

Improving Resilience and Self-Esteem among University Students with Entrepreneurship Simulation Board Game

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ABSTRACT

This study aims to evaluate the effect of the frequency of playing a board game that simulates entrepreneurial experience called "Traders" on the university students' resilience and self-esteem. Traders Board Game (TBG) was developed in 2015 with an aim to improve several entrepreneurship skills among young adults, and resilience being one of them. Pre and posttests of resilience have been done to 12 participants before they were divided into three groups: the control group, who did not play the game, the experimental group A, who played the game once a week for three weeks, and the experimental group B, who played the game twice a week for three weeks. Resilience was measured by adapting Connor-Davidson Resilience Scale, whereas self-esteem was measured by utilizing Mruk two-dimensional Self-esteem scale. There was a statistically significant difference among the three groups in resilience improvement, where the experimental group A scored the highest, and no significant difference was discovered in terms of self-esteem improvement. The results suggested that playing TBG in certain frequency significantly improves resilience among the participants.

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1. INTRODUCTION

Entrepreneurship education is significant in nations with less stable economic situation, because entrepreneurship predicts the economic resilience of a nation [1]. Accordingly, entrepreneurship education, when done intentionally and correctly, positively predicts the entrepreneurial intention and motivation [2]. In 2015, a board game called The Traders of Antrapre, or TRADERS board game (TBG), was designed as an instrument to introduce and improve general entrepreneurship abilities among teenagers and young adults, and a qualitative study on the particular game showed that the frequency of playing TBG is associated to the quality of several entrepreneurship factors (EF) as follows: self-esteem, competitiveness, resilience, self-efficacy, practical intelligence and experience [3]. The aforementioned EFs were also mentioned in another study as the traits that showed significant differences between entrepreneurs and non-entrepreneurs in pursuing opportunities [4].

This experimental study aims to investigate the effectiveness of playing TRADERS board game (TBG) to improve certain entrepreneurship elements among college students. It is believed that learning to acquire certain skills can be done through playing simulation games, because of its lower risks and safer approach to prepare the learners' readiness for reality [5], as long as the gameplay can simulate the reality as accurate as possible. Apart from that, using games to improve entrepreneurship skills is an alternative to the

common storytelling approach, in which a successful entrepreneur tells students their secrets of success [6], because games let the learners to feel the experience, despite in a much lower scale.

A board game, instead of online digital apps, was chosen to simulate entrepreneurial experiences because it encourages players to interact to one another without having to hide themselves behind alternative identity or animosity [7],[8]. Apart from that, the structured and apparent safety of the setting of the game enables difficult emotional content, such as anger or desperation, to be expressed in a legitimate way, as 'it is only a game' [9]. The contextual significance of this study relies on the fact that TBG was designed to improve the participants' certain psychological traits, which are theoretically related to entrepreneurial success, as well as the effectiveness of the opportunity pursuing skills [3].

This paper aims to quantitatively study the effect of playing TBG on one of the entrepreneurial factors namely resilience (RE). RE defined as the ability to return from adversity or a strength to survive despite difficult situations and to continue progress towards positive future [10],[11], in the entrepreneurial context, RE is what makes entrepreneurs start another business after failure or financial disasters [12].

1.1. Entrepreneurship and Entrepreneurial Factors

In general, entrepreneurship can be defined as the capability to pursue and utilize opportunities, because entrepreneurs are opportunists and creators of opportunities [13]. Therefore, it is suggested that one's effectiveness in pursuing opportunities might positively be related to their entrepreneurial success in the future. The second objective of this study is to evaluate whether the frequency of playing TBG, together with the improvement of the EFs predicts the effectiveness of opportunity pursuing (EOP), which is in the context of this study, is defined as the average amount of the wealth generated in TBG games. Thus, it is also hypothesized that there would be a significant difference in terms of the gap of average wealth made between the first and the last game between the group who played more frequently and less frequently.

Entrepreneurial factors have been studied for decades, and it has been moving from the trend of external factors to internal factors. Studies in the nineties reported that entrepreneurial success were predicted by external factors such as the economic environment [14] and sociocultural factors [15]. A decade later, studies started to focus on internal factors, such as personality traits [16] and motivation [17]. Recently, studies on entrepreneurial factors are still focusing on internal factors, such as biological or genetic predisposition [18], especially when it is related recognizing opportunities [19], while some others focused on internal factors that can be altered, such as intention (Bae, et al., 2014), individual orientation [20], self-efficacy and resilience [12],[21], attitude, [22], or competitiveness [23].

