can absorb will also increase.

Previous studies have proved that games and simulation were one of a few alternatives which can stimulate student's interest and gaining a high impact on learning, especially in soft skills development (Linehan, Lawson, & Doughty, 2009). In addition, soft skills are skills that need to be practiced hands-on and not just by listening through lectures. By using board game, students are not only engaged in games that stimulate their learning interest, but can even practice their soft skills during every game session through interactions with other students. Hence, stealth training has been implemented during each gaming session without them realizing it.

Problem solving skills (critical and structured thinking), communication skills and creativity are the main soft skills that most students struggle to master (Schulz, 2008). Problem solving skills which consist of critical and structured thinking provide a person to critically filter information, analyse it and make meaningful decisions. A person who masters this skill would provide a better decision making which its decision was supported with all the possible alternatives for a certain solution; considering and analysing the benefits and drawbacks for each of all the alternatives; and choose the best solution from the alternatives, which provide the most benefits while minimising the effects of the drawbacks. Communication skills refer to language proficiency, presentation, behaviour and conversion of information that are used in passing information from one individual to one or more individuals. On the other hand, creativity lets a person to think out of the box to find innovative solution for a problem. Based on the skills highlighted by Schulz (2008), it would be possible that the aforementioned skills can be trained using game-based learning (GBL) approach especially in the domain of hotel management.

Board Game as A Medium of Game-Based Learning (Gbl)

Games for educational purpose for higher learning context continue to evolve in the education setting in recent years. The use of GBL becomes more common in empowering students with domain knowledge. GBL refers to a various kinds of software applications that use games for learning or educational purposes (Karimi & Nosrati, 2012). Other definition of GBL is a game that defined learning outcomes which embedded into the game play (Shaffer, Squire, Halverson, & Gee, 2005). GBL proves to have a potential to aggravate active user participation through exploration, cooperation, competition and experimentation.

Incentives from the activities provided in the game play often drive the motivation to use the GBL medium. Hence, players will feel that they have received their incentives and will keep playing the game, thus making the player engaged with the game and raised their motivation to play. When motivation of play can be maintained, the flow experience will also follows, which is important as the driving force of the outcome of game play. Flow experience refers to a state of full immersion in an activity, which typically goes along with a loss of sense of time and no reflection on carrying out the action (Csikszentmihalyi, 1992). Providing an optimal flow experience would enable enhanced and focused attention of the player towards any GBL medium. Therefore it is imperative that players must interact with the GBL medium and perceived towards it positively (Karimi & Nosrati, 2012).

Although digital games were highly touted as an effective medium in delivering GBL for educational setting, but in fact it is not always the case (Plass, Homer, & Kinzer, 2015). There were various applications of GBL using non-digital games (Jimenez-silva, White-Taylor, & Gomez, 2010; Linderoth, 2011; Puteri Azwa & Shanizan Herman, 2014; Puteri Azwa, Shanizan Herman, & Shanizan Imran, 2017; Radzi, Tan, & Yusoff, 2018; Shahrul Azmi, Shanizan Herman, Sharifah Nadera, & Nurhafizah, 2016; Shanizan Herman, Puteri Azwa, Mohd Zukuwwan, & Asif Zamri, 2013). Alternatively, board game is one of the common non-digital games in implementing GBL. The use of board game in education context have proven to have a significant effect on learning which reflects achievement of players and nurturing intrinsic motivation (Dahlin, Larsson, & Erlich, 2013; Huang & Levinson, 2012; Puteri Azwa et al., 2017; Shahrul Azmi et al., 2016; Shanizan Herman & Puteri Azwa, 2015; Siegler & Ramani, 2008).

The game play of a board game is able to represent general processes of any operations. Even though computer simulation offered in most digital games were highly regarded as the best in providing immersion towards the player, board game has its own potential in other aspects. One of the speciality of board game is engagement and connectivity by enforcing active interaction between players during play session. Furthermore, board game enables players to foster a reflective environment for learning a certain knowledge context and enables player to creatively solve problem in the game world. With the aforementioned strengths of the board game being highlighted, it is fair to accept board game as equal to digital games in delivering GBL in educational setting for higher education.

