

Serious Game Jam Operation Manual: Prototype Development and Evaluation

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ABSTRACT

Serious Game Jam (SGJ) is one of the major events organized by DiGRA JAPAN every year since 2014. This study proposes a prototype SGJ operation manual. Although eight SGJ events have been organized so far, the first few events were conducted based on the manuals for a general game jam and the organizer's experiences. However, considering the process of developing entertainment and serious games is different, an operation manual is required for organizers of SGJs.

Keywords

Serious Game Jam, Game Jam, Serious Game, SGJ, SGJ Operation Manual

INTRODUCTION

Serious Game Jam (hereinafter referred to as SGJ) has been organized by DiGRA JAPAN every year since 2014 (Aibara 2020). We have selected various topics as themes for SGJs, such as cyber security (Furuichi 2019) and other social issues. Before the first SGJ was held, the Global Game Jam (hereinafter referred to as GGJ, Fowler 2013) has been held every year since 2009. One of our colleagues worked as a local organizer at GGJ, and hence, this experience and the corresponding operation manual (Global Game Jam 2000, Global Game Jam Manual) was applied to the first SGJ in 2014. Although the operation manual fits the overall operation of SGJ, we needed to add more items to develop Serious Games. Therefore, the committee decided to develop a SGJ operation manual for the 8th SGJ, which was held in December 2019 (The 8th Serious Game Jam 2019), based on the result of the 7th SGJ. This study proposes an operation manual which is aimed to be used by organizers for efficient and effective operation for various sectors of SGJ, such as cyber security, social welfare and other social issues. In this paper, we describe the overview of this prototype SGJ operation manual and evaluate the results of its application to the 8th SGJ.

RESEARCH QUESTIONS

Serious Games are usually developed to solve real problems such as cyber security and other social issues in the real world (Fujimoto 2007, Fujimoto, Shigeta and Fukuyama 2016), and this study clarifies how to efficiently and effectively organize a game jam for developing Serious Games. For this, attendants should study the given topic extensively to determine how to solve it through the game. Although many

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participants of SGJ have prior experience in developing entertainment games, only a few have experience in developing in Serious Games. Therefore, it is necessary for organizers to provide adequate information and assistance to efficiently develop Serious Games in short period of time. One way of doing so is by setting up missions that show the tasks, the timings and deadline to guide participants and ensure the attendants can develop serious games on time during the event.

This study develops a prototype SGJ Operation Manual based on the prior experiences of the Serious Game Development Process (herein after referred to as SGDP, Furuichi 2014). In this prototype manual, we propose 11 missions, which are the core part of the games, and their time schedule. Then, we apply this manual to the 8th SGJ to confirm the validity of the timing of each mission and derive some proposals on the updated time schedule. We set up following two research questions:

Research Question 1: What missions are required for the SGJ?

Research Question 2: What timings are feasible for each mission?

In the following sections, we introduce the overview of SGJs 1 to 7, and propose the prototype SGJ Operation Manual. Then, we discuss the result of applying this manual to 8th SGJ.

GAME JAM MANUAL

The Game jam is an event wherein people interested in game development gather for a several days to develop games based on a topic provided by the organizer. The largest and the most popular event is the Global Game Jam (hereinafter referred to as GGJ), which began in 2009. The event was held in January 2020, and 48,753 people, who created 9,601 games in 934 venues across 118 countries (Global Game Jam 2020), attended the event. GGJ has been operated by the international non-profit organization Global Game Jam since 2013. The local committees at GGJ venues worldwide use the manuals prepared by the GGJ committee to maintain uniformity. During the event, local committees can achieve all operations for the GGJ, such as venue registration, opening, development, and the closing phase, from this manual. Considering the game jam is growing to become the culture of game developers, game studying students and researchers, the GGJ and its manual play an essential role. Several studies have analyzed the implementation and localization of the GGJ operation manual (Preston et al. 2012, Shin et al. 2012, Arya et al. 2013). Furthermore, some studies have evaluated its application to higher education programs (Mikami et al. 2016, Gledhill, and Novak 2019).

