Program Planning through a Visual Novel-style Game

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Abstract: This paper describes an instructional design project that conducted a usability study to evaluate an online training instruction for program planning through the use of a visual-novel style game. Program planning is described as an effective way to define, outline, and manage an organization's events and evaluate their outcomes. Within the University of Hawai‘i - West O‘ahu Student Life Office, many of the student organizations use program planning to promote events and conduct meetings that incorporate the use of resources, activities, outcomes, etc. Consequently, students within these organizations must take a training course before heading an event or developing a program. An online visual novel style game was developed to provide student board members a way to access this training in their own time. A usability test was used to evaluate the online training for navigation, efficiency, and user satisfaction. Data from the usability test supported the potential likelihood that the training would be a great tool in addition to the already face-to-face instruction, but would still need further development prior to being implemented.

Introduction

With the construction of the new college campus in August 2012, the University of Hawai‘i - West O‘ahu‘s (UHWO hereafter) student population increased to approximately 3,128 students (UHWO, n.d.). This has led to an increase in student activities, student fees, and the creation of several student-ran programs and boards. These boards are the Student Activity Fee Board (SAFB), the Campus Center Board (CCB), the Student Media Board (SMB), and the Associated Students of the University of Hawai‘i - West O‘ahu (ASUHWO). Each board allocates funds for student fees annually to fulfill their obligation to the student body. For example, SAFB tailors specifically to student activity on campus, including numerous events per semester, educational training opportunities, and presenting a sense of community on campus. Having to coordinate, organize, and assess multiple events at the same time, program planning becomes essential. Program planning helps them project an outlook for events and gives them a way to assess, reflect, and make better decisions on programs that they offer for future endeavors. Program planning can be defined as an "outcome focused" orientation that measures, tracks, and responds to the shifting needs of communities that they serve (Diaz, Gusto, & Diehl, 2018).

The Student Life Department at UHWO is a multifaceted department that employs different student engagement opportunities. All student training for Chartered Student Organizations (CSOs), Registered Independent Student Organizations (RISO's), and other student-led groups are conducted within the Student Life office. These trainings are provided through face-to-face lecture with collaboration through group work for students. Essentially, time conflicts from students' busy schedules create an obstacle in receiving training in an efficient manner. A study on college students and time management found that half of the participants reported low to moderate time management skills (Khanam, Sahu, Rao, Kar, & Quazi, 2017) due to poor planning and students' attitude towards how much time they allocated for each activity. Many participants found it hard to manage college courses, work, and family, but approximately one third of students say that they are able to keep to their prior commitments. CSOs are an extracurricular commitment that student board members assume on top of many other commitments like school, work, clubs, and home life. For this reason, the introduction of an online training for program planning has been implemented as an option to help students access the training in their own time.

Game-based learning was used as a tool to engage students with the program planning content. More specifically, the training uses a visual novel game, which is an interactive game genre that incorporates text-based storytelling and includes choice as a construct to create different outcomes. An exploratory study into game-based learning and motivation suggests that games as an educational tool would be able to enhance several skills, such as problem-solving, recall, and creativity (Dima, 2014). This suggests that students will be able to experience a new way to learn, and they will be able to absorb information processed through the game like any other training method.

While there is not much research investigating game-based learning through a visual novel approach, there is similar research of game-based learning in other training areas when dealing with simulation. A case study titled "Banking on Game-based Learning" incorporates a game simulation to train employees at a bank. In the study, they adapted real-life scenarios in the game for their employees to gain experience with different customer types (Harris, 2012). With this in mind, the visual novel game used for program planning training encompassed some of the qualities from the study, such as students orientation to the online learning environment, scenario-based situations to assess knowledge, and what training outcomes can be expected.

In the interest of determining the use of the new online program planning training, a usability study was conducted. Usability testing examines the functionality of a thing (website, game, prototype) and how real-life user's interact with it to find flaws (Krug, 2010). Usability testing done on the online visual novel-style game was used to gauge if it is an effective tool for

program planning training prior to assessing what the student has learned, as in a learning assessment, or through student behavior in an action research project. This is because the amount of work put forth into the design of the game aspect would be moot if the tool is difficult for students to use and understand. Additionally, the concept of online learning and game-based learning is a tool not commonly used in university settings, according to the author's experience attending courses at UHWO during undergrad studies. Taking this into consideration, the purpose of this usability study seeks to evaluate visual novel gameplay about program planning through navigation, efficiency, and user satisfaction for CSOs at UHWO. The addition of the online training promises to help increase student engagement and provide students with an accessible option to receive training on-demand.

Literature Review

This literature review includes different topics for preparing an online training for students requiring program planning instruction. The sections of this review explores theories for game-based learning, orienting online learners, and usability testing on games.

Narrative and Game-based Learning

A visual novel is a game genre that incorporates story with gameplay. Visual novels tell a story through player based choices to create different outcomes. For the purpose of this usability study, the visual novel will serve as a platform to provide narrative about program planning through letting the user experience not only pertinent information about program planning, but also decide different outcomes. Jenkins (2004) wrote a paper on narrative architecture and the different ways researchers view narrative learning. These views differentiate between the study of the gameplay mechanics and the study of the game with storytelling media. There are four classifications for how to identify narrative architecture and games. These include the fact that not all games tell stories, many games have narrative aspirations, there is always room for games to pursue narrative forms, and gameplay cannot be reduced to experience just story (Jenkins, 2004).

Research incorporating game-based learning was identified because the researcher wanted to know the effects of learning from games. As previously mentioned, there was not much research into game-based learning in conjunction with visual novels or program planning per se. In this case, Gaydos & Jan (2015) identified that instead of getting a better understanding of whether games are good for learning, the focus should be more on how or why we should instead create a better understanding of the game design. Games, specifically educational games, with no backing in theory or design will have a difficult time in repeating results or applying contexts (Gaydos & Jan, 2015). This could lead to intended or otherwise unintended components and conditions for further development and use. The goal for the researcher would be to not focus on

the "learning" so much as to focus on the applicable game design and theory in place for learning to happen.

Orienting learners for online training

Orienting learners for online training success is essential for ensuring students comprehend the content being delivered. Although students may have had some previous interactions in other online learning environments, students will need to acclimate to this e-learning training because of the method of delivery through game mechanics. According to Stavredes (2011), an accomplished higher education online learning strategist, learners may have difficulty understanding what to do when they enter an online course, such as having additional difficulty navigating through an online course than its face-to-face counterpart. This could be due to the fact that not all online learning methodology or design is the same. One other common difficulty for students adjusting to e-learning is the interactions between student to teacher, and student to their peers in the online course. A study researching the opinions and test scores of undergraduates in the classroom and e-learning notes that some undergraduates prefer the instant gratification of communicating in-person (Kemp & Grieve, 2014) even though test scores of these students were about the same for either online course or in-person.

Usability for Games

Usability studies in online training incorporate features that differentiate from the traditional usability test on websites and mobile applications. With the inclusion of the game play element, this makes the creation of tasking protocol difficult to ensure problems within the system are easily identified. While video and audio recording will be used to assess the usability of the online training, it is noted that it is sometimes hard to process both onscreen recorded data as well as identify the shortcomings of the game itself (Moreno-Ger, Torrente, Hsieh, and Lester, 2012). To counteract this, two usability methods were added to the usability structure outlined by Stephen Krug's *Rocket Surgery Made Easy* book on usability testing. These methods include the use of an observational user method (Moreno-Ger,et al., 2012), in which the participant is simply observed playing the game for the researcher to identify discrepancies, and survey-based questionnaires that participants fill out after interacting with the system.

Task performance

Krug's (2010) book on usability testing will be utilized as the structure for the usability test. From his book, a cognitive walkthrough of a website utilizing three to five participants per three rounds is identified as an effective usability test (Krug, 2010). During each walkthrough, participants were asked several usability tasks to complete. Per the interest of this study, navigation, efficiency, and user satisfaction was assessed through this walkthrough, as well as identifying any discrepancies that might occur through user interaction. Incorporating the aforementioned ideas of the observational user method into the cognitive walkthrough, at each

new section of the training, users will be asked to play through normally for 5 minutes before the researcher asks any questions. This is in an effort to locate any discrepancies that might occur at each new portion of the training.