Simulation-Based Learning Using Board Game

Simulation defines as a broad collection of methods and applications to mimic the behaviour of the real system (Kelton, Sadowski, & Swets, 2010). In addition, simulation also refers to an evaluation tool to measure the performance of either an existing or new system under different configuration of interest (Maria, 1997). Simulation can present the behaviour of the system under study which expose the unforeseen bottlenecks, over-utilization of resources and check the conditions of requirement for a system. In general, simulation provides a clear view of the system and promotes what-if-analyses to be done as to optimize the system under study. Simulation offers a whole new dimension towards immersion which expands its use in the education context, thus making way for the use of simulation-based learning. Although simulation-based learning was widely used as an educational tool for the field of

medical and nursing education (Bray, Schwartz, Odegard, Hammer, & Seybert, 2011; Cooper et al., 2011; Murphy et al., 2010; Oh, Deok, & Suk, 2015), there was still a potential for simulation to be embedded with game like scenario as to provide a hands-on practise for other fields (Cushman-Roisin, Rice III, & Moldaver, 2000; Mawdesley, Long, Al-jibouri, & Scott, 2011).

Simulation in board game is able to amplify the real experiences with guided content. Therefore, players in a board game will be exposed with context provided in the board game as they involved in the game activity. Other than that, players were also immersed in the involvement of the process or setting that the game provides. Simulation-based learning able to provide depth in the game activity as it represents the flow of a certain process which a system follows. Hence, providing the players with the steps that they need to follow in order to fulfil certain task. As players involve in the activity, it gives them experience as they delve in the game environment. The element of what-if analyses helps players to test their decisions as they assess the outcome from the decisions that they have made. The exercise provides a platform for players to test their judgement of solving problem in a non-threatening environment among their colleagues.

With the use of simulation in board game, players will be able to develop knowledge skills in certain context whilst avoiding them from risk. On the other hand, simulation in board game offers unique opportunity to be used as a measurement tool that is linked with the learning objectives as well as the targeted group. Thus, the score that the players obtained through the whole game session might be used as marks for student's assessment.

Designing A Board Game for Soft Skills Development

This study proposed the use of board game for soft skills development. Approaches in teaching and learning through board game have a high potential to facilitate technical and functional expertise in training, problem solving and decision making skills and interpersonal and communication skills or teamwork competencies rather than to receive them passively from lectures (Jong & Shang, 2015; Li, 2010; Prensky, 2001). The creation of problem learning space in realistic setting has been made possible with the use of the board game as its medium. In addition, board game provides a good real-time collaboration among players and promotes lots of team activity which engage by inquiry based learning. GBL has been triggered with the use of board game in soft skills development. GBL has been well known as an effective medium for student engagement while raising their interest towards the context and enabling knowledge discovery among players on their own (Huang & Levinson, 2012; Spring, 2015).

A board game entitled 5-ST☆R: The Hotel Management Game was used as a medium for implementing GBL in soft skills development. The board game was specially developed within the research group as to propose an alternative platform for soft skills development among students to challenge themselves with problems created by the game environment. The board game was design to be played cooperatively rather than most board games which feature competitive play. The main theme of the board game is hotel management in which a player will play as the head of a department in the hotel. There are four departments provided in the board game which are the marketing, front office, housekeeping, and food and beverage departments. Although there are few others departments in hotel management, only four key departments were focussed as to maintain the simplicity of the game. A player will be given a key departmental role during the game based on the department that he/she leads. Each player (department) will have his/her own exclusive game actions and activities during his/her active turn but each player also needs to focus on the general management actions during the planning session.

Research Phases and Development Strategies for 5-ST☆R: The Hotel Management Game

There are three major research phases in the development of 5-ST☆R: The Hotel Management Game. Several development strategies were carried out for each reseach phase as shown in Table 1.

Table 1. *Research phases and development strategies*

RESEARCH PHASES	Phase 1	Phase 2	Phase 3
	Design of board game for soft skills development	Validation of effects of the board game for soft skills development in higher education	Improvement of the board game for hotel management

STRATEGIES	1. Literature review (academic research papers) 2. Literature review (game play sessions with board games found in the market) 3. Discussions and interviews with academicians and practitioners in soft skills development and hotel management context	1. Play testing for verification and validation of the hotel management theme as well as soft skills development element 2. Quasi-experiment for testing hypotheses	1. Feedback from experts 2. Innovation competition
	3. Discussions and interviews with academicians and practitioners for soft skills development in hotel management context		
	4. Review of modern European board game design		
	5. Simulation models for comprehensive hotel management operation for soft skills development		
	6. Matching game mechanics for all four key roles in the hotel management theme from the simulation models		

During the early phase of the development, a few board game sessions have been conducted as to clearly understand the latest game mechanics from the modern European board games. A few titles have been selected for play testing including both competitive and cooperative board games found in the market. Although most board games emphasize on soft skills development but none of them clearly combine a comprehensive soft skills training which required in one such exercise. Therefore, there is a need of a comprehensive GBL medium as to fulfil the need of a comprehensive soft skills development to be used in higher education.