The game jams aim to build entertainment games. Considering we are focusing on game jams for developing serious games, SGDP or other serious game design process were incorporated into the operation manual for SGJ. Table 1 shows the differences between the software development process of the entertainment games and serious games, which focuses on the IEEE 1074 SLCP (Schultz 1997). The design phase for both entertainment and serious games comprise seven factors that need to be considered: (1) goals, (2) rules, (3) unreal space, (4) competition/cooperation, (5) achievement, (6) challenges, and (7) management (Kapp 2012). The main difference between entertainment and serious games is the “objective of the game.” Although the objective of entertainment games varies, the main goal is to entertain players. However, considering the objective of serious games is to solve real problems in the real world, it is important that serious game designers define the user needs in the real world. Then, they must analyze the requirements of the users before finally including their proposal on solving a particular issue in the game design. Furthermore, to perform requirements analysis of serious games, research should be conducted in the target field, and

obtaining information or advice from expertise in the problem fields could be beneficial. Therefore, involving experts in developing serious games is very important.

Table 1. Difference between the software development process of entertainment games and serious games

| Correspondence with some faces of IEEE 1074 SLCP | | Entertainment game | Serious game |
|--|-----------------------------|--|---|
| Target user | | General | Specific user |
| Development Processes | Requirement Analysis | Game design (Target player, Expected market response, Planning a game) | User Needs Definition |
| | | | Acquire and analyze knowledge about issue. And derive the primarily required function |
| | | | Game design(Target player, Expected market response, Planning a game) |
| | Design | Design | Design |
| | Implementation · Test | Implementation · Test | Implementation · Test |
| Cross-Development Process | Verification and Validation | Analyze player reactions to the needs defined during development | Analyze player reactions to the challenges defined for the development of serious games |

*IEEE 1074 SLCP (Schultz 1997) is the standard on which JIS 0160 :2012 and ISO/IEC 12207:2008 are based.

Table 2 shows the comparison between GGJ and SGJ (extended from the table in Furuichi 2020). The organizers of GGJ disclose a topic to the participants at the beginning of the game jam. Then, the participants discuss the topic with their team. Next, they begin designing the game based on their ideas and creativity. In contrast, the organizers of SGJ disclose a real-world problem to the participants through several means, such as a live lecture by experts in the field of topic or a recorded video. Subsequently, the participants discuss the topic within their team; however, they research extensively about the topic, which requires more time than GGJ. This step is the key issue in the entire process of serious game jam.

Table 2. Differences between GGJ and SGJ

| | Global Game Jam(GGJ) | Serious Game Jam (SGJ) |
|--------------|--|--|
| Theme/ Topic | The theme is provided by the organizer, and the participants are free to interpret that topic. | The theme given by the organizer is the real problem in the real world. Participants may free to interpret that topic if they can show how the given problem can be solved by their serious game. |
| Game Design | Participants develop entertainment games with their creative ideas. | Participants are required to conduct research in the given topic field, and the chance to talk to the experts who is a member of the organizer is given. Then, participants develop serious games with their creative ideas. |

OVERVIEW OF THE 1ST TO 7TH SERIOUS GAME JAMS

We organized SGJ1 and SGJ2 in February and June 2014, respectively, using the GGJ Management Process (Fowler 2013), which was described in the operation manual of GGJ. Although both serious game jams worked well, the organizers had to take care of the attendants during the entire process of efficiently developing the serious game. Therefore, we introduced the serious game design process (SGDP) to the serious game jam operation. To determine a better combination of SGDP and the operation manual, we tried several different types of operations and management during SGJ3 to SGJ8.

Table 3 shows the overview of the 8 SGJs (extended from the table in Aibara 2020). The number of committee members and other items show how the SGJs were conducted. The main role of the committee members was to operate the game jam, although it included experts in the field of topic. Furthermore, the table shows the number of attendants and teams.

Table 3. List of eight SGJs and the corresponding topics, and the comparative table of SGJ Implementation Methods Held by Education SIGs

| Num | Topic | Date | | The number of committee | Prior instruction on the theme Method | the number of Development day | the number of participants | the number of teams(the average number of people per team) | the number of completed games |
|-----|--|---------------|----------------------|-------------------------|---------------------------------------|-------------------------------|----------------------------|--|-------------------------------|
| 1 | English learning | 2014/2/2–2/3 | Development | 2 | Non | 2 | 26 | 5(6.0) | 4 |
| 2 | Improving skills of adults for cyber security | 2014/5/11 | Lecture | 4 | in-person lecture | 2 | 55 | 6(6.1) | 2 |
| | | 2014/6/28–29 | Development | | | | | | |
| 3 | Improving knowledge of children for Internet security | 2015/2/21–22 | Development | 3 | advance in-person lecture | 2 | 34 | 5(6.8) | 3 |
| 4 | Increasing interest in sustainable society | 2016/2/20–21 | Lecture, Development | 3 | Lecture by video | 2 | 37 | 5(6.8) | 3 |
| 5 | Raising awareness about accessibility | 2016/12/10–11 | Lecture, Development | 4 | Lecture by video | 2 | 40 | 5(7.8) | 0 |
| 6 | “English learning” and “Increasing parent-child communication” | 2017/12/16–17 | Lecture, Development | 4 | Lecture by video | 2 | 23 | 4(6.0) | 1 |
| 7 | Raising awareness about accessibility | 2018/12/9 | Lecture, | 4 | advance in-person lecture | 2 | 28 | 6(4.6) | 5 |
| | | 2018/12/15–16 | Development | | | | | | |
| 8 | Raising awareness about accessibility | 2019/12/8 | Lecture, | 5 | advance in-person lecture | 2 | 25 | 5(5.0) | 4 |
| | | 2019/14–15 | Development | | | | | | |

