Gloomy Jean Game for Simulating Unfair Trade: Live Action Role Playing for Entrepreneurship Education

Abstract
Entrepreneurship is required for social innovation. This paper proposes The Gloomy Jean game which can cultivate entrepreneurship. The Gloomy Jean game is an educational program in which make an unfair trade situation for participants experience uses live action role playing (LARP) and are concerned about social innovation directions. The Gloomy Jean A questionnaire was conducted on 36 participants to see the effect of the game. As a result of the questionnaire, it was shown that it was applicable not only for the game but also for entrepreneurship education. According to the tendency of the participants of the game, the situation does not become as intended. Nonetheless, this illustrates how LARP-based entrepreneurship education can be demonstrated, leading to a better education in the less-educated future.

Key words
live action role playing, LARP, entrepreneurship, unfair trade, higher education

INTRODUCTION
Recently, entrepreneurship education is spreading. Especially, it is a tendency to educate social entrepreneurship among entrepreneurship. Social entrepreneurship was first mentioned by Bill Drayton of the Ashoka Foundation in the early 1980s (“SOCIAL ENTREPRENEURSHIP.”). It is called entrepreneurship, and entrepreneurship is called business entrepreneurship to creatively destroy existing, unreasonable and inefficient systems to move economic resources from low-productivity to highly productive. Social entrepreneurship is the concept of social change, which is the attitude and behavior that promote this change.

Social innovation refers to a new solution that can create value for society in order to solve the problems that are handled in society and unmet need (Santos, F. M, 2012). Social entrepreneurship is a set of processes to plan, verify, disseminate, and institutionalize social innovation(Perrini, F., Vurro, C., & Costanzo, L. A, 2010; Mulgan, G, 2006, Lettice, F., & Parekh, M, 2010; Lisetchi, M., & Brancu, L, 2014). It is not just the attitude to fundamentally change the community, the society, the world beyond the immediate problem, the intention to change society suddenly and boldly, the attempt to reconstruct society, the approach to eliminate the pain itself, It is aimed at changing unbalanced equilibrium state by changing dynamics relation. I am talking about the attitude to immerse myself in this vision and to change the whole system with an exhaustive determination. Today, social problems have become a time of need for social innovation. Entrepreneurship education became essential for social innovation.

However, entrepreneurship education is limited in general lectures. This is because there is a difference between knowledge learned through general lecture-type education and knowledge use in reality. Due to these differences, there is a realistic application problem. The biggest problem is to be trapped in the existing method because of learning about the method that has been passed. According to Wee, K. N. L. (2004), in order to solve these limitations, many educational changes are pursued, including experiential education and problem-based learning through backward instruction. These changes in education ultimately represent the limitations of theory - centered education and further demonstrate better teaching methods. This is in the course of education. There is a method called Live Action Role Playing (LARP) (Putra, B. A., Setiawan, M. I., & Iswachyu Dhaniarti, S. T, 2018).

As described above, theoretical education centered on lectures has reached its limit. LARP is an alternative method of education. LARP differs from theory-centered education by introducing
storytelling into the situation directly or indirectly and confronts the problem. This method is a learning method that can actually think about the contents learned only theoretically. We developed and experimented with an educational program using LARP technique to cultivate entrepreneurship. As a result, education with LARP was effective enough.

In Chapter 2, LARP discusses the related entrepreneurship and the situation of unfair transaction that you want to deal with. In Chapter 3, we introduce LARP-based Gloomy Jean Game applied in real education. Chapter 4 shows the experimental background of the actual Gloomy Jean Game and its educational effect. In Section 5, we discuss the value of Gloomy Jean Game and its future improvement.

LITERATURE REVIEW

LARP seems to have evolved from past PnP (Paper and Pencil) RPG (Role Playing Game) (Bowman, S. L., & Standiford, A, 2015). According to Bowman, S. L., & Standiford, A (2015), it is not exactly when it started, but it has been used in various fields for a long time. The components of the LARP are the player and the moderator, and there are special situations that need to be led. In addition, events are needed to change the situation if necessary. These situations are grouped together by storytelling techniques, presented to players, and naturally provide a role that can be incorporated into the situation. This is not the actual situation, but it allows us to think deeply. It has been used in many fields, but it is widely used especially in education. Especially, it is widely used in areas difficult to learn only by theory.