Architecture of 5-ST★R: The Hotel Management Game

The board game architecture was created as to highlight the key interaction among the players and which soft skill elements integrate with the game. The architecture also acts as the core mechanics of the game play for the bespoke board game as shown in Figure 1. The architecture was created based on four key departmental roles in hotel management which are the front office, housekeeping, marketing and food and beverage managers. Each player of the board game will play as one of these roles as he/she manages the hotel and overcome the challenges and absorb all opportunities as to achieve the game objectives.

Although the game activities applied in the board game were not exactly replicate the real operation of a specific task, the game activities chosen for each departmental role were closely resemblance of the real operation while maintaining the simplicity of performing the game task during the play. Therefore, players will have a meaningful play when playing the board game as they will experience a more realistic hotel management process.

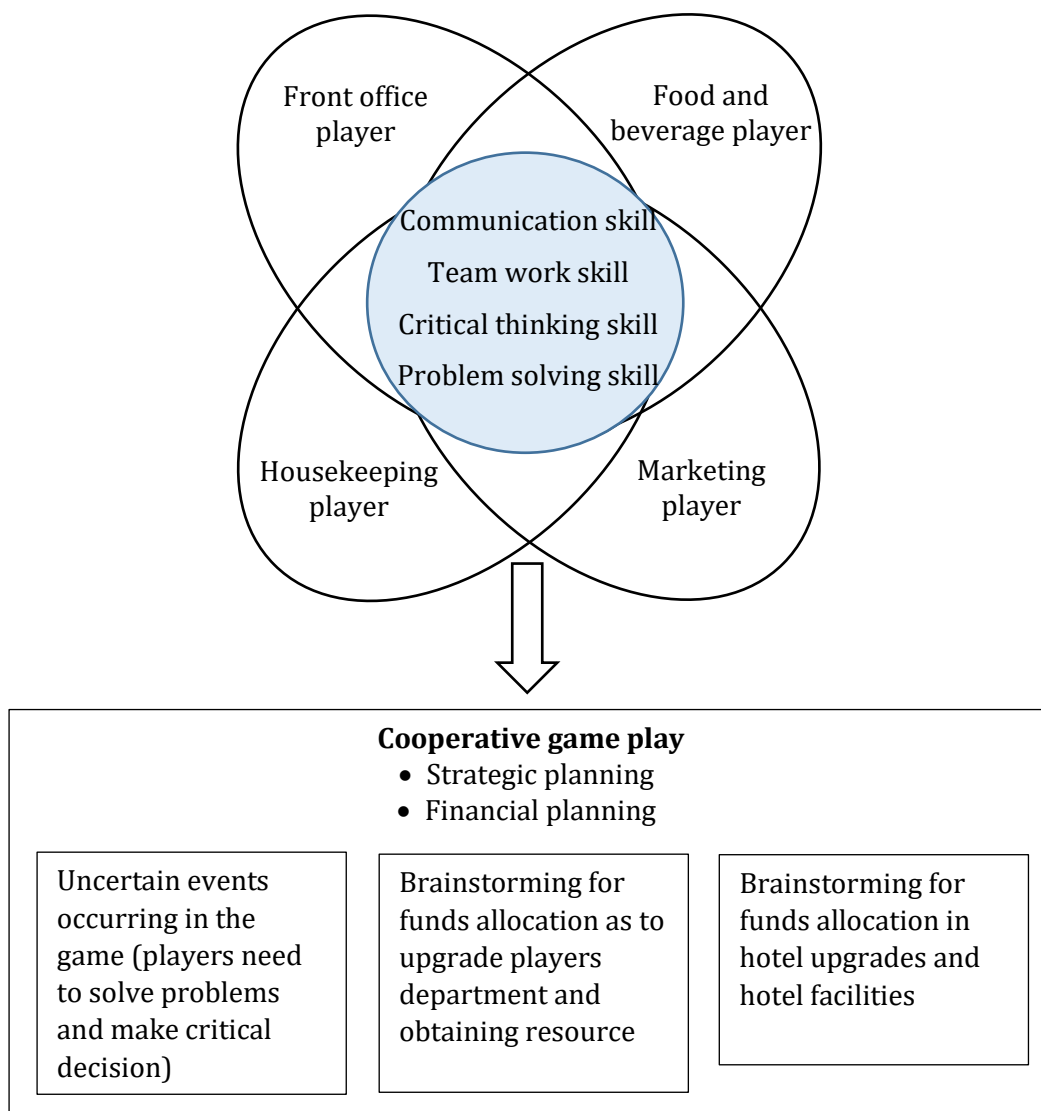


Figure 1. Board game architecture of 5-ST☆R: The Hotel Management Game.

In order to win the game, players should keep track of the performance of their hotel with the game objective cards that they have drawn at the start of the game. As to maintain the competitiveness among the players, a set of game objective cards with pre-set objectives has been provided. The mapping of the objectives with the output performance measures were shown in Table 2.

Table 2. The mapping of game objectives with the output performance measures within the board game

Game Objectives	Output Performance Measures
1. Collect 1000 cash	Number of cash in the hotel treasury
2. Served 50 guests	Number of guests who have stayed at the hotel
3. Served 10 exclusive guests	Number of exclusive guests who have stayed at the hotel
4. Build one penthouse floor	Status of hotel floors built so far
5. Have five hotel upgrades	Status of hotel upgrades built so far
6. Have three family room floors	Status of hotel floors built so far
7. Hire all chefs	Status of workers in the food and beverage department
8. Hire all chambermaids	Status of workers in the housekeeping department
9. Hire all technicians	Status of workers in the housekeeping department
10. Hire all senior technicians	Status of workers in the housekeeping department

11. Organize three special events	Number of events organize so far
12. Achieved 50 reputation points	Number of reputation points collected so far
13. Purchase all player upgrade cards	Number of upgrade cards purchased so far