In accordance with the previous paragraph, many studies have also done in order to obtain better knowledge of entrepreneurship education, despite whether entrepreneurship can be taught is still debatable due to the nature of the factors discovered. While many contents of entrepreneurship education is about starting a new business organization [24], studies have been done in which factors that can be improved to gain overall entrepreneurial success [2],[3],[25]. Two factors, namely self-esteem and resilience, have always been consistently selected, together with experience and knowledge in studies on learnable EFs. The model proposed by Frese (Figure 1) [26] and Prihadi (Figure 2) [3] are the examples of the findings of the related previous studies.

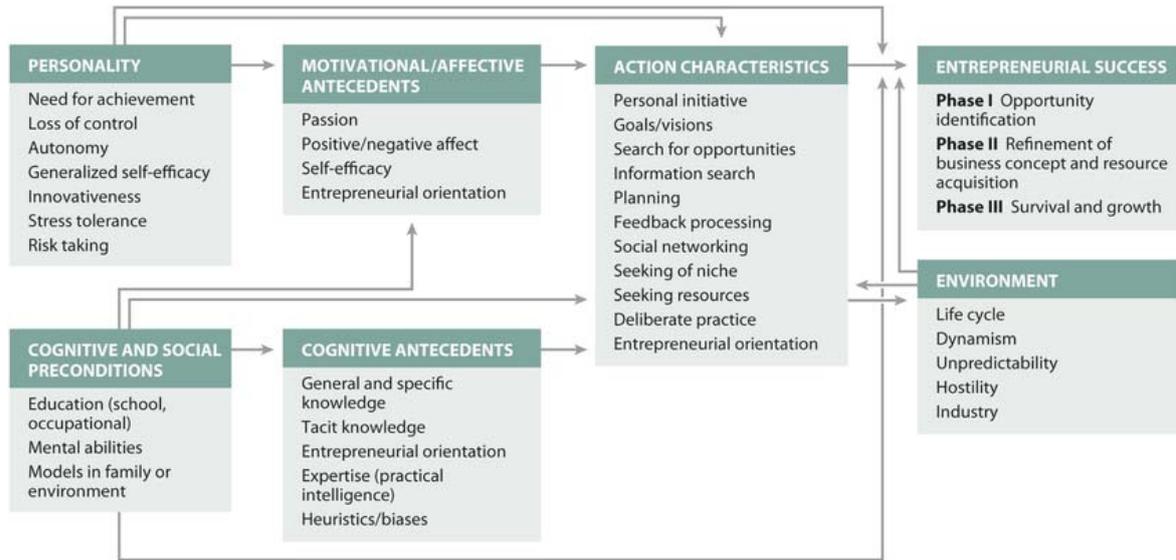


Figure 1. The Action-Characteristics Model of Entrepreneurship [26]

In Figure 1, RE was phrased as stress tolerance, and it was considered as the predictor of action characteristics as well as the mediator between action characteristic and entrepreneurial success. Other factors, such as expertise or practical intelligence and knowledge were taken as predicted by cognitive and social preconditions, as well as the predictors of action characteristic. Frese’s model suggested that RE is an element of personality that will trigger the antecedents for individuals to take entrepreneurial actions. The antecedents of actions were also affected by cognitive capacity and social precondition, such as role models or education. Thus, it takes a certain personality and cognitive capacity, as well as specific social preconditions in order to trigger a motivational antecedent for an individual to start pursuing the opportunities. Additionally, cognitive capacity and social preconditions will also affect the cognitive antecedents that eventually affect the characteristics of the actions taken by the individuals.

Frese’s model did not exactly mention the term self-esteem, nevertheless, the way individuals evaluate themselves is termed as positive/negative affect and self-efficacy. This way of describing self-esteem is in line with the two dimensional model of self-esteem [27],[28] that describes self-esteem as an integrated sum between self-worth and self-competence. Self-worth in the two dimensional model of self-esteem (2DMSE) is represented by positive/negative affect in the Frese’s model, whereas self-competence is represented by self-efficacy. In Frese’s model, self-esteem (SE) was illustrated as the product of personality, including RE.

A slightly different pattern of interrelationship among the factors is shown in another model by Prihadi and Hairul (2015) after they have done their first study on the TBG (Figure 2) [3].