Methodology

Research Questions

Research questions and goals were created to assist in the evaluation process for the target audience.

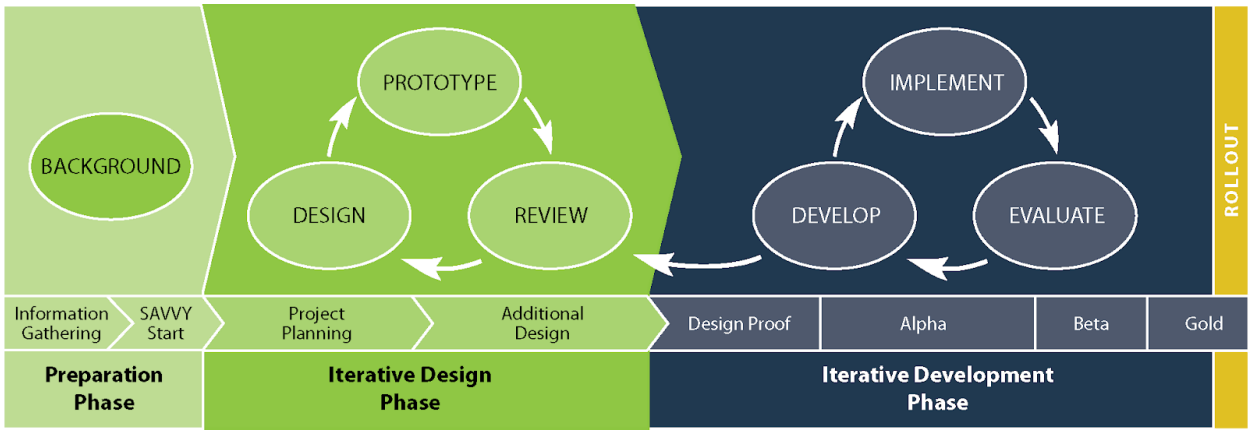
1. How easy is it to navigate the online visual novel game (VNG)?
2. How efficient is the VNG in providing program planning information?
3. How do users rate their level of satisfaction (user control, aesthetic, and perceived relevance) in regards to program planning through the VNG design?

Content Analysis

Because the design of this prototype was expected to change through several iterations over the course of the study, the researcher will be using Allen Interactions SAM₂ approach (see Figure 1) in conjunction with Merrill's First Principles of Instruction Theory.

Figure 1

SAM2 Instructional Design method



Per the SAM₂ method, several design iterations of a prototype took place before the rollout of a product. Much like a rapid prototyping approach, each phase incorporated different places for design, implementation, and evaluation stages. During the design phase, different elements incorporated with the design aspect of the program planning training were created, such as character sprites, backgrounds, and dialogue. This was also time for testing the flow of different usability pathways prior to placing all images and needing to redesign. The development phase incorporated the different usability testing iterations. As Figure 1 highlights, items in the

development phase can be moved to the design phase if needed for changes and corrections found during the usability study.

Using the visual novel game as a tool to create an online training module, learning was scaffolded through problem-centered instruction (Merrill, 2002). This instruction should engage the learner through activation, demonstration, application, and finally, integration, to help them fully realize the importance of program planning (Merrill, 2002).

Although there were different training methods for learning about program planning, the features include several core principles (Diaz et al., 2017). These principles include assessing needs, identifying the program and determining its purpose, developing goals and objectives, addressing risk management issues, organization, implementation, and evaluation (Bechman, 2008). In addition to this Diaz et al. (2017) adds that effective program planning also includes engaging the stakeholders in dialogue prior to the creation of a program.

This research study incorporated the cognitive learning domain. Per the training content, board members in the respective CSOs will need to remember tasks and objectives on their own as sometimes they will have to create and develop programs on their own with little help from other members. To this effect, the cognitive domain outlines several knowledge-based goals. These include knowledge, comprehension, application, analysis, synthesis, and evaluation (Bloom, n.d.). This training uses three of the six skills for the program planning training which includes recall or recognition (knowledge), the application of general principles or methods (application), and the formation of complex ideas to make meaningful patterns (synthesis) (Bloom, n.d.).

Participants

Participants were English-speaking undergraduates ranging from 18 - 40 years old, who are currently or have been associated with CSOs at UHWO. Participants are a mixture of traditional and non-traditional students. Observing the current demographics of the CSO board members, the author anticipated higher female participation while conducting the study. Participants did not need to have prior knowledge of what program planning is but should have the desire to increase the student life experience for the campus and have a clear vision of goals for the CSO that they are assigned to. To assess that participants were suitable for the study, a table (Table 1) was created to provide guidance when considering the cognitive, physiological, affective, and social characteristics in choosing the desired participants for this study.

There were three rounds of testing, with two to three people per round. After recruitment, there were 8 (n = 8) participants in all. While initially, the rationale for studying these participants stems from these students requiring program planning training and learning how they will react to an online training of the program planning content, it was difficult for the researcher to obtain

participants in the original target audience. The researcher then decided there was a need to expand the target audience to include college students that either 1) planned to join a CSO or 2) had an interest in learning more about program planning.

Table 1

Desired participant characteristics

Cognitive Characteristics	Physiological Characteristics
1. Able to speak English 2. Able to read text on a computer screen 3. Able to comprehend written text 4. Enrolled in an associates or bachelors degree program 5. Be in a Chartered Student Organization at UHWO or require program planning training	1. Able to navigate using a mouse or trackpad 2. 18+ years old 3. Able to use a computer
Affective Characteristics	**Social Characteristics**
1. Motivated and willing to learn using new technologies 2. Desire to learn more about the student life experience	1. Able to communicate thoughts and reasoning 2. Able to work in group settings and effective working alone.

The majority of the participants (75%) were college students of University of Hawai‘i - West O‘ahu and either current board members of CSOs or held a previous position in a CSO. Six participants (75%) were either student workers or had outside work commitments in addition to their college courses and family responsibilities. As the researcher had no impact on their grades, nor is the researcher holding a supervisor role for the participant’s in the study, subjects in the study solely took part of the study as part of their own free will. If there was an event that researcher was placed in a supervisory role or in a position where the researcher had an impact on their grade, the researcher will notify the student that participation within the study is voluntary and they are free to drop out of the study at any time with no repercussions to their grade or work status.

Content regarding program planning was provided by the Student Life Coordinator, who has taught the curriculum in a face-to-face capacity. During the production of the program planning prototype, the researcher sought out the help and guidance from the Student Life Coordinator

when it was needed. The coordinators input was instrumental to ensure that materials and content were appropriate for the subject matter.

Recruitment

Participants were recruited through the UHWO organization email list for CSOs, direct email listing of current or past CSO members, and verbal requests to join the usability study.

Email:

For email recruitment, the participants were identified by their affiliation with a CSO by the researcher. The researcher contacted participants via their personal emails or through the organization email using the sample recruitment email found in Appendix D. Attached to the recruitment email were a flyer (Appendix D) and consent form for participants to view and sign in the event that they were interested in joining the study.

Verbal Notification:

Using a verbal script, the researcher had invited several potential participants at the UHWO Student Life office to participate in the Program Planning usability study (Appendix D). These participants were informed about the details of the study, how their participation in the study is completely voluntary, how much time they will have to dedicate, and how they can get in touch with the researcher in the event of questions or concerns.

Compensation

While there was no funding for this project, participation in the study was compensated by giving participants a gift card, in the payment amount of $5.00, to Starbucks or gift card equivalent. After the conclusion of each iteration of the study, participants were able to choose what gift card they would like for compensation for their participation. Due to the COVID-19 pandemic, the researcher was unable to hand out all of the gift cards to participants because of the stay-at-home work order and social distancing. The researcher told participants that they will be compensated for participating in the study once the COVID-19 quarantine had lifted.