14. Achieved 5 Star rating hotel	Number of hotel floors, hotel facilities, hotel upgrades and cash in the hotel treasury

There are two outcomes from this game: either all players win the game or all players lose the game. The players win the game if they can achieve all the specified objectives within the respective turn, or they lose if they were unable to achieve all or some specified objectives by the end of the game. In order to achieve this, it is evident that players will have to work together, sharing the same resources, solving unexpected problems, making critical decisions and adapt to the never-ending challenges generated by the board game.

Figure 1 also shows an active interaction among all players as they play the board game. The interaction exists among themselves within the arrows to illustrate the movement of information. Even though there are four separate departments with different tasks within their respective departments, the board game ensures that there are connectivity among departments as the hotel operates. Players will be exposed to all sorts of challenges such as:

- uncertain events that occur in the hotel environment,
- obtaining resources for each department – either allocation of budget or materials,
- prioritising departmental upgrades,
- prioritising hotel upgrades, and
- prioritising hotel facilities.

Planning session will be conducted at the start of each game phase. Players would be able to conduct a brainstorming session as to manage the hotel with the limited resources at each round. As player plays the board game, they would be able to express and nurtures their soft skills within the game environment without risking any valuable resources or unwanted risk. Therefore, they would be able to perform various experimentation towards their choices in managing the hotel as to be the outstanding managers by overcoming the challenges provided by the board game.

Play Testing the 5-ST☆R: The Hotel Management Game

The play testing sessions have been done throughout the two phases during the development of the board game. The play testing sessions of the first phase are alpha testing sessions, which were done among the board game designers with the content experts. There are two types of content experts for the development of the board game, which are the lecturers who have involved in the field of hotel management and the other one was a practitioner who has involved in managing a three star rating hotel. The alpha testing sessions were conducted frequently within three months. The prototype for the field testing was completed after a few modifications based on the experts' feedbacks. The play testing of the second phase involved a field testing, which employs a quasi-experiment for hypotheses testing.