Entrepreneurship is defined as the process of seeking opportunities regardless of the resources they manage they are in environment (Gartner, W. B., & Baker, T, 2010). The ability to fully take the risk of uncertain outcomes in business activities, the ability to create new ways through the ability to capture opportunities, and the creative ability to have no imitation or reproduction (Tychsen, A., Hitchens, M., Brolund, T., & Kavakli, M, 2006). It also includes activities that create value through organizational innovation that occurs within existing or external organizations (Abreu, M., & Grinevich, V, 2013). According to Abreu, M., & Grinevich, V (2013), there are two main types of entrepreneurship. Independent entrepreneurship, in which an individual or a group acts independently of an existing organization, and corporate entrepreneurship, which induces innovation by organizing a new group within an existing organization. Sharma, P., & Chrisman, S. J. (2007) company, and proposed the entrepreneurs' competence necessary for corporate operation through six core competencies (Figure. 1).

Figure 1. Core competence of Strategic Entrepreneurship
Entrepreneurship began to be regarded as one of the inherent qualities needed for businessmen and managers as well as for job seekers and students. Research is under way in terms of human resource planning and development (HRP & D) to foster efficient entrepreneurship. Kyrgidou, L. P., & Hughes, M(2010) suggested that the following six competencies should be referred to in order to foster an effective entrepreneur.

- Ability to produce innovative business ideas (creativity)
- Cultivate ability to establish more systematic business plan
- Developing HR planning & development knowledge for small business
- Self-control ability and decision-making power
- A relatively high sense of responsibility
- Developing the potential leadership that you can become a role model

In the university, entrepreneurship education has started to be adopted as a required subject in other departments including the business administration department, and the curriculum has been increasing. There is also a case of entrepreneurship education based on PBL (Problem Based Learning) by applying LARP. Jurczyk-Romanowska, E(2016), recommends designing a LARP or game based learning project to draw out their learning potential, since the age group of learners is a familiar generation of computer games. The learner can create new value through the experience gained from the project. In addition, we encourage you to take advantage of the latest ICT technology. According to Sidhu, I et al. (2015), the University of California at Berkeley is conducting an experiment to deliver the ten key elements of entrepreneurship using LARP. Jintae J et al. (2017) developed and implemented a Unicorn game using LARP for eight items required for entrepreneurship, and it is reported that it is also carrying out an analysis of effectiveness. Entrepreneurship education with LARP has been shown to be effective in improving learner attitudes and improving engagement (Bellotti, F et al., 2013). In Europe, entrepreneurship is defined as an indispensable element regardless of field of study, and the resources required for education are actively supported. Antonaci, A et al. (2015) developed a gamified entrepreneurship simulation learning course and conducted a study to verify the effectiveness of ICT majors 'college students' management simulation. According to the results of the study, ICT students faithfully conducted entrepreneurship education through the course. And I encouraged ICT major instructors to use their learning contents for their entrepreneurship education. Labrador, E et al., (2013) proposed an entrepreneurship learning method using LARP. According to the paper, memorable experience learning enables effective entrepreneurship education. The background of the case is based on the guild concept of the Middle Ages. It was designed to teach entrepreneurship by establishing direct guilds, organizing groups with other players, and experiencing direct experience with operations.

The most representative of the Unfair trade is coffee beans. According to (“What is Fair Trade Coffee?”), farmers who produce coffee beans directly are sold at a low price due to unfair bargaining with middlemen or merchandise traders, but they are famous for their unfair trade as the most representative example. LARP is a sad jeans game that experiences such unfair trade between workers and businesses. The sad jeans game is the LARP for the unfair trade between companies in the unicorn game.

GLOOMY JEAN GAME

The Gloomy Jean game is a simulation of transactions between major company, small businesses, and workers. Through this simulation, it is aimed to feel the irrationality existing in the transaction relation and to think about the innovation point that follows. However, it should be emphasized that participants in this simulation game are compensated in proportion to the ranking of the profits
generated during the game. This game does not actually provide compensation because the win and loss are determined from the beginning.