The size of the teams varied, and the average number of members per team was as follows: SGJ1:6.0, SGJ2:6.1, SGJ3:6.8, SGJ4:6.8, SGJ5:7.8, SGJ6:6.0, SGJ7:4.6, SGJ8:5.0. In SGJ2, there was a team with 11 members, the largest among all SGJs, owing to the introduction of two additional steps for team formation. In the first step, a game design contest, called Peracon (CEDEC2021 2021), was conducted, and several game designs were selected. In the second step, attendants selected the team based on their favorite game design, which resulted in an imbalance in the number of team members.

On comparing the average number of teams in GGJ, we found that the number teams was 4.4 in 2009 when GGJ started, and has ranged from 4.3 to 5.2 over the years. Therefore, the number of people per team in SGJ1 to SGJ6 has been higher than that in GGJ.

In SGJ7, we set up a pre-workshop day for team formation one week before the game jam, wherein participants introduced themselves and demonstrated their skills. Six attendants who wished to be leaders were selected. Next, the attendants spoke to the leaders to decide which team they should join. Finally, teams were formed. The average number of team members was 4.6 for at SGJ7, which is similar to that of GGJ.

Table 3 shows the number of games completed during the game jam, which also includes the number of games completed after the game jam. In SGJ1 to SGJ6, the

method of submitting the developed games to the committee was by uploading them to the designated site. In SGJ2, the topic was about cybersecurity issues, and the prototype of three games were submitted and publicly released after the game jam. These games were demonstrated at other events and conferences. In SGJ7, five of the six teams submitted their games, which were released to the public at itch.io (Corcoran 2021).

SERIOUS GAME JAM OPERATION MANUAL

Herein, we describe the SGJ operation manual developed after SGJ7. The SGJ operation manual comprises three parts: the preparation phase, lecture phase on the theme from expert, and the development phase. The preparation phase describes how to organize the SGJ committee, recruit participants, decide the theme of the game jam, and set up the time schedule. The lecture phase describes how to set up the lecture given by the expert, especially the method and style of the lecture (live or recorded). Additionally, it describes the ways for team formation. Lastly, the development phase describes the timing of missions, how to submit intermediate products such as research reports, and how to evaluate serious games in terms of the serious game and entertainment game sides. The details of each phase are given below.

Preparation phase

Examination of implementation plan

In this phase, the organizers of SGJ consider and decide implementation plans and the topic/theme. There are several implementation plans, one of which is to conduct a pre-workshop day one week before the two-days game development day to lecture the participants about the topic of the game jam. The second plan is to conduct lectures for three consecutive days regarding the topic and game development. The third plan is to set up a game design contest (Peracon) prior to the event, wherein attendants form teams depending on their favorable choice of game design.

Topic/Theme

The organizer of a SGJ decides a topic/theme by finding a real world problem among the latest issues in the real world. The topic should be decided after considering the following two issues.

- Difficulty level of the topic should be appropriate for the attendants
 - If the topic is difficult, a longer time should be set between the pre-workshop day and the development day.
- An appropriate expert of the topic should join as the executive committee member
 - Expert in that field must support questions from the attendants and have good understanding of the game.

Executive Committees

Executive committees of SGJ should comprise several members who are familiar with game development. These experts should share their knowledge on the topic with the participants. Furthermore, they should evaluate the effectiveness of the completed serious games.

Venue Selection

All SGJs held to date were conducted at venues where participants could work at night. Therefore, the Executive Committee was required to check with the candidate venues to determine if they could be used at night or on holidays. In many cases, the use of venues at night or on holidays requires the presence of employees of the venue. Therefore, it is important for both parties to agree on this in advance.