RESEARCH HYPOTHESES

The aim of this study was to investigate the effect of soft skills development for students in higher learning using board game. There are four soft skills being highlighted in this research, which are: communication skill, critical thinking skill, problem solving skill and teamwork skill. GBL has been proposed for soft skills development as its approach able to nurture positive effect, empowering engagement and raising motivation by utilizing game features and a non-threatening environment (Gee, 2003; Kapp, 2012; Kapp, Blair, & Mesch, 2014).

The board game encouraged students to make decision by solving problems, face challenges and assess their judgement by trial and error within the game (Mikalef, Giannakos, Chorianopoulos, & Jaccheri, 2012). On the other hand, the gaming activities always give a concept of enjoyment, relaxation and leisure, which relieved stress and tension. Additionally, playing board games may enable practise of learning to be conducted voluntarily without any coercion. Data was collected among higher education students to get their respond towards playing the board game as a medium of practising soft skills among themselves. The null hypotheses of the study were formulated as follows:

H₀₁ There is no significant difference in communication skill among students using board game with students who do not use board game.

H₀₂ There is no significant difference in critical thinking skill among students using board game with students who do not use board game.

H₀₃ There is no significant difference in problem solving skill among students using board game with students who do not use board game.

H₀₄ There is no significant difference in teamwork skill among students using board game with students who do not use board game.

As oppose to the null hypotheses, the corresponding alternative hypotheses were formulated as follows:

H_{a1} There is a significant difference in communication skill among students using board game with students who do not use board game.

H_{a2} There is a significant difference in critical thinking skill among students using board game with students who do not use board game.

H_{a3} There is a significant difference in problem solving skill among students using board game with students who do not use board game.

H_{a4} There is a significant difference in teamwork skill among students using board game with students who do not use board game.

METHOD

Participants

The study was conducted at School of Quantitative Sciences, Universiti Utara Malaysia in Kedah, Malaysia. The sample were taken from 64 students who enrolled in a Decision Science degree program. They were in their third semester which involving two separate lecture groups. All participants were within the age of 20 to 21 years old.

Materials

5-ST☆R: The Hotel Management Game was developed as to fulfil the purpose of the study. This board game is a cooperative board game that can be played by two to four players. The board game can be played by players from ten years old and older. The board game was developed based on the architecture in Figure 1. Game activities for each player role were chosen in order to simulate the best representation for the activities while maintaining the simplicity of game action for players while playing the board game (Radzi et al., 2018; Radzi, Ying, Abidin, Ahmad, & Zainol, 2017).

The experiential learning theory (ELT) explains how the experience can be transformed into knowledge in a learning process, which also occur when knowledge comes from the combination of grasping and transforming experience (Kolb & Kolb, 2009; Kolb, 1984). The ELT is based on the idea that people will be able to gain knowledge through practice. Therefore, the theory provides a clear explanation for the use of board game as a mean to improve learning. The final prototype of the 5-ST☆R: The Hotel Management Game is as shown in Figure 2.



Figure 2. Final prototype design of 5-ST☆R: The Hotel Management Game.

Research Design

The research design acts as a guide to ensure that the main objective of the study is achieved and in turn provides the answer for each of the research questions being addressed in this study. The objective of this study is to examine the effectiveness of using the 5-ST☆R: The Hotel Management Game in the development of communication skill, critical thinking skill, problem solving skill and teamwork skill among university students. As to fulfil this objective, a quasi-experimental research design has been implemented. Two groups of students from two different lecture groups have been selected for this study. One which is known as the experimental group and the other as control group. The two groups consist of equal number of students which comprises of 32 students. The experimental group will play the 5-ST☆R: The Hotel Management Game (as in Figure 3) as the intervention for eight play sessions (approximately three months).



Figure 3. Play session for 5-ST☆R: The Hotel Management Game.

The duration for each play session was around 120 minutes. The research design used for this study is shown in Table 3.

Table 3. Quasi-experimental research design

Experimental group		
O1	X	O2
Pre-test	Intervention : 5-ST☆R: The Hotel Management Game	Post-test
Control group		
O1		O2
Pre-test		Post-test

Instruments

The main instruments used in this study were the pre-test and post-test questionnaires for soft skills evaluation. The questionnaires which focus on four key areas of the soft skills targeted in this study, which were communication skill, critical thinking skill, problem solving skill and teamwork skill. Although there was no specific questionnaire for the aforementioned skills that were evaluated in this study to be adopted, past literature have contributed towards the adaptation to construct the questionnaire for the main instrument (see Table 4).