Risk

There was little to no risk in participating in this usability study. Participants, however, can become stressed or frustrated at any point during the study. In the event that participants did experience any pain (physical strain on the eyes caused by computer usage or psychological strain due to stress or frustration as an example) the researcher reassured them that they can request to take a break anytime during the study or request to skip the question. If warranted, the researcher made it clear that participants could also opt to stop the study altogether or request to continue at a later time.

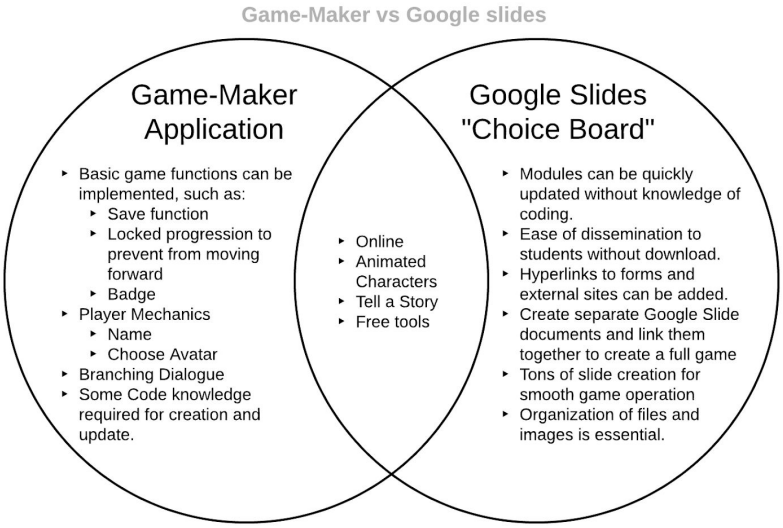
Evaluation Instruments

The introduction of game delivery was assessed to determine the structure and layout that would be appropriate for student engagement and maintenance of the game. Two methods of game structure proposed were the creation of the game through a game maker application (such as Ren'Py) or the development of a "choice board" using Google Slides. Figure 3 shows the process of choosing a choice board as the type of technology being used for this usability study. While a game maker application complies with more methods of what the researcher considers perceived gaming mechanics, upkeep and maintenance of the game would also be a huge factor in making sure information delivered to students will be current and up-to-date.

For data gathering, a pre/post survey through computer-collected data (i.e., Google Forms) was collected online. These data gathering tools were sent by email for participants to complete (For an example of pre-survey, see Appendix G, and post survey, see Appendix J).

Figure 2

Game-Maker v.s. Google Slides



Note.The researcher created a venn diagram to decide what technology would be appropriate for the creation of the visual novel game.

A cognitive walkthrough was conducted on the video conferencing website Zoom. Audio and video recording was used to observe the participants actions through first-hand experience with the training tool for program planning to provide the researcher with ample feedback in assessing what updates will be needed. (For usability protocol and script, see Appendix H).

An informal interview followed the cognitive walkthrough to get instant feedback from the participant on satisfaction of the course, any prevalent issues, needs or wants that are lacking,

and perceived relevance of online training and content (For an informal interview script, see Appendix I).

Pre- and post surveys contained both quantitative (questions using Likert scale) and qualitative (open-ended questions providing feedback) responses. Cognitive walkthrough and informal interview provided qualitative feedback and, based on responses, some quantitative information.

Project Design

The project design consisted of an adapted choice board created using Google Slides. A choice board is a graphic organizer used within education consisting of boxes (usually nine boxes) on a sheet of paper for students to select different objectives (How to use choice boards, 2018) . Using this idea, Google slides was used to create a visual novel game by creating "boxes" to provide navigation. As for the rest of the technology aspect of the design, participants used their own personal computers, or have access to a computer, and strong internet connection. Additionally, participants had to know how to use the video conferencing platform Zoom for its ability to conduct a cognitive walkthrough, and record both the participants screen and voice. For participants who are unfamiliar with Zoom, a Zoom Quickstart guide was emailed to them in preparation for the usability study.

Merril's First Principles of instruction was used to help build different scenarios for the participants to encounter during the program planning training. The SAM$_2$ instructional design model was used for rapid prototyping during the testing phase as updates and corrections were expected during testing and being able to quickly assess the problem and rollout the prototype for the next phase of iteration would be ideal.

In terms of the game itself, there were 88+ slides created for the training thus far. This is not including the final chapter, where there is anticipated to be another 30+ slides added to finish the training. This is due to the multiple story threads that happen during the last part of the training where the participants will be using what they've learned to observe three different events happening at the same time.

Procedure

Before the study

Prior to the usability study, participants were recruited through email and verbal interaction. Through the recruitment phase, the researcher coordinated with the Student Life Coordinator to ensure participants are current or have held a position on a CSO within the past year. Recruited participants received an email from the researcher welcoming to the study and include several different links and attachments: a consent form, link to pre-survey, applicable testing round dates, and Zoom Quickstart guide.

Day of usability testing

On testing day, the participants were told to anticipate spending approximately 75 minutes going through the program planning training, and answering several questions through the cognitive walkthrough and informal interview. The cognitive walkthrough was conducted by the researcher, online through Zoom. A script (see Appendix H) was created to account for the researcher's three research questions on navigation, efficiency, and user satisfaction. At the end of the participant's cognitive walkthrough, the informal exiting exam (see Appendix I) was conducted before the researcher stopped recording and the participant left the meeting. The interview consisted of the participants' thoughts and concerns while the training was fresh in their mind. It also incorporated some questions pertaining to user satisfaction (user control, aesthetic, and perceived relevance).

Video recordings were conducted through Zoom during a cognitive walkthrough and informal interview. Videos were reviewed after each participants' trial to provide the researcher with the ability to focus on the script during the walkthrough/interview and collecting data and notes for future iterations. The purpose of these video recordings was to screen capture the participants view and actions going through the game and never showed the participants face. In an effort to keep participant anonymity, the researcher avoided using their real name during the recording of the interview. In the event of a participant's name being said during either the cognitive walkthrough or interview, their name was redacted in post processing for further concealment of their identity. Videos were saved to a password protected drive to protect user confidentiality. Videos were reviewed by the researcher to collect data for the study and were never shared as part of a conference or other form of public presentation (i.e. social media). At the conclusion of the research project, video data was erased to protect participants' privacy.

In addition to the participants' privacy, survey forms were saved and collected in a password protected Google Drive link and did not ask or collect any of their personal information. Observational tools that the researcher used to collect data did not use the participants' information. After the researcher has collected the pertinent information needed for the study, the identities of the participants are no longer needed, participants identifying information, video, and audio recording will be destroyed to protect participants.

Participants were notified several times throughout the study that their time was voluntary and no ill action or any negative repercussions would happen to them if they decided to leave. Participants received this information prior to the study in the consent form and the researcher also mentioned it again within the script during the cognitive walkthrough.

After the usability test

At the conclusion of the usability test, the researcher collected notes on the session and prepared for the next meeting session. A follow-up email was sent out after the participant had concluded the cognitive walkthrough and informal interview. This email included a link to the post-survey consisting of follow-up questions to assess the researchers three research questions, once again. The participant's total time commitment to the study was between 35 - 45 minutes altogether and was collected mostly online.

Analysis and Results

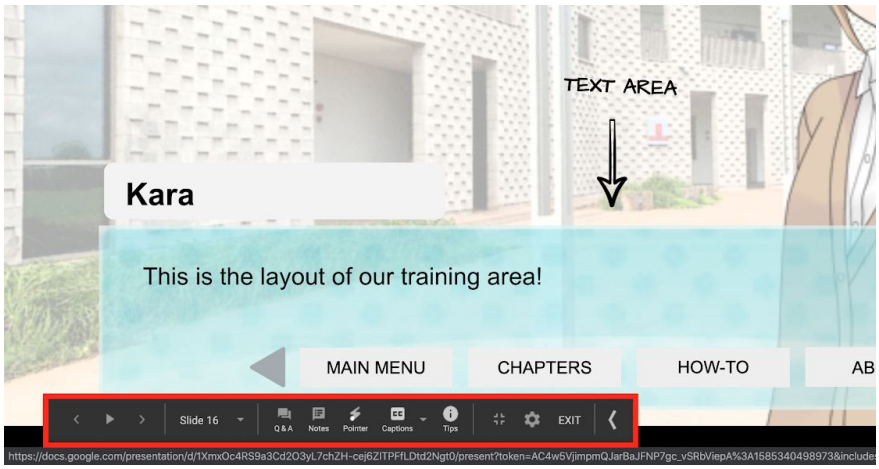
Through the three iterations, any usability issues encountered were noted and then resolved. Dependent on the amount of time between iterations and in conjunction with the amount of time the researcher dedicated to fixing usability problems, major issues (such as those dealing with the three research questions: navigation, efficiency, or user satisfaction) were rectified prior to fixing any cosmetic or minor issues.