The structure of the game is shown in Figure 2. There are two fashion major company, four textile small businesses and a large number of workers in the market. Two fashion major companies are preparing to sell 10,000 pairs of jeans at 200,000 won(KRW) per round. Looking for textile small business to receive 10,000 jeans. And textile small businesses hire a large number of workers to make jeans.

**Figure 2.** Relationship between Major company, Small businesses and workers
Figure 3 summarizes what players will do per round. In the first stage, fashion major company will determine through consultation of their employees and announce their maximum subcontracts to textile small businesses. In the second phase, textile small businesses make bids for fashion major company, respectively, with the maximum subcontracting announced by the two fashion major companies. Price bidding can be done for a specific major company or both. However, bids exceeding the maximum subcontract shall be null and void. You can bid with different amounts when bidding on two fashion major companies, and the result of the bidding is decided at the lowest price among the bid price. In the third stage, it will be conducted only for the textile small business that won the bid. The awarded textile small business employs each four workers. The method of employing workers is basically similar to the bidding method between fashion major company and textile small businesses. Employees of textile small business that has been awarded agree to set the maximum wage in consultation. In the fourth step, workers bid their wages based on the maximum wage of textile small business. In this case too, if the maximum wage is exceeded, it becomes null and only four workers are bidding from low wage. Unlike the bidding between fashion major companies and textile small businesses, workers can only bid on only one textile small business. If the number of workers who want to bid is not 4, it is assumed that the foreign manpower is obtained and not filled separately. The final step is the calculation step. Fashion conglomerates earn 2,000,000 won, which means that they sold 200,000 won and 10,000 won, and calculate the remaining amount minus the subcontracting amount as revenue. The textile small businesses are awarded in the bid take the subcontracted price received from the fashion major company as income, and calculate the profit as the amount excluding the wage of the employed workers. Finally, employed workers count their wages as revenue.
Thus, a total of five rounds are carried out. And you can check the rank by the profit rank. When the rank is ascertained according to the order of profit, it is usually ranked in order of fashion major company executives, textile small business executives, and workers. Thereafter, debriefing proceeds as follows.

- Have time to discuss each other's high and low profit.
- Discuss the role of the actual role and the similarity with the economic structure of reality.
- Discuss what police and institution are needed to improve visible imbalances.

Researchers experiment with The gloomy jeans game with a web-based program. To play, created a game on the web and players access the web through a mobile device. Can check if the player has entered as showed in figure 4. After that, when the game starts, the role is determined randomly as showed in figure 5. Can see what has been decided on the web, and you can check it on the player's mobile device as in figure 5 on right. After 5 rounds are finished, you can see the final result as showed in figure 6. In order to make it convenient for the mobile, it provides the progress status. It also provides a chat room where players can communicate with each other in the same role in figure 7. You can also see the picture of the mobile household account in the middle and the final result by the individual.
A CASE STUDY

Researchers played two times for the experiment of this game. Experimented and questioned about college students at National University in Gangwon Province, Korea. After the game was done, we debriefed the goals of the education and introduced the purpose of the game and the content to be gained. And the Gamification in Learning Camp was held in November 2017 (Gangwon Province, Korea). This event aims to create a LARP-style activity on a specific topic by directly experiencing how gamification can be applied to education. Thirty people attended the event from their 20s to 40s. Most of the attendees were related to education and introduced only the basics about Gloomy Jean Game. After the proceedings, researchers introduced the debriefing and explained the background of the game, and the contents to be gained. And we attempted to verify through the questionnaire about education and fun.

<table>
<thead>
<tr>
<th>Table 1. Participant’s personal information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Participants (n = 36)</td>
</tr>
<tr>
<td>Age</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td>Gender</td>
</tr>
<tr>
<td>Job</td>
</tr>
</tbody>
</table>

As showed in Table 1, participants attended various classes from the 20s to 40s, and the participants except the students consisted of education-related workers. Educational planning workers are engaged in educational content development. Board game production or educational planning in universities, and instructor fields include corporate education, coding, and teaching. Others are office workers and consultants in the education industry.