Preparing a website to recruit participants

The Executive Committee first shares announcements to the participants and media (HP, SNS, etc.) before beginning the application process. In case of SGJ, the form is bilingual (Japanese and English). Figure 1 shows an example of the registration form used for SGJ7.

SGJ7申し込みフォーム SGJ7 Application Form

☐名前 Name(Japanese)

☐名前 (英語) Name (English)

☐メールアドレス

☐性別 Sex ・男性 M ・女性 F ・無回答

☐所属 (学生の方は学科・専攻・コース名等もご記入ください)
Affiliation (Please write the detail of your department or others)

☐学科/専門分野 Discipline/Specialty (未記入可It is possible even if it is blank)

☐職業は? Students/Professional.

 ・学生 Student ・教職員 Professor ・会社員 Professional

☐ゲームジャムであなたの発揮できる技術は何ですか?
Useful skills in a Game Jam

 ・2Dアート 2d art ・3Dアート 3d art

 ・アニメーションanimation ・効果音 audio

 ・ゲームデザイン game design ・ゲーム開発 game development

 ・ハードウェア hardware ・マーケティング marketing

 ・音楽 music ・動画編集movie editing、プログラミング programming.

 ・プロジェクトマネジメント project management

 ・品質保証 quality assurance ・ストーリー story and narrative

 ・ウェブデザイン web design ・調査・研究能力(執筆と文献研究)

Research skills (writing and literature research)

☐SGJ7では5人から1チームとして6チームでシリアスゲームを制作します。
あなたはリーダーを希望しますか? Do you want to be a leader?

 ・はい Yes ・いいえ No ・当日決める

☐2018年12月9日(日)、15日(土)~16日(日)に実施します。(基本全日参加)
When can we participate? ・12/9 2018 ・12/15、16 2018

☐ベジタリアンですか? Are you a vegetarian?

 ・はい Yes ・いいえ No

☐どこでこの企画を知りましたか? Where did you know about this game jam?

 ・知人の紹介 Introduction of acquaintance

 ・学会のHPまたはニューズレター Academic conference HP or Newsletter

 ・Webメディア Web media

 ・過去に参加したことがある I have participated in the past ・その他

☐ビデオは見ましたか?-Did you watch the lecture video -

☐本申し込みによって取得した個人情報、シリアスゲームジャムの運営のためだけに利用し、それ以外の目的では利用致しません。あなたは、入力した個人情報の提出にご同意いただけますか?

The personal information submitted in this form is going to be used only for organizing the serious game jams. Do you agree with the submission of your personal information?

 ・同意する Agree ・同意しない disagreed

☐ご意見、実行委員会へのコメントがありましたら、ご記入ください。

If you have any thought on that please share it with me.

Figure 1. SGJ7 application form (partial excerpt)

Time schedule and Mission due timing

Figure 2 shows an overview of the time schedule used for SGJ7.

- Lecture day is setup for the lecture and team formation six days before the development day.

- The developed serious games are submitted on itch.io to be publicly available during/after the game jam.
- Mission dues are specified in the schedule.

| time | Committee | participants |
|------------------|--|---|
| Lecture Day | | |
| 13:00 | | 13:00 Gathering of staff |
| 14:00 | 13:15-14:30 Opening Ceremony (Greetings, Keynote Speech, Explanation of SGJ program and remarks, etc.) | |
| 15:00 | 15:00-15:30 Start team building | |
| 16:00 | | 15:30-17:00 Team game design meeting Mission#1#2 due |
| 17:00 | 17:30 Dismissal | |
| Development Day1 | | |
| 9:00 | 09:00 Staff gathering, venue setup 09:30 Start of registration | |
| 10:00 | 09:45-10:30 Opening Ceremony (greetings, keynote speech, etc.) | Mission#3 due |
| 11:00 | | 10:30- Presentation1: Contents of the project, introduction of members (3 minutes x X teams) |
| 12:00 | 12:00-13:00 Lunch | Mission#4 due |
| 13:00 | | |
| 14:00 | | |
| 15:00 | 15:00-15:10 Tea break 15:10-15:30 Game system check by committee members | Mission#5 deadline |
| 16:00 | | Mission#6due |
| 17:00 | 17:30- Presentation2 (3 minutes X teams) | |
| 18:00 | After Presentation02-19:00 Dinner party (light meal provided) | |
| 19:00- | After 19:00 Dismissal, those who wish can work in the venue until the next morning under the rules of the venue provider | |
| Development Day2 | | |
| 9:00 | 9:00 Gather staff, set up the venue, Start of development | |
| 10:00 | | |
| 11:00 | | |
| 12:00 | 12:00-13:00 Lunch | |
| 13:00 | | |
| 14:00 | | |
| 15:00 | 15:00-15:10 Tea break | 15:00- Mission#7,8 due Publication of evaluation criteria on itch.io page |
| 16:00 | 16:00-16:45 Final Presentation(10 minutes x X teams) | Mission#9 due |
| 17:00 | 16:45-17:45 Playtest / Selection meeting 17:45-18:00 Closing ceremony | |
| 18:00 | 18:00-19:00 Networking (drinks and snacks) | |
| 19:00- | 19:00-19:30 Clean up, staff dismissed | |