Iteration One

The first iteration uncovered several issues due to the navigation of the visual novel game. These issues made navigation as it was originally intended unusable without help from the researcher. Participants had trouble navigating the visual novel because of the Google Slide Control Bar (Figure 3) blocking part or all of the navigational buttons put in place by the researcher. With the Google Slide control bar obstructing the Main Menu and Chapters buttons, these participants in the first round of testing were unable to complete several usability tasks without using other means of navigation, such as using their arrow keys to maneuver through the training or asking the researcher for help.

Figure 3

Google Slide Control Bar



Note. Screenshot of the Google Slide Control Bar partially blocking navigational buttons.

Initially, the researcher had prompted participants to download a Google Chrome add-on called "Invisible Google Slide Control Bar" to hide the bar during presentation mode, but upon testing it was noted that the bar would only be hidden if activated from the original slide presentation instead of participants accessing the slide format already in presentation mode. To rectify this issue, three participants were able to use alternative means to navigate through the training. During the informal interview that followed the usability test, participants were asked for their feedback on this issue. Two out of the three participants for iteration one agreed that while the concept of learning the topic of program planning through a visual novel was exciting, they were unhappy that they were not able to progress through the training as intended.

Iteration Two

Iteration two consisted of three participants. Without the distraction of the Google Slide Control Bar, which was fixed in the first iteration by previewing the Google Slide presentation in Google Drive and obtaining the shared link, participants were able to focus more on the mechanics and story of the game. During this iteration, two participants were able to skip the orientation portion of the training, which would help them learn the navigational tools, by having access to the Chapters button. Unbeknownst to the researcher, by participants skipping this area of the training, it meant that some participants passed several training elements essential to the training itself. One item in particular was the definition of program planning, which participants had to identify at the end of the chapter through a short quiz.

During the usability test, two out of the three participants from this iteration expressed it was frustrating that the main menu button took them to the very beginning of the training instead of a menu option screen where they could navigate to the chapters, about section, and how-to options. In the post-survey, when participants were asked what part of the training can be improved, one participant mentioned, "Not having to go all the way back to the START page. Or maybe have the main menu be a little easier to navigate too..." The researcher also observed this frustration during the usability testing as participants would frequently press the main menu button to access the beginning portion of the training while trying to locate chapters.

Additionally, one of the three participants mentioned that there was a lack of equality between female to male characters portrayed in the training. While originally, the training incorporated one female character called Kara that walked the participants through the training, the participant noticed that this was a misrepresentation of the college population on campus and that there should be a better representation of both genders to balance it out.

Figure 4

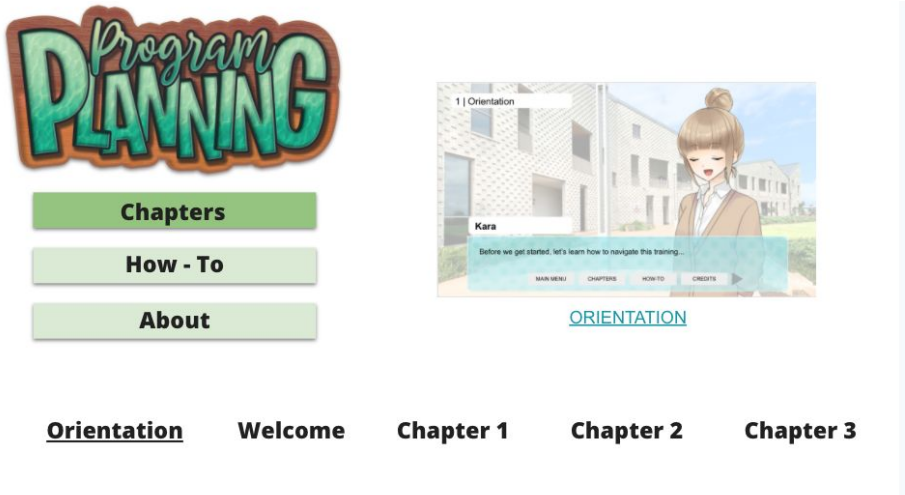
Updated Start Screen

Note. The original start screen included two female characters. The updated start screen, seen here, included the addition of a male character to provide gender equality.

In response to this, the researcher implemented several changes, including adding a male character to help with teaching participants and the addition of a male presence on the title screen of the visual novel (Figure 4). Also in response to the participants' needs, the researcher revamped the organization of the main menu to incorporate a new landing area (Figure 5). This menu view now contains all of the navigational links, such as chapters, instructions on how to move through the training, and information about the training.

Figure 5

Updated Main Menu



Note. An image of the updated main menu screen that participants land on if they select the Main Menu option from the navigation bar.

Iteration Three

The last iteration of the study consisted of two participants. Of the three iterations, this had the least revisions to make as the prototype was still being developed. Due to the large update in iteration two, several links were broken and characters went missing from different parts of the training. As mentioned by one of the participants during the post-survey, it was suggested to change the minor glitches, missing characters and scenes from the training. While the researcher was unable to catch all glitches before the last usability test, the researcher had to advise the last participant that these types of issues could occur prior to beginning the cognitive walkthrough. Despite the missteps caused by the updated main menu, participants were able to navigate and review the training with little problems as observed by the researcher.

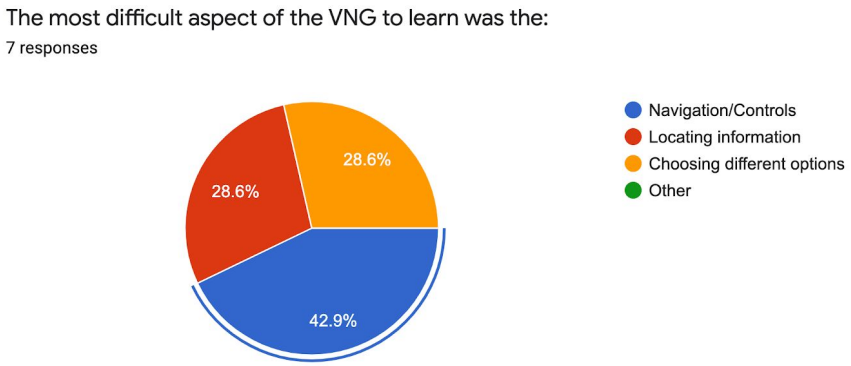
After the three iterations were completed for the cognitive walkthrough, the researcher reflected on the aforementioned research questions. The following are conclusions based on the study findings.