In addition, they were verified by questionnaire to verify whether they were educational activities and whether they were amusing enough.

### Figure 8. Survey category

Figure 8 shows the results of the questionnaire. MECE (Mutually Exclusive, Collectively Exhaustive) was applied to develop a systematic survey tool. The Gloomy Jean is educational and game characteristics were classified into educational and game domains. We have also categorized each domain into individual perspectives and others' perspectives and found four values. First, it is about entrepreneurship, which is educational and worth considering from an individual perspective. Gloomy Jean is a game developed to study entrepreneurship. Entrepreneurship was judged to be essential when asking whether learning was effective.

It is an understanding of the relationship between a company and a company, a company and a worker, with values for an educated and unspecified majority. Gloomy Jean is a game based on the entrepreneurial problems that arise between major company - small businesses - workers. As you play games, you have a near-real experience with the roles of other players, and you need to see the value of whether it is valid.
The value in terms of game and individual viewpoint is fun and understanding of game. LARP is based on the game, so fun cannot be missed. Unlike general learning activities, understanding has to be similar to actual experience in direct virtual scenarios.

It is mutual cooperation / mutual understanding between players in many aspects of game and non-specific. Have you tried to cooperate with a player playing the same role while playing Gloomy Jean? Make sure you understand the position of players in other roles.

The educational part is the domain of understanding the problem of relationship between entrepreneurship and role. Part of the game was about fun and player interaction. The questionnaire was received on-site using the Google Form. The questionnaire was developed as 4 items and 16 items. It consisted of entrepreneurship, unfair trade, relationship with scale, fun, cooperation / mutual understanding. To develop the questionnaire, we borrowed the questionnaire used in the previous research or developed some items. The questionnaire is attached in Appendix A. One sample t-test and the non-parametric test (Mann-Whitney-Wilcox test, M-W-W) were applied simultaneously for the analysis of the questionnaire results.

<table>
<thead>
<tr>
<th>Cronbach Alpha</th>
<th>Entrepreneurs</th>
<th>Unfair</th>
<th>Fun</th>
<th>Understand</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.73</td>
<td>0.72</td>
<td>0.88</td>
<td>0.59</td>
</tr>
<tr>
<td>t-test</td>
<td>3.99</td>
<td>2.80</td>
<td>6.72</td>
<td>7.87</td>
</tr>
<tr>
<td>df</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P</td>
<td>3.12E-4</td>
<td>8.23E-3</td>
<td>8.81E-8</td>
<td>3.02E-9</td>
</tr>
<tr>
<td>M-W-W</td>
<td>497.5</td>
<td>401</td>
<td>609.5</td>
<td>569</td>
</tr>
<tr>
<td>P</td>
<td>3.36E-4</td>
<td>9.07E-3</td>
<td>1.83E6</td>
<td>1.16E-7</td>
</tr>
<tr>
<td>Median</td>
<td>5</td>
<td>4.5</td>
<td>5.42</td>
<td>5.32</td>
</tr>
<tr>
<td>Mean</td>
<td>4.81</td>
<td>4.53</td>
<td>5.42</td>
<td>5.32</td>
</tr>
<tr>
<td>s.d</td>
<td>1.22</td>
<td>1.15</td>
<td>1.26</td>
<td>1.00</td>
</tr>
</tbody>
</table>

The alpha of the questionnaire for the four jobs was 0.88 (entrepreneurship 0.73, unfair 0.72, fun 0.88, understand 0.59). The results of T-test and M-W-W analysis are reproduced below. Entrepreneurship, establishment of relationships among firms in unfair trade, fun with LARP, cooperation / mutual understanding were statistically significant (p <0.05).

Entrepreneurship analysis showed statistical significance with a t value of 3.99 and a M.W.W value of 497.5. It is analyzed that gloomy jean, an entrepreneurial education LARP for experiencing and learning unfair trade among companies, can produce meaningful results when applied to entrepreneurship education. It has proven to be a very suitable LARP to learn about cooperation with the surrounding environment / people, risk & damage control, position security, and minimizing sacrifice in decision making, which are important factors in entrepreneurship.