Figure 2. Timeline of SGJ7

Advanced lecture phase

The purpose of the advanced lecture is to provide an explanation on SGJ. At the lecture, one of the executive committees will provide an overview of Serious Games and the SGJ event. Then, the expert delivers a lecture on the topic. During the lecture, sufficient time should be provided for participants to ask questions and deepen their understanding of the topic. The executive committee must record the lecture video so that the participants who missed the lecture have enough knowledge to attend the game jam.

Lecture

The expert delivers a lecture of 30–60 min, which includes a question-answer session. Lecture on Serious Game Design, which was included in SGJ7, can be included depending on the attendants.

Team building

In the manual, team building procedures are written as described below; however, it can be used as a reference to the representative samples, and the executive committee may customize it for the event. During the team formation process, the executive committee may intervene with the attendants to complete team building within the planned schedule. The basic procedure followed for team building is as follows:

(1) During break time, after the expert delivers the lecture, participants should introduce themselves to one another, without inhibition. Participants are recommended to present their skills or a portfolio (collection of works) in advance, so that self-introductions can be conducted efficiently.

(2) The executive committee will ask attendants to select some candidate as leaders. The expected numbers of leaders depends on the number of teams formed, with each team comprising four to five members. Additionally, the teams should include required skilled members, listed below from (a) to (e). If the expected numbers of leaders have been presented as a candidate, leader selection is completed. If the expected number is exceeded, leaders are selected by discussion and negotiation with the help of committee members.

(a) Programmers (at least one, preferably two)

(b) Designers (at least one, preferably two)

(c) Game designer (called Planner in Japan, and may be performed concurrently)

(d) Researcher (may be performed concurrently)

(e) Leader (may be performed concurrently)

The development phase

The development phase lasts two days, Day1 and Day2, for game development. The details of the itinerary are shown in Figure 2. The development phase is defined by the execution time of each mission and the presentation time shown in Figure 2. In the manual, the development schedule is 33 h in total (Day 1: participants meet at 9:30 a.m. and Day 2: participants dismiss at 6:30 p.m.). The most important mission on Day 1 is the "Presentation of Research Results," denoted as Presentation 1 in Figure 2. Herein, each team receives advice on the design of their Serious Game from the executive committee members and subject matter experts. The evaluation criteria for the results shown at the end of this chapter are criteria evaluated by the executive committee members from the perspective of Serious Games. The following sections describe the "Mission," "Presentation of Research Results," and "Criteria for Evaluation of Results" in detail.

Mission

Most people participating in SGJ have no experience in game development, and hence, they are not aware of the importance of process control in a short period of time. Therefore, the committee members perceive it to be effective for participants to complete a working prototype in a short period of time, if the deadlines are provided in a timely manner. Therefore, SGJ introduced the Mission method, wherein tasks are provided sequentially with a fixed submission time.

Mission#1 Create a team's page on itch.io site and report it (Lecture Day, 17:00)

Mission#2 Decide the team's name and report it (Lecture Day, 17:00)

Mission#3 Present the research results and game plan (Day1, 10:30)

Mission#4 Create a team logo and report (Day1, 12:00)

Mission#5 Create, submit, and report a research report (Day1, 15:00)

Mission#6 Report on advice given by the experts (Day1, 16:00)

Mission#7 Make a list of materials used in the game (Day2, 15:00)

Mission#8 Release the game at team's itch.io site (Day2, 15:00)

Mission#9 Questionnaire collection (Day2, 16:30)

Missions #3 and #5, which are the characteristic of SGJ, will be described in detail.

Mission#3 Present research results and game plan

Generally, the contents of the game design document and the developed game are often presented in the interim report in game jams. In SGJ, the research results and advice from experts are essential for developing serious games. Therefore, we provided a template for presentation materials that can be used by the attendants to recognize the importance, and summarize their research results and the developed game. The template is a simplified version of the requirements definition section of SGDP.