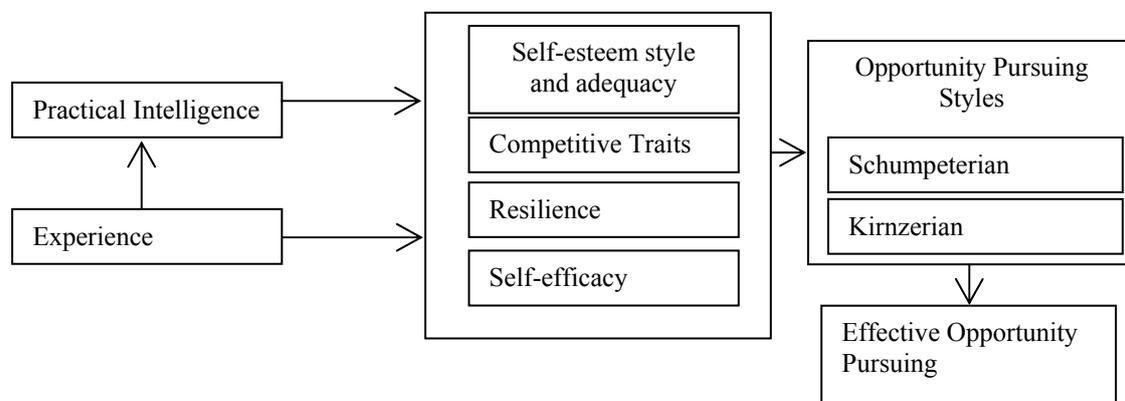


Figure 2. The entrepreneurship Elements Model [3]

Figure 2 indicated that RE and SE are the predictors of opportunity pursuing styles (also called action characteristics in Frese's model) to be more *Schumpeterian* or *Kirznerian*. Schumpeterian opportunities are more likely to be pursued by actively searching for innovative ideas and means, while focusing on the exploitation of present demands are more considered as Kirznerian; in other words, individuals with higher impulsivity and risk-taking attitude tend to opt for Schumpeterian method of opportunity pursuing, while less impulsive and more stable individuals would likely to opt for Kirznerian [21]. The difference is that the model of Prihadi and Hairul's offered a suggestion that RE and SE are affected by individuals' experience, and their relationship is mediated by practical intelligence.

The two models had represented some of the previous studies that established resilience as an element of entrepreneurship, and in the light of that, their roles in improving the effectiveness of opportunity pursuing are investigated in this current study. In line with that, the gameplay of TBG is designed in such a way where a player has to make as much profit as possible within the allocated time (one hour, in this current study), and in order to win the game, his or her net worth at the end of the game should be higher than any other players [3]. Furthermore, the fact that Prihadi and Hairul's model suggested that RE and SE are affected by experience can also be seen as a suggestion that there is a difference in terms of RE and SE between individuals with more experience and less experience in entrepreneurship. In the context of this current study, playing TBG can also be translated as being exposed to a simulated entrepreneurial experience; thus it is hypothesized that the frequency of playing it will improve the RE and SE.

The game offers several ways of making profit, including legal ways such as trading and investing, as well as illegal, such as robbing other players' wealth [3]. Nevertheless, there are moments where the profit from illegal resources will be taken by the authority as punishment. The game also offers some uncontrollable aspects, such as price instability, security risks, and incidental losses. Each of the profit making method, as well as how to prevent losses were connected to certain EF, thus the improvement of certain EFs will determine the way the players play the game, as illustrated in Figure 2. In the context of this current study, the effectiveness of opportunity pursuing was operationally defined as the profit earned by each player in every game.

1.2. Resilience

Resilience refers to the ability or a strength to survive despite difficult situations and to continue progress towards positive future [11]. It was also described as the optimal developmental outcomes or successful adaptation despite exposure to adversity or environmental threats after a considerable struggle [29]. In a more detailed explanation, RE can be described as the ownership of selective strengths to help individuals survive despite their exposure to difficult and stressful situations [10].

Significance of RE in life has been established by many studies; it has been associated with post-traumatic growth [30], positive attitude towards perceived authoritarian parenting styles [31], reducing risk of individuals with Obsessive Compulsive Personality Disorders [32], increasing the likelihood of survival after post-traumatic stress disorders [33] and in the context of entrepreneurship, RE contributes to the return of fallen entrepreneurs to the business [12]. In other words, RE keeps individuals to stay strong after a failure and enables them to move on. Furthermore, some studies also reported the association between RE and SE in different settings; they partially mediated the relationship between behavioral and emotional psychological maltreatment problems in adolescents [34], SE was also found to intervene between RE and psychological distress [35]. In the context of entrepreneurship, RE was reported to significantly related to entrepreneurship [36]; apart from that, they also argued that the RE of the entrepreneurs is highly related to the RE of the society where the entrepreneurship is being practiced. They explained that resilient entrepreneurs will survive and grow, and their growth will ensure the society around them that life can still go on.