Navigation

In terms of navigation during the study, participants verbally mentioned the flow of the VNG training was simple to navigate, results from the post survey seemed to negate these findings. In Figure 6, when participants were asked what was the most difficult part of the training, 43% of participants thought "Navigation and Controls" was at the top of the issues reported by participants. This discrepancy led the researcher to revisit past interviews with participants and found that while each participant was able to navigate the training with little to no issues, navigation issues arose when the participants were prompted by the researcher to locate different sections of the training. The researcher concluded that the majority of the navigational issues were due to prompts from the usability test and not from the training itself. While the researcher was focused on learning more about the difficulty of the training

Figure 6

Program Planning difficulty



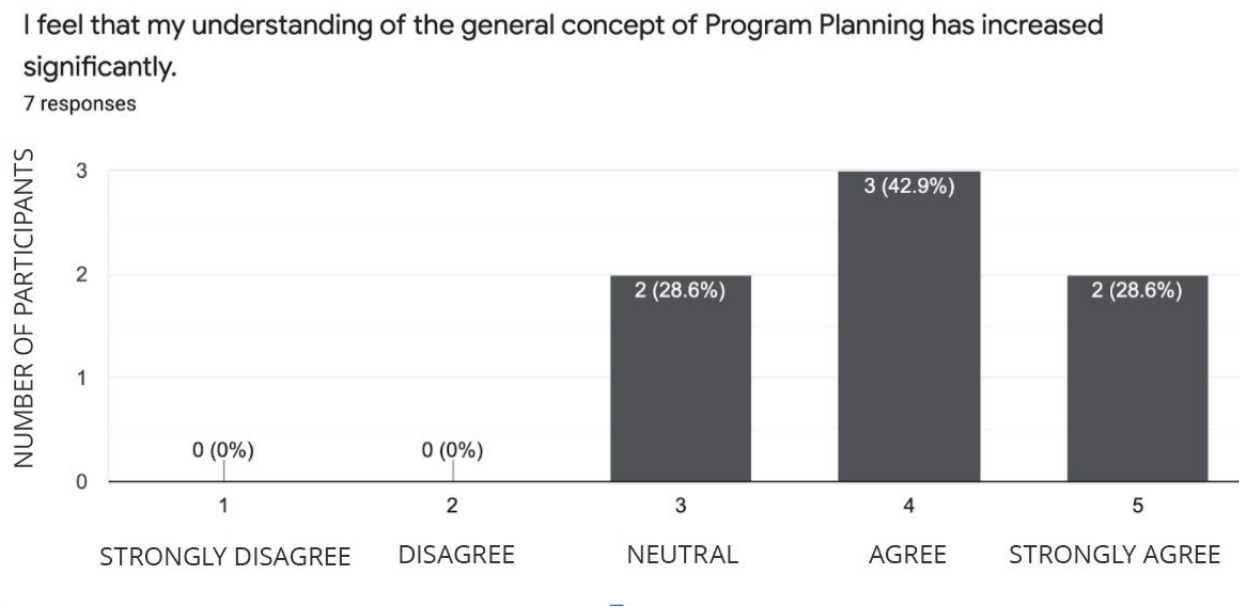
Note. Post-survey question regarding the most difficult aspect of the visual novel game. While participants mentioned that navigation was the among the top issues they had to overcome, in hindsight, it was due to the researcher prompts that led to most navigation issues during the cognitive walkthrough.

Efficiency

In regards to efficiency, the participants found that the online training was efficient in providing information on what program planning is. From the pre-survey, two participants mentioned that they have either heard of or knew what program planning was, while other participants had never had the training nor did they know what it was. As the study focused on how efficient the training was at delivering information about program planning through a visual novel game, post survey results reflected that all participants had gained some knowledge of program planning. In Figure 7, this post-survey question asked participants if their knowledge had increased after going through the Program Planning training. From the figure below, 72% of participants agreed or strongly agreed that the training had provided them with a better understanding of what program planning is. One participant mentioned that the training could also serve as a good refresher for those who have taken the face-to-face training.

Figure 7

Understanding Program Planning



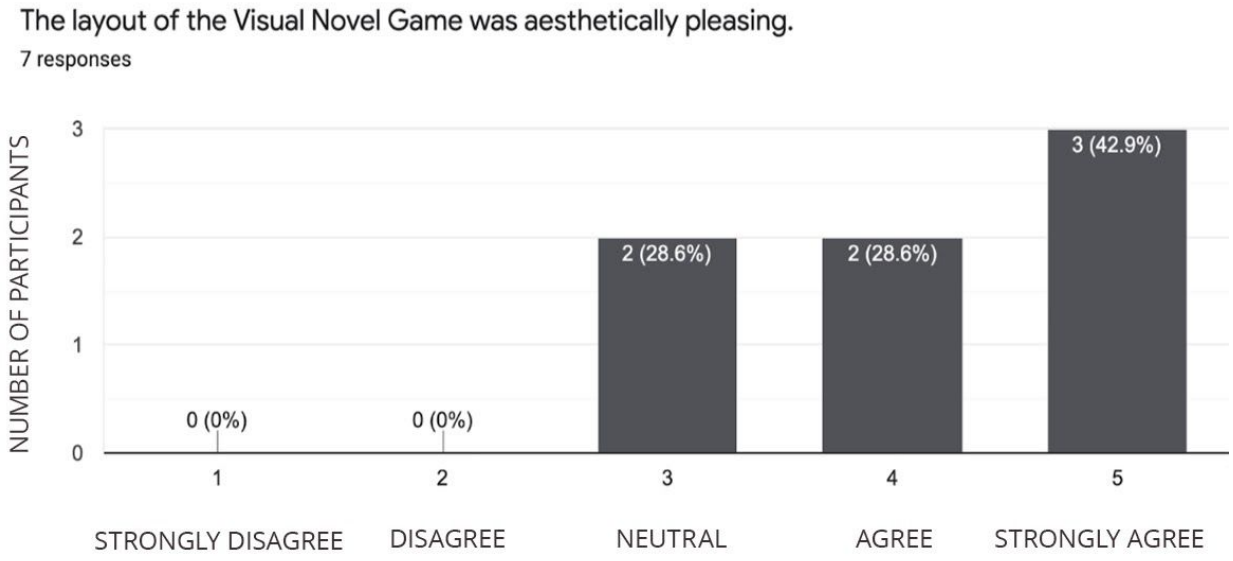
Note. Post-survey question reflecting on participants' understanding of program planning.

User Satisfaction

In regards to user satisfaction, participants agreed that the design of the study was aesthetically pleasing (Figure 8). One participant mentioned that learning through a visual novel game is the "new era of learning" while other participants mentioned that the training was fun to go through.

Figure 8

Program Planning aesthetics



Note. Post-survey question reflecting on the user satisfaction with the visual novel training.

Discussion and Conclusion

The goal of this usability study is to provide an effective deliverable for program planning training at UHWO by using a visual novel-style game. Through this study, the researcher found that participants were willing to use the visual novel to learn more about program planning. The following are some conclusions the researcher has made over the development of the prototype and through the usability testing process.

Time-Commitment and Constraints

With any instructional course development there are a lot of considerations to be made. Developers seeking to create their own visual novel game should weigh the benefits as well as the restrictions their game will have. Through the development of this training, the researcher noted that on top of collecting the content for program planning, time was also needed to structure the visual novel game using a wireframe, choosing how the content will be displayed (by creating an online game through coding or creating a choice board), developing storylines and pathways, the creation of game assets (such as character sprites, backgrounds, and buttons), and finally, creation of the game itself.

Video game usability testing

Although the researcher had organized the training as best they could, the time constraint from the length of the study period resulted in the researcher being unable to complete the full prototype, but they were able to include enough information, story lines, and game mechanics for the testing to be viable. It was important to have these in place to test whether the visual novel would appeal to the target audience and still read as a game versus just a slide show.

During the study, the researcher also noted a lot of problems occurred when participants were prompted during the cognitive walkthrough. Although the researcher anticipated a 5-minute gameplay with observation during each section of the usability study, it was realized that this was not enough time for the participants to acclimate to the game. As a suggestion to developers when testing their own game studies, they should observe the full participant gameplay before prompting participants to prevent confusion and additional stress on their participants.

Final thoughts

Although the face to face training offered by the department is effective, many students are not able to attend in person training due to other commitments that may take up their time. While the training is not complete, the researcher anticipates further study into learning more about the content of the game and making subsequent updates before the training can be used for students needing the program planning training. The researcher further hopes that from the outcome of this study, more visual novel games can be used as viable options for training in education because of its narrative gameplay and student engagement elements.