The contents of the template are as follows:

- Team name, member name, and game name
- Platform (game development, run environment, etc.)
- Client company or organization that might invest in the game development costs.
- Target users (people who will play the game)
- Clarification on the problem to be solved by your serious game.
- Current solutions to the problems in the real world.

- Exhibit the process and logic behind the working of your serious game, and how it solves the problem.
- How to verify the effectiveness of your serious game.

Mission #5 Research on the theme

Mission #5 for Day 1 is to write and submit a research report, which should include the following details:

- The researcher should examine the following and provide the research results in a Word document up to two pages, and post it on the team's Facebook page before notifying the committee.

Study item 1: Research the topic and redefine it in your own words.

Study item 2: Show how the process or the logic of solving the given theme (a problem to be solved in the real world) can be achieved by playing your team's serious game.

Study item 3: Show what aspects of your team's serious game would people find the intriguing.

Participants might receive advice on their game design from an expert on the theme in Mission#6. Additionally, the participants will report the contents of the advice they received from the experts on the team's website. The participants present the results of Missions #5 and #6 in the interim presentation from 17:30 to 18:30 on Day1.

Evaluation criteria

The result of the SGJ is comprehensively evaluated by the executive committee from the mission results, final presentation, and the developed game playing experience during the play session. The presentations and play sessions will be judged based on both serious and entertainment games.

The evaluation as a serious game is based on whether the game includes solutions to the problems that the team has focused on.

1. The problem to be solved is correctly defined.
 - Are the issues defined based on the survey results?
 - Are the opinions of experts reflected in the game?
2. The method of solving the problem is presented.
 - Are the methods and processes for solving the problem presented?
 - Is the advice of experts reflected in the solutions?

The evaluation as an entertainment game is based on whether each of the following elements is incorporated as an attractive game.

1. Game design
2. Gameplay

3. Art and UI design

4. Integrity

Serious games are evaluated on five levels. The committee members will use these criteria as a reference and set their own evaluation criteria in advance depending on the theme.

8TH SERIOUS GAME JAM

Herein, we describe the 8th Serious Game Jam (SGJ8), held in December 2019, and based on the previously described SGJ operation manual. The topic of SGJ8 was “increasing the awareness of accessibility,” which was the same topic of SGJ7. The reasons for choosing this topic is as follows:

1. The importance of universal design for product design, including console games, is gradually increasing. However compared to other countries, the universal design for game software and hardware in Japan is insufficient for the disabled people.
2. In the field of rehabilitation and nursing care for the elderly, games are utilized in various forms to improve the quality of life. However, commercial games are not designed with adequate features for the elderly.

During SGJ8, we asked an occupational therapist, a game player with a disability, and three people who are developing the game as experts, to join the event and explain the development theme of accessibility. Mr. Kentaro Yoshinari, who delivered a lecture at the opening ceremony talked about the need for game accessibility. Mr. Eiichi Tanaka, an occupational therapist from Hokkaido medical center, delivered a lecture on game accessibility. The participants learned about the current situation in Japan compared to overseas countries pertaining to the game input devices and their efforts for game accessibility (Tanaka 2018). Mr. Tsutomu Mitamura of TANOTECH Co. Ltd. is developing a system that uses motion sensors to support rehabilitation for the elderly (TANOTECH Co. Ltd. 2018). He delivered a lecture by demonstrating a game used at elderly nursery centers.

The executive committee of SGJ8 comprised eight members, most of whom were the members of the Game Education Special Interest Group of DiGRA JAPAN (DiGRA JAPAN 2019).

SGJ8 comprised 25 participants and organized five teams. Seven students each from Korea and China participated in this game jam. Out of the five teams, four were able to complete the development and release the game on the itch.io site (The 8th Serious Game Jam 2019) (Figure 3).



Figure 3. Group photo taken at SGJ8

Customization of “Mission #5 Research on the theme” for SGJ8

For SGJ8, we customized the Mission #5 described in SGJ operation manual as follows to ensure attendants understood the process for this mission.

- Researcher(s) had to study the following and write the research result in a Word document up to two pages, and post it on the team's itch.io page. The following comment was to be written along with the post:

Study item 1: What is the accessibility in your game, "please define them."

Study item 2: How do you solve the accessibility in your game, "please show the methods."

Study item 3: How does the players gain interest in accessibility by playing that game, "please show that logic or process."

- The results of study have to be shared among the team and included in the presentation held from 10:15 Dec. 15 (Sat).