Despite its importance in life, RE was discovered to be multidimensional and complex; it involves an interactive process between risk and protective factors [37]. Internal factor such as spirituality were said to be elements that help individuals to develop resilience [38], while external factor, such as social support positively improves the level of resilience [39]. Although in the context of this current study, spirituality and social support are not needed by the participants because a bankruptcy or being victimized in a board game is not considered life-threatening [9], RE among the participants who hit the rock bottom in TBG playing plays important role in determining their effectiveness in rebuilding their wealth [3].

It was advocated that RE predict entrepreneurship among entrepreneurs and small business owners [26],[40]. RE is one of the important characteristics required by individuals to survive and grow in their entrepreneurial endeavor [41]. In the context of entrepreneurship education, RE was also reported to predict the development of general entrepreneurship skills [3]. However, in the context of entrepreneurship education, other factors have been reported to be involved in the improvement of the entrepreneurship skills. Moreover, a study in Malaysian context reported a strong positive correlation between entrepreneurship and RE, and advocated that entrepreneurship education program has a significant role in improving the RE

among public university students [41]. In the context of this current study, RE is operationally defined as the score of the contextually modified Connor-Davidson resilience scale [42], and the improvement of RE as the gap between the pre and post-tests of the same scale.

1.3. Self-esteem

As previously mentioned, 2DMSE explained that SE is an integrated sum of self-worth and self-competence [27],[28]; therefore, its adequacy is significant for every individual. It has been said to be the factor of adequate academic achievements [43], success of teaching and learning [44], risk tolerance in entrepreneurship [45], and even the way individuals choose the course of action in entrepreneurship; individuals with dominant self-worth tend to pursue opportunities in Kirnzerian way, while those with dominant self-competence tend to pursue opportunities in Schumpeterian way [25].

The implementation of 2DMSE as the sum of self-worth and self-competence contributed to the way entrepreneurship is done; individuals with more dominant self-worth (worthiness-based SE) pursue opportunities in different way from individuals with more dominant self-competence (competence-based SE). A single subject study by Prihadi et al (2014) indicated that when a young entrepreneur grew up and had her self-esteem style changed from worthiness-based to competence-based, her opportunity pursuing style was also gradually shifted from Kirnzerian to Schumpeterian [25]. This indicates that SE style will not affect the success of the entrepreneurial endeavour; instead, it contributes to the method of opportunity pursuing. However, the overall of SE adequacy contributed to entrepreneurial success [3],[26],[46] despite its style; therefore, any educational program that elevate the SE adequacy would likely to improve the chance of entrepreneurial success.

The previous qualitative study regarding TBG showed that the frequency of playing TBG is related to the way the participants assess their competence in winning the game [3], and simultaneously attracted their SE style into more competence-based than worthiness-based. Nevertheless, the aforementioned study did not involve any quantitative measurements regarding the contribution of SE on the opportunity pursuing effectiveness. In this current study, SE is operationally defined as the score of Mruk's Two-dimensional Self-esteem scale [27], and the SE improvement is the gap between the scores of pre and post-tests of the same scale.

The aforementioned literature, especially the entrepreneurial elements model by Prihadi and Hairul (2015) suggested that RE and SE are affected by individuals' experience, which means that there is a difference in terms of RE between individuals with more experience and less experience in entrepreneurship, whether it is in the form of field practice or entrepreneurship education [3]. In the context of this current study, playing TBG can also be translated as being exposed to a simulated entrepreneurial experience; thus it is hypothesized that the frequency of playing might improve the RE and SE.

2. RESEARCH METHOD

Experimental design was employed in this current study. Twelve participants were selected among the students of a private college in Penang, Malaysia. The fact that the participants had to be committed to meet and play every week for several weeks led to the difficulty of random sampling. Nevertheless, efforts to control the confounding variables have been paid by making sure that the participants are from the same batch and have not been exposed to any entrepreneurial activities before getting involved in this current study. Additionally, because TBG is a relatively new board game, none of the participants have been exposed to TBG yet. A pretest of RE and SE was conducted to all the participants by using an adapted version of Connor-Davidson Resilience Scale [42] and Mruk's two-dimensional Self-esteem scale [27]. The adaptation was conducted after the content of the instruments have been validated by a panel of experts and individuals with same demography as the participants. After the pre-test have been conducted, the participants were randomly grouped into three groups of four; the randomization was performed by giving sequential numbers from one to three in front of each participant's name, and participants with same numbers were assigned to the same groups.