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APPENDICES

Appendix A: Wireframe
Appendix B: Screenshots of Program Planning Visual Novel
Appendix C: CITI Training Certificates
Appendix D: Recruitment Materials
Appendix E: Zoom Set-up Instructions
Appendix F: Consent Form
Appendix G: Screenshots of Google Form Pre-Survey
Appendix H: Screenshot of Usability Protocol and Script
Appendix I: Informal Interview Script
Appendix J: Post-Survey

Appendix A: Wireframe

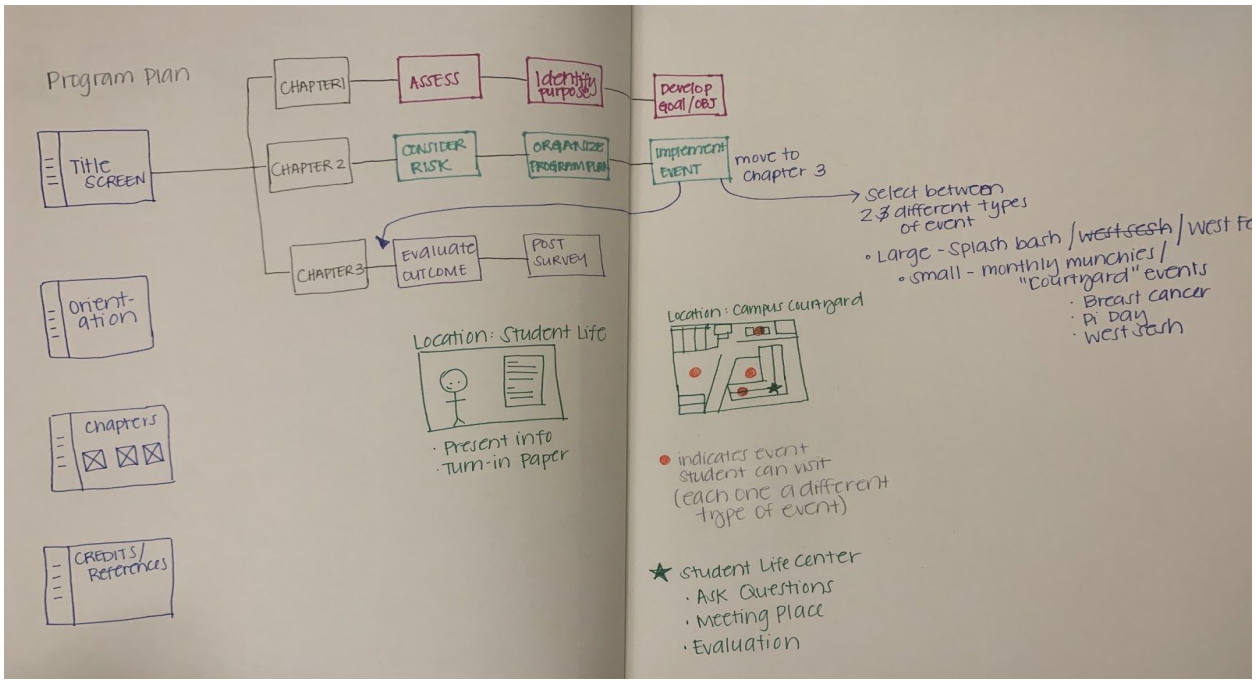


Figure A: Image of Program Planning Visual Novel Wireframe

Appendix B: Screenshots of Program Planning Visual Novel

Figure B-1. Main Menu Page.

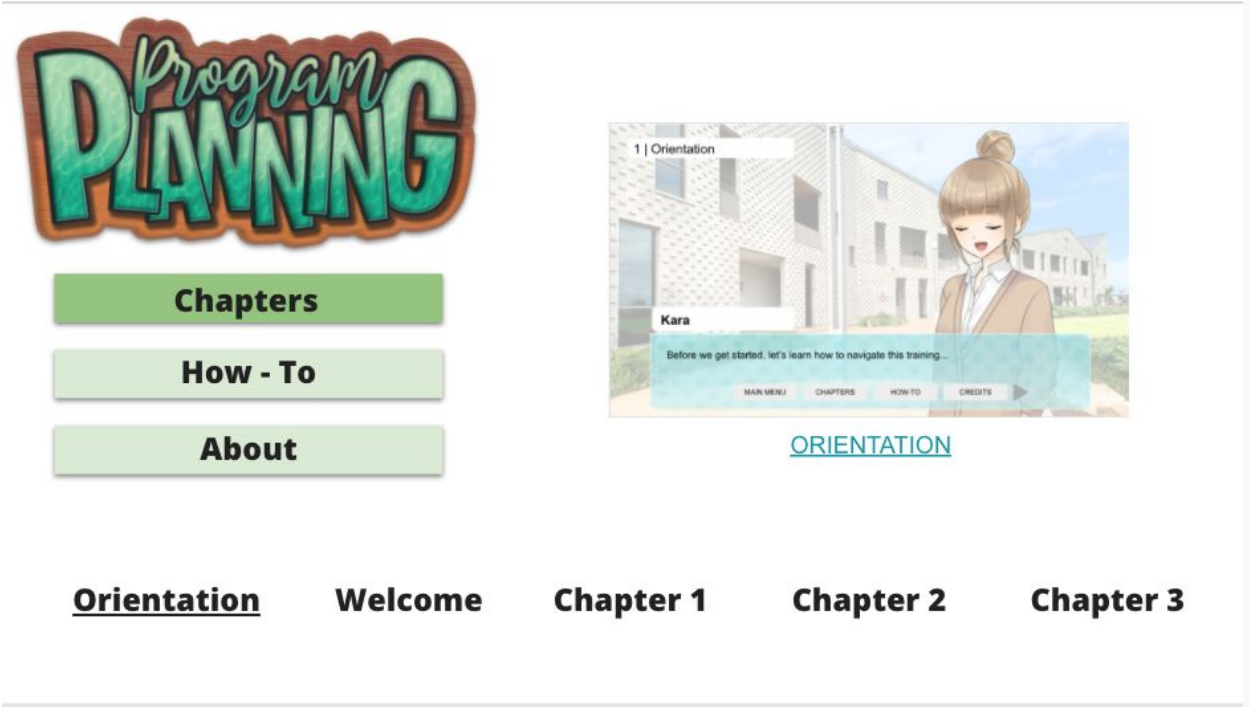
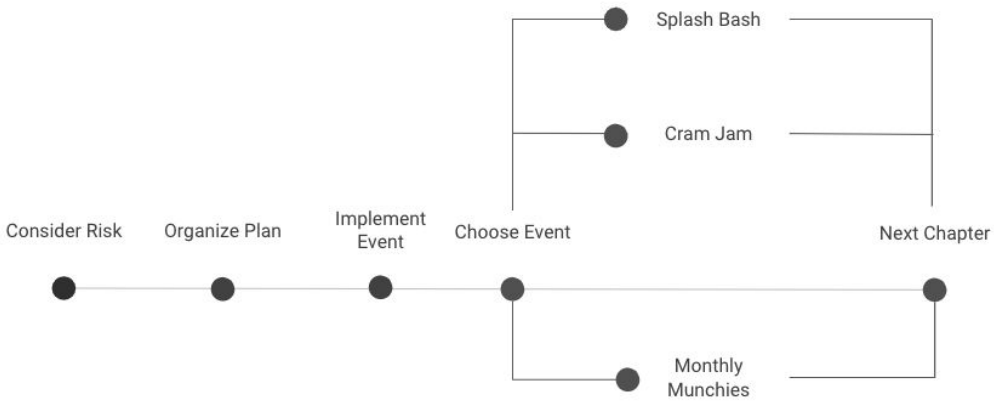


Figure B-2. Chapters Main Page.