Table 4. Mapping for key areas of soft skills for the questionnaire

Soft skills construct	Source
Communication skill	(Manah, Shaffai, & Desa, 2015)
Critical thinking skill	(Adnan, Ramalingam, Ilias, & Tahir, 2014)
Problem solving skill	(Adnan et al., 2014)
Teamwork skill	(Othman, Asshaari, Bahaludin, Tawil, & Ismail, 2011)

To measure the validity of the items in the questionnaire, a pilot study has been conducted involving 81 respondents who were not involved in the control and experimental groups. The results from the reliability analysis for all the constructs are shown in Table 5.

Table 5. *Alpha Cronbach value for each construct*

Soft skills construct	Alpha Cronbach value
Communication skill	0.896
Critical thinking skill	0.762
Problem solving skill	0.865
Teamwork skill	0.861

Table 5 has shown that all of the constructs used in the questionnaire have values that are greater than 0.7, therefore the items used in the questionnaire are valid for this study. Both of the pre-test and the post-test questionnaires contain the same items and the time that the questionnaire administered was also the same. The pre-test questionnaire was aimed to assess the respondent view of their soft skills prior to the beginning of the study. Meanwhile, the post-test measured the respondents' views of their soft skills after the completion of the study. Respondents were asked to rate their answers on a 5-point rating scale (1 = strongly disagree, 5 = strongly agree).

Data Analysis

They were 64 participants involved in this study. Before playing the board game, pre-test questionnaires were administered to both groups. At the end of the session, post-test questionnaires were given to the participants. Analysis of covariance (ANCOVA) was conducted as to measure the effects of the board game in the development of soft skills. Before conducting the test, the validation of homogeneity and the normality of the sample size have been done. Thus, Kolmogorov-Smirnov and Levene's test was applied as to check the normality and evaluate the homogeneity of variance (McCrum-Gardner, 2008). The results of both tests show non-significant outcomes which prove that the samples were normal distributed and homogenous variances with a value of $p > 0.05$.

RESULTS

ANCOVA has been conducted to examine H_{01} , H_{02} , H_{03} and H_{04} . The results of the analysis are shown in Table 6, Table 7, Table 8 and Table 9 for the respective soft skills highlighted in this study.

Communication Skill

Table 6 has shown that there is a difference in mean of the communication skill was found to be insignificant with $F(1,61) = 9.334$, $p = .003$ ($p < .05$). Therefore H_{01} was discarded and H_{a1} was accepted. The experimental group has a higher level of communication skill after the intervention by nullifying the effect of the pre-test before the intervention. Students in the experimental group actively involved in discussion as to win the board game. Therefore, they are used to communicate among friends than the students in the control group.

Table 6. *ANCOVA result for communication skill construct*

	Sum of squares	Df	Mean squares	F	Significance
MeanCSS_pra	2.173	1	2.173	6.781	.012
Experimental	2.991	1	2.991	9.334	.003
Total	1176.880	64			

Critical Thinking Skill

Table 7 has shown that there is a difference in mean of the critical thinking skill was found to be insignificant with $F(1,61) = 10.884$, $p = .002$ ($p < .05$). Therefore, H_{02} was discarded and H_{a2} was accepted. The experimental group has a higher level of critical thinking skill after the intervention by nullifying the effect of the pre-test before the intervention. Students in the experimental group actively involved in dealing with uncertainties and the challenges generated by the board game. Hence, they have a tendency on thinking every possible solution as to overcome the challenges offered by the board game as to become the winner.

Table 7. ANCOVA result for critical thinking skill construct

	Sum of squares	Df	Mean squares	F	Significance
MeanCTS_pra	1.697	1	1.697	6.189	.016
Experimental	2.985	1	2.985	10.884	.002
Total	1028.531	64			

Problem Solving Skill

Table 8 has shown that there is a difference in mean of the problem solving skill was found to be insignificant with $F(1,61) = 11.093$, $p = .001$ ($p < .05$). Therefore H_{03} was discarded and H_{a3} was accepted. The experimental group has a higher level of problem solving skill after the intervention by nullifying the effect of the pre-test before the intervention. Students in the experimental group actively involved in making critical decision collaboratively as to maintain the competitiveness and credibility towards achieving all the game objectives.