The control group members were not asked to play at all, while the members of the experimental group A and B were briefed about the game. Members of the experimental group A were asked to play TBG once a week for three weeks in a row, whereas those who belong to the experimental group B twice a week in the same weeks. Guidance from researchers and research assistants were required in the first two games; in the third games onwards, the participants had started to enjoy and got familiar with the game, therefore guidance was needed less. After three weeks, all the participants, including the control group, were asked to respond to the posttest, which is another version of the adaptation of both scales. The posttest version had also been validated by the same panel as the pretest version of the scales.

3. RESULTS AND ANALYSIS

Between-subject MANOVA has been conducted in order to test the hypotheses. The assumption of correlation between SE and RE was satisfied (Pearson's $r = .42$, $p = .131$). The assumption of homogeneity of between-groups variance was satisfied for SE and RE [$F(2, 11) = .129$, $p = .880$; $F(2, 11) = 0.84$, $p = .920$]. The assumption of homogeneity of variance-covariance matrices was satisfied [Box's $M = 5.22$, $F(6, 1295.096) = .62$, $p = .713$]. Using the Wilks' criterion, the combined dependent variables were statistically affected by the frequency of playing TBG, Wilks' $\Lambda = .20$, $F(4, 20) = 6.082$, $p = .002$. Following up using univariate F and applying Bonferroni's correction (adjusted α was $.025$), there was a statistically significant difference in RE [$F(2, 11) = 17.287$, $p < .001$] but not in SE [$F(2, 11) = .240$, $p = .79$].

Significant difference in the average scores of RE among the groups suggested that the frequency of playing TBG affects the adequacy of RE; nevertheless, the average RE scores of the members of the experimental group B is significantly lower than the members of the experimental group A. In other words, despite playing TBG improves the participants' RE adequacy better than not playing at all, playing it in moderation (once a week) gave better improvement of RE adequacy than playing it more often (twice a week).

Insignificant difference in the average SE scores among the groups suggested that the frequency of playing TBG did not have any significant effect on the improvement of SE scores. Nevertheless, despite the insignificance, gap of SE scores between pre and post-test of the experimental group B was the highest, followed by the experimental group A and the control group. It can be concluded that despite the frequency of playing TBG improves the average SE scores, the improvement might not be that significant when the duration of playing was only three weeks. Figure 1 illustrate the gap between posttest and pretest of SE and RE among the three involved groups.

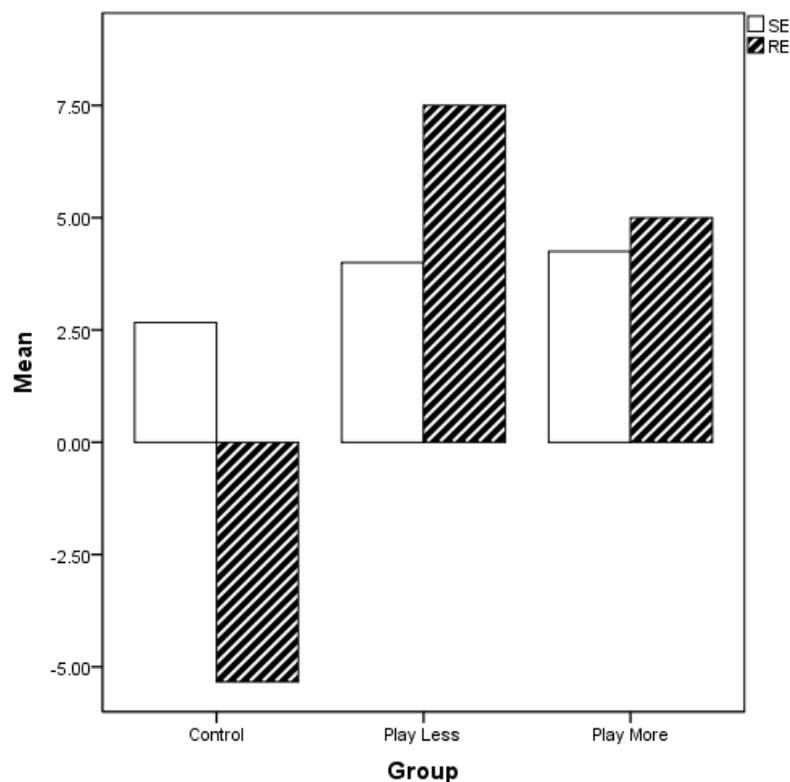


Figure 1. SE and RE among the Groups

Figure 1 illustrates the statements in the aforementioned paragraph. In the control group, participants did not play TBG at all, and their average RE score in the posttest is lower than in their pretest, while the group that played TBG less often shows the highest RE score, differences in terms of RE development among the groups was significant, and no significant difference in terms of SE development; nevertheless, the SE development in the group who played more often was the average highest.