- Five points were assigned at the time of receiving the document by the chairman, and another 0-15 points were assigned depending on the quality of the report and presentation.

The following problems were found upon using the implementation manual at SGJ8.

After conducting SGJ8, a lack of clear start time for missions was observed. In the manual, although the mission deadline was mentioned, no information was provided on the starting time. If the committee members are experienced, unwritten information can be handled based on their know-how; however, it should be clearly written to ensure anybody can perform as a committee. In Figure 4, both the start and end times were specified for the missions.

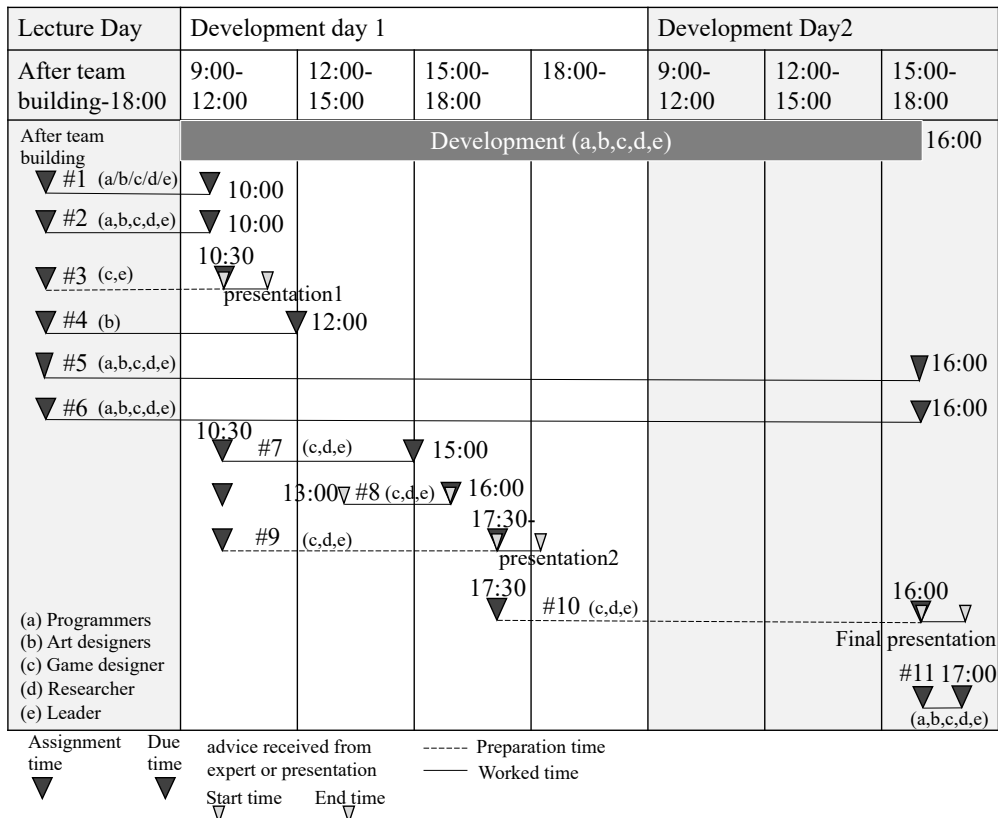


Figure 4. SGJ's Mission Timeline

Second, some comprehension or unclear issues were noticed in the mission statement. We set the Mission#1 as “Create a team’s page on itch.io site and reported it (Lecture Day, 17:00)”, which clearly showed that it required a PC on the lecture day. However, some of the attendants did not bring their PCs, and hence, could not complete the mission. In some cases, an exercise is required to create the itch.io page, and hence, more discussion should be conducted to decide the team’s name. Therefore, it would be more feasible to move the due time of Missions #1 and #2 move to Development Day1.

Lastly, on the development day, the programmers and art designers concentrate on the game development and the researchers work together with game designers and team leaders to ensure the game design maintains its initial objective. To ensure clarity, it is recommended to add missions specifying these tasks.

Figure 5 shows the updated timeline resulting in the above evaluation results, and the following are the updated missions, which specify the start and end times in the format “Time of assignment, Due time.”