CHAPTER ONE - MAP

MAIN MENU | CHAPTERS | HOW-TO | CREDITS

CHAPTER TWO - MAP



MAIN MENU | CHAPTERS | HOW-TO | CREDITS

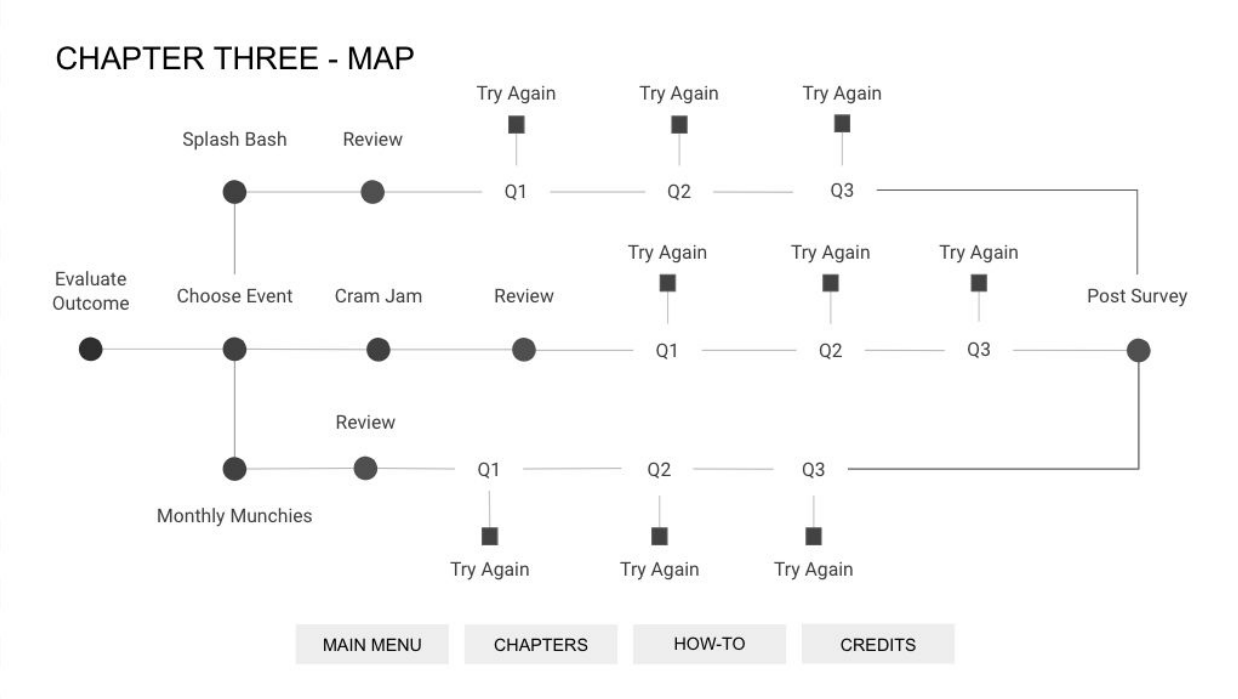


Figure B-3. Chapter Maps:

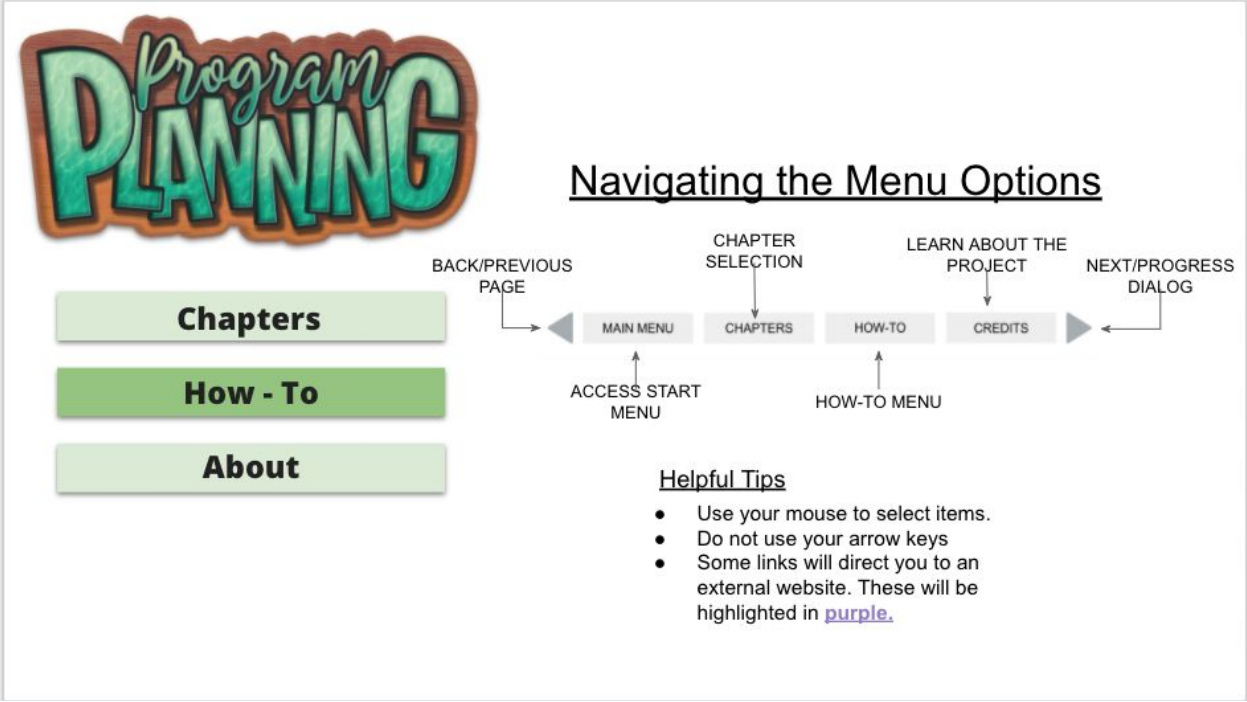


Figure B-4. How-To Main Page.

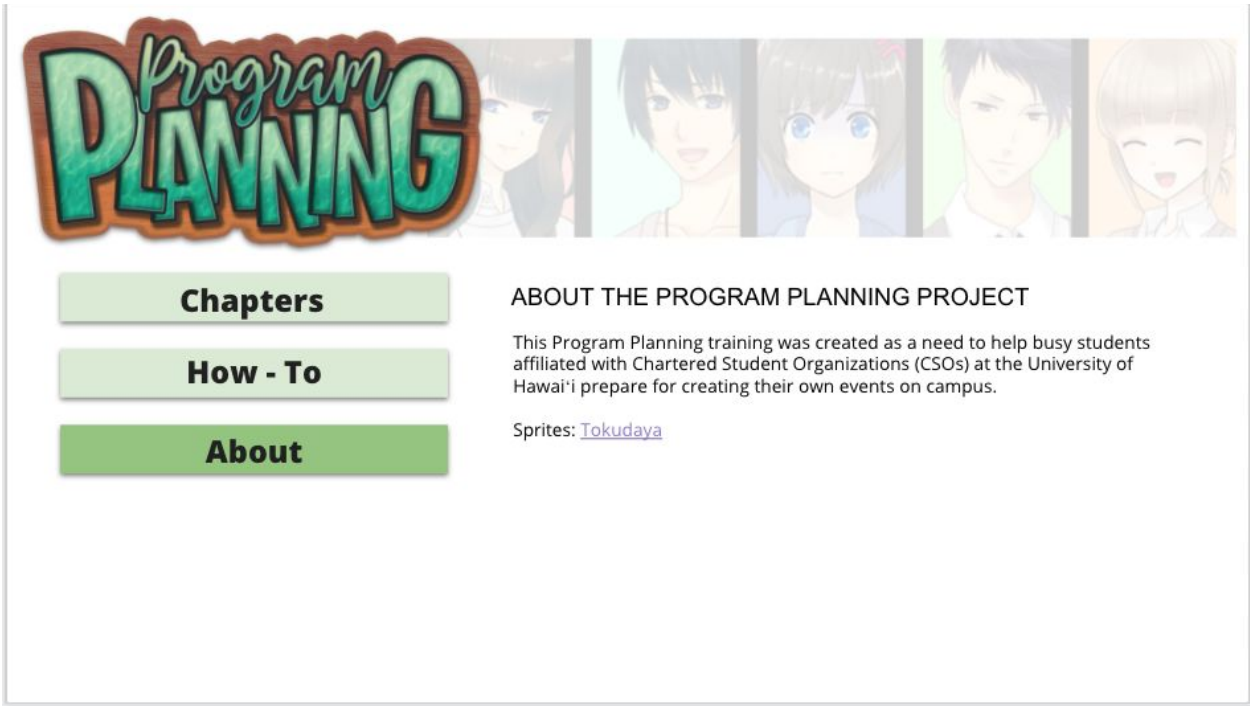


Figure B-5. About Main Page.