Table 8. ANCOVA result for problem solving skill construct

	Sum of squares	Df	Mean squares	F	Significance
MeanPSS_pra	6.942	1	6.942	17.884	.000
Experimental	4.306	1	4.306	11.093	.001
Total	1038.898	64			

Teamwork Skill

Table 9 has shown that there is a difference in mean of the teamwork skill was found to be insignificant with $F(1,61) = 15.877$, $p = .000$ ($p < .05$). Therefore H_{04} was discarded and H_{a4} was accepted. The experimental group has a higher level of teamwork skill after the intervention by nullifying the effect of the pre-test before the intervention. Students in the experimental group able to use the board game as a platform to exercise teamwork by brainstorming on which possible strategies would most beneficial towards winning the game.

Table 9. ANCOVA result for teamwork skill construct

	Sum of squares	df	Mean squares	F	Significance
MeanTWS_pra	.801	1	.801	2.470	.121
Experimental	5.148	1	5.148	15.877	.000
Total	1179.405	64			

DISCUSSIONS

The results of this study were consistent with past literature which promotes the use of board game as a platform for skill training and knowledge discovery (Huang & Levinson, 2012; Lennon & Coombs, 2007; Shahrul Azmi et al., 2016; Shanizan Herman & Puteri Azwa, 2015). The results of this study indicate a highly significant impact on improvement towards the development of the soft skills for the respondents in the experiment group.

The hotel management board game was specially developed as to encourage interaction among players in a control environment. The different roles given among players ensure the players to collaborate with each other as to achieve a common goal; which is winning the game. All players have their own roles to play but their decisions for their departments will give impact to the performance of the hotel cumulatively. Although the tasks for each role are exclusive, but the operation of the hotel in the board game runs within the tasks that each player executes. Thus, a strong connection between departments exist in the board game.

Teamwork and communication among players with good judgement (problem solving and critical thinking) is the essence to win the game. The board game enforces each player to be aware of their synergistic roles. Understanding the function of each player role gives an added advantage for players when they face the challenge of the board game. The board game provides a few flexibilities at certain game phase for players to conduct decision making collaboratively. Therefore, active communication occurs during game play session as players discuss about the resources needed,

allocation for each department and prioritising objectives needed to be solved at a certain game phase. Hence, critical thinking skills and problem solving skills were triggered while doing these activities. Furthermore, the decisions that the players made for current game phase will be carry forward to the next game phase, making players to carefully plan their actions.

The collaborative nature of the board game drives the players to be more engaged and involved in gaming activities. In addition, the tension from the game play encourages players to creatively solve problems and making the right decisions at the right time. The board game enforces players to prioritize problems as they play the game. Therefore, it is imperative for active discussions among players as they try to achieve all the objectives in order to win the game. Players also exposed to do what-if analyses to test all the possible outcomes as they try to avoid any risk in making profits. Conclusively, the board game provides a comprehensive platform for students to exercise and expressed their soft skills in a non-threatening environment with their friends. The contribution of this paper is the proposed collaborative board game architecture and design for soft skills development in higher education. Additionally, the results shown in the study have proved the potential of board game as one of the medium for GBL towards soft skills development.

CONCLUSION

The focus of this study was to prove the effectiveness of board game as a mean of GBL for soft skills development in higher education. 5-ST☆R: The Hotel Management Game which is a collaborative game, has been proposed to be used as a medium for training. The board game was developed based on discreet simulation models from a hotel management theme. The development of the board game was carried out in three research phases, i.e. the board game designing phase, validation phase and improvement phase as detailed out in Table 1. Four main soft skills were targeted in this study which are communication skill, critical thinking skill, problem solving skill and teamwork skill. Field testing has been conducted involving 64 students as respondents. A quasi-experimental research design has been implemented where equal number of respondents being assigned to the experimental and control groups. The experimental group plays the board game for eight sessions as the intervention. Data analyses have proved that there is a highly significant result for all the soft skills addressed in this study. This finding provides a new perspective on the use of a collaborative non-digital game for the implementation of GBL and simulation-based learning. With the emergence of new technology in digital gaming, non-digital gaming do provides its own contribution towards enhancing soft skills while disconnecting technology and reconnecting people.

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