Unfair job analysis results were statistically significant with a t value of 2.80 and a M.W.W value of 401. I understand the main goal of gloomy jean is to understand the structure of partnership, the understanding of cooperation structures, the interests of relationships, the benefits of activities, and the problem solving part, and indirectly experience real world problems through game play.
interpreted. It is interpreted that it is possible to convey the meaning of the gap between the enterprises experienced during the gloomy jean play. In order to solve these problems, it is helpful to understand the cooperation structure of the actual company through cooperation with other players belonging to the same group.

The analytical result of the fun job was statistically significant with a t value of 6.72 M.W.W value of 609.5. Every participant is considered to have had enough fun.

The results of analysis of cooperation / mutual understanding were statistically significant with a t value of 7.87 and a M.W.W value of 569. We were able to confirm that participation in price negotiations, continuous cooperation between players in similar positions and pursuing profits, and activities for understanding from the perspective of other players were significant.

**CONCLUSION**

Shown that entrepreneurship education is possible and effective in the era through LARP-based The Gloomy Jean game. In addition to that, I was able to increase my commitment to activities by putting in fun elements. The Gloomy Jean This game presents a new alternative to existing theoretical education. Especially, I suggest a new solution for entrepreneurship education with the theoretical education limit. LARP-based activities are expected to be needed in many education areas in the future. The Gloomy Jean game will make a difference in many educational activities. It will be a good way to increase student participation and motivation. LARP-based education is likely to extend beyond the entrepreneurship education to various educational areas. In particular, we expect to expand into areas that have limitations in theoretical education, are more experiential, or require interaction such as cooperation and competition with people.

The biggest advantage of this study was that it was effective regardless of various ages and occupations. Even if it is not necessarily an object to be educated, it is educational effect even if people of various occupational groups play it. However, there are also limitations in this study. Problems can arise in the relationship between people. In this paper, we also confirmed that the direction of LARP-based activities could be changed according to the tendency of members through two experiments. According to the tendency of the members, it could happen that the purpose which was originally intended was not drawn or the purpose was completely different from the purpose. The greatest feature of this game is the unity between layers and the communication between layers. We will develop LARP-based educational activities that will guide the direction of these activities and reach their goals in the future. In addition, we plan to study the surrounding environment of activities that are in line with current education target in line with the ICT and the Fourth Industrial Revolution. More specifically, it is possible to predict the future by analyzing data collected through cumulative data analysis using software, and to utilize actual cases as well as actual economic data.
APPENDIX A
The survey includes 16 items in four categories; Entrepreneurial spirit, Establish relationship with scale, Fun / understanding games and Cooperation / mutual understanding. Results of the survey were using the Likert 7-point scale. The results were applied to both one sample t-test and Mann-Whitney-Wilcoxon test.

• Entrepreneurial spirit
  o While playing game, I wanted to maintain persistent and cooperation relationship with around people.
  o While playing the game, I acted positively to change even at risk or damage.
  o While playing the game, I tried to secure a leading position in that position.
  o While playing the game, I waited to minimize sacrifices for uncertain decisions.

• Establish relationship with scale
  o While playing game, I tried to understand cooperation structure between the company and the individual
  o While playing game, cooperation structure between the company and the individual benefits for me
  o While playing game, cooperation activity between the company and the individual benefits for me
  o While playing game, I tried to solve the problem of interests between the company and the individual

• Fun / understanding games
  o Understanding most of what I learned through the Gloomy Jeans game
  o What I learned from the Gloomy Jeans game was easy to understand
  o Way to learn entrepreneurship through the Gloomy Jeans game was interesting
  o Way to learn entrepreneurship through the Gloomy Jeans game was fun

• Cooperation / mutual understanding
  o While playing game, I actively participated in price negotiations
  o While playing game, I tried to cooperate with players in the same position as me
  o While playing game, I think it is a benefit to cooperate with other players
  o While playing game, I tried to understand and think in terms of other players
1. Abreu, M., & Grinevich, V. (2013). The nature of academic entrepreneurship in the UK: Widening the focus on entrepreneurial activities. Research Policy, 42(2), 408-422.