It is imperative to note that Figure 1 also indicated negative improvement of RE among the members of control group. In other words, members of the control group had their RE decreased within the three weeks of experiment period. It can also be concluded that apart from improving RE and SE, playing TBG will also protect individuals from having their RE decreased by possible daily life events.

4. DISCUSSION

Findings of this study suggested that playing TBG significantly increased RE. Based on the reports of some studies [3],[25],[38],[40], an improvement of RE significantly predicts the improvement of general entrepreneurship skills. Therefore, playing TBG frequently might help individuals to gain more resilience, which will be required to develop stronger entrepreneurship skills.

However, findings of this study did not suggest any contribution of playing TBG to the improvement of SE. A previous qualitative study by Prihadi and Hairul (2015) reported the adequacy of SE among the participants were improving along with their frequency of playing TBG based on the frequency of risky moves they took after they gained some experience in playing the game [3]. The same study also suggested that the SE style shifted from worthiness-based to competence-based after some gaining some experience. Both features (frequency of taking risky moves and the shift of SE style) were not detected in this quantitative study, and most importantly, significance of the gap between pre and post-test of SE was not detected.

Finding of this current study supports the statement of Bae et al. that internal factors that affects general entrepreneurship can be altered [2]. Therefore, it might not be in line with the report of Shane and Nicolaou (2015) that genetic predisposition is the dominant factor of entrepreneurship; by showing the connection between the frequency of playing TBG and the level of RE, it is suggested that some factors, including RE, can be altered. In other words, entrepreneurial skills can be taught and learned [18].

The reports from previous research suggested that entrepreneurial skill is affected by self-efficacy and attitude towards the entrepreneurship education program, as well as prior entrepreneurial experiences. At the same tone, Fayolle and Gailly reported that individuals might develop negative attitude towards entrepreneurship education program when they were exposed to negative entrepreneurial experiences [22]. Demographically, participants in this current study were not old enough to be exposed to any entrepreneurial experience; therefore, their attitude towards TBG was positive, and it was indicated by the improvement of their RE along the game.

As explained in models by Frese [26] and Prihadi and Hairul [3], entrepreneurship or effective opportunity pursuing occurs after complex interrelationship among many variables; apart from SE and RE, other variables are also significant contributors of entrepreneurship. Nevertheless, the objective of this study is achieved; it is empirically proven that the frequency of playing the TBG positively affects RE among young adults, and does not significantly affect SE.

4.1. Suggestions

First of all, it is suggested to conduct longitudinal studies with larger sample size and more variables involved. Numerous variables and such method will provide better knowledge in the effect of playing TBG on the participants' actual entrepreneurial ventures, and a larger sample size offers more various data. Other variables, such as personality, self-efficacy or others that were mentioned in previous studies [3],[26] should be frequently measured in certain period of time in order to obtain much more complete picture about what TBG can do to entrepreneurship skill of individuals.

The second suggestion is related to demography of the participants. Studies on the effectiveness of TBG in improving entrepreneurial factors had been done on young adults and teenagers, but not among professionals or startups. Older age group with more entrepreneurial experiences might offer richer data whether TBG playing actually increase opportunity pursuing skills in real entrepreneurial venture, while younger groups might offer different perspectives of entrepreneurial education.

The third suggestion is to involve successful entrepreneurs in playing the game. When playing the game improves factors that affect individuals' entrepreneurial skills, successful entrepreneurs should be able to play the game (after being briefed and trained) more effectively than other individuals from different demography.

Future research should adopt the three aforementioned suggestion in order to bring the TBG and other educational games related to entrepreneurial skills to higher level. It is also suggested that entrepreneurial games, such as TBG are offered in entrepreneurial workshops for young adults in order to enhance their basic traits of entrepreneurial factors. Future research should also be done across nations with different culture and social setting in order to obtain better knowledge in designing more effective general entrepreneurship education programs.

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