Mission#1 Create the team’s page on itch.io site and report it (Start team game design meeting in Lecture Day, 10:00 on Development Day1)

Mission#2 Decide on the team’s name and report it (Start team game design meeting in Lecture Day, 10:00 on Development Day1)

Mission#3 Presentation1: Contents of the project, introduction of the members (Start team game design meeting in Lecture Day, 10:30 on Development Day1)

Mission#4 Create team logo and report (Start team game design meeting in Lecture Day, 12:00 on Development Day1)

Mission#5 Make a list of materials used and report (Start team game design meeting in Lecture Day, 16:00 on Development Day2)

Mission#6 Open a team's page at itch.io about the game (Start team game design meeting in Lecture Day, 16:00 on Development Day2)

Mission#7 Create and submit the research report (After Presentation1 on Development Day1, 15:00 on Development Day1)

Mission#8 Report on advice received from experts (After Presentation1 on Development Day1, 16:00 on Development Day1)

Mission#9 Presentation2: Present research results and game plan (After Presentation1 on Development Day1, 17:30 on Development Day1)

Mission#10 Final Presentation: Present game (After Presentation2 on Development Day1, 16:00 on Development Day2)

Mission#11 Questionnaire collection (After Final Presentation on Development Day2, 17:00 on Development Day2)

CONCLUSION

In this study, we described the overview of the prototype of the Serious Game Jam operation manual and evaluated the results acquired using this manual when applied to the 8th SGJ held in December 2019. As a result, we derived the conclusions to the given research questions.

Research Question 1: What missions are required for the SGJ?

We included nine missions in the first prototype of the SGJ operation manual, which was developed based on the experience of organizing SGJ1 to SGJ7. After applying this manual to SGJ8, we found that two more missions were required. Therefore, the latest Serious Game Jam operation manual includes 11 missions.

Research Question 2: What timings are feasible for each mission?

In the first prototype of the Serious Game Jam operation manual, only the due time for the missions was stated. After applying this manual to SGJ8, we found that it would be better to specify the start time of the missions. Therefore, both the start and end times were specified for all missions.

In conclusion, future event organizers can use the latest Serious Game Jam operation manual and customize it to fit their event based on factors like whether the event is onsite or online, more days for development day, etc. If new details are determined regarding this Operation Manual, we intend to include them in the new Serious Game Jam operation manual to iteratively evolve and improve the manual in the future.

| time | Committee | participants | | time | Committee | participants |
|------------------|--|---|--|------------------|---|---|
| Lecture Day | | | | Development Day2 | | |
| 13:00 | | 13:00 Gathering of staff | | 9:00 | 9:00 Gather staff, set up the venue, Start of development | |
| | 13:15-14:30 Opening Ceremony | | | 10:00 | Correct the Mission#7 report | |
| 14:00 | (Greetings, Keynote Speech, Explanation of SGJ program and remarks, etc.) | | | 11:00 | | |
| | | | | 12:00 | 12:00-13:00 Lunch | |
| 15:00 | 15:00-15:30 Start team building | | | 13:00 | | |
| 16:00 | Mission#1-6 Assignment | 15:30-17:00 Team game design meeting | | 14:00 | | |
| 17:00 | 17:30 Dismissal | | | 15:00 | 15:00-15:10 Tea break | 15:00- Mission#7,8 due Publication of evaluation criteria on itch.io page |
| | | | | 16:00 | 16:00-16:45 Final Presentation(10 minutes x X teams) Mission#10 Assignment | Mission#5,6,10 due |
| Development Day1 | | | | 17:00 | 16:45-17:45 Playtest / Selection meeting | Mission#11 due |
| 9:00 | 09:00 Staff gathering, venue setup 09:30 Start of registration | | | 18:00 | 17:45-18:00 Closing ceremony | |
| 10:00 | 09:45-10:30 Opening Ceremony (greetings, keynote speech, etc.) | Mission#1,2 due | | 19:00- | 19:00-19:30 Clean up, staff dismissed | |
| | Mission#3-9 Assignment | 10:30- Presentation1: (3 minutes x X teams) Mission#3 due | | | | |
| 11:00 | | | | | | |
| 12:00 | 12:00-13:00 Lunch | Mission#4 due | | | | |
| 13:00 | Start time#8 | | | | | |
| 14:00 | | | | | | |
| 15:00 | 15:00-15:10 Tea break | Mission#7 due | | | | |
| | 15:10-15:30 Game system check by committee members | | | | | |
| 16:00 | End time#8 | Mission#8 due | | | | |
| 17:00 | 17:30- Presentation2 (3 minutes X teams) | | | | | |
| | Mission#10 Assignment | Mission#9 due | | | | |
| 18:00 | After Presentation02-19:00 Dinner party (light meals provided) | | | | | |
| 19:00- | After 19:00 Dismissal, those who wish can work in the venue until the next morning under the rules of the venue provider | | | | | |

Figure 5. New timelines for implementation of SGJ

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