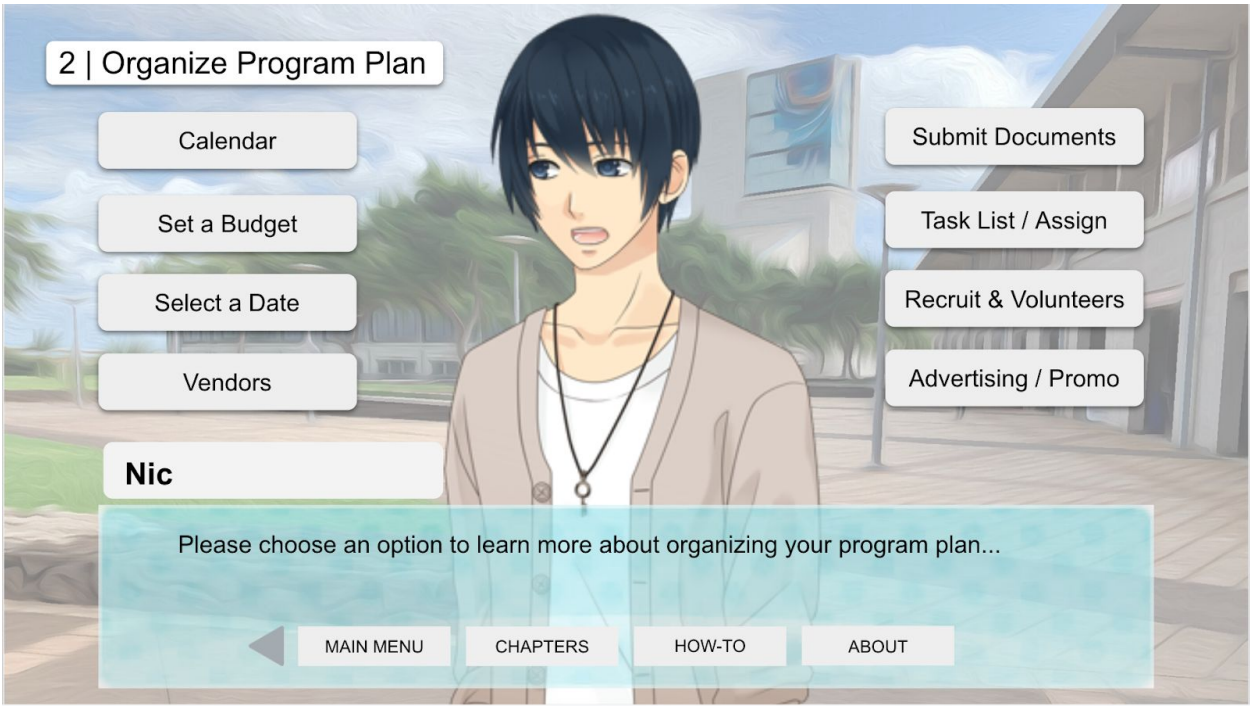


Figure B-6. Example of Game Play.

Appendix C: CITI Training Certificates

Figure C-1. CITI Training Certificate for Information Privacy Security (IPS)

Figure C-2. CITI Training Certificate for Human Subjects Research (HSR)

Appendix D: Screenshot of Recruitment Materials

Recruitment Email:

Due to the specific nature of this training, participation in this study will be limited to selected individuals who have been associated with or currently hold a position with a Chartered Student Organization at the University of Hawaii - West Oahu. Sample recruitment email and consent request are as follows:

Aloha <Participant>,

I am asking for your participation to help with a research project that I am conducting as part of my requirement for my Master's program. The purpose of the project is to assess the usability of an online program planning training through a visual novel game for Chartered Student Organization (CSO) members at the University of Hawaii - West Oahu. As part of the project, you will be asked to navigate the online visual novel game completing several tasks. While it does not matter if you have already taken the face-to-face program planning training, your affiliation with a CSO will provide insight into how an online training will perform for future members pertaining to your schedules and learning styles. Your acceptance in taking the module is greatly appreciated because all feedback will help improve this training for future use.

Participation in this usability study is completely voluntary. A usability study incorporates a one-to-one interview between you and I and will take no longer than 75 minutes of your time. We will be using a video conferencing platform called Zoom to conduct a walkthrough, which your voice and screen will be recorded, but not your face. Prior to our meeting, you would need to sign the attached consent form and complete the pre-survey [link]. Please see the attached consent form for more information on the study and the specifics on what you will need to do.

I will be conducting three rounds of interviews during the following dates:

- Round 1: January 20th - 24th
- Round 2: February 3rd - 7th
- Round 3: February 17th - 21st

After each round of testing, changes will be made to improve the training based on your feedback. If you do agree to participate in the study, please sign and date the form and return it to me by email, mlochman@hawaii.edu, or in person. If you have any questions or concerns pertaining to the study, please feel free to contact me.

Mahalo,
Mellissa Lochman, Project Investigator
mlochman@hawaii.edu

Figure D-1. Recruitment Email

LOOKING FOR A FUN WAY TO LEARN PROGRAM PLANNING?

ARE YOU 18 OR OLDER AND PART OF A CHARTERED STUDENT ORGANIZATION AT UHWO?

MELLISSA LOCHMAN WOULD LIKE TO INVITE YOU TO PARTICIPATE IN A RESEARCH STUDY.

The **purpose** of this usability study seeks to evaluate visual novel gameplay about program planning through navigation, efficiency, and user satisfaction for CSOs at UHWO. The program planning training will take place in a Google Slide choice board in the form of a visual novel-style game.

Usability testing (one interview per participant) will take place in Zoom.

To learn more about the study, please e-mail Mellissa Lochman at **mlochman@hawaii.edu**

Figure D-2. Recruitment Flyer

Verbal Request to Participate Script

Aloha <Participant>,

Thank you for meeting with me to speak about my upcoming project, Program Planning through a Visual Novel-style game. (If the participant is not familiar with me: My name is Mellissa Lochman) I am a Master's student in the LTEC program, otherwise known as the Learning Design and Technology Department at UH Manoa.

I'm speaking with you today because you are (or have been) within a CSO on campus that have to go through a program planning training as part of your work creating events, programs, etc. As part of my final Master's project, I have created an online training module through Google Slides as a Choice Board game using a visual novel narrative to introduce the topic of program planning to students such as yourself. I know, that was a mouthful. Essentially, I created a visual novel game to teach program planning online. At this point, I would like to extend an invitation for you to take part in this usability study by walking through the entire training with me, completing several tasks, and letting me observe how you interact with the training. Your feedback will be crucial in the continuing development of the online training for future CSO members to take part in.

Participation in this usability study is completely voluntary. A usability study incorporates a one-to-one interview between you and I and will take no longer than 75 minutes of your time. We will be using a video conferencing platform called Zoom to conduct a walkthrough, which your voice and screen will be recorded, not your face. Before our meeting, you will be asked to complete a pre-survey and turn in the consent form for the study. On the day of testing, you will log into Zoom at your given time at least 5 to 10 minutes early. Then, there will be approximately 60 minutes of testing, followed by a 5 - 10 minute informal interview. Lastly, you will be sent an email to complete a post-survey.

I will be conducting three rounds of interviews during the following dates:

- Round 1: January 20th - 24th
- Round 2: February 3rd - 7th
- Round 3: February 17th - 21st

After each round of testing, changes will be made to improve the training based on your feedback. If you're willing and interested in participating in this usability study, please let me know and I will email you the pre-screening questionnaire. Once I receive confirmation of

qualified participants, I will send a follow-up email to you with a participation consent form. At the time of your interview, we will go over consent proceedings once again to remind you.

Do you have any questions?
[Answer Participant Questions]

Would you be willing to participate in this study?

[If yes]
Thanks! Please give me your email address and I will send you the pre-screening questionnaire.

[If no]
That's okay. If in the event that you change your mind, please email me (email address).

Mahalo, so much for your time today!

[End Verbal script]

Figure D-3. Verbal Recruitment Script

Follow-up Email to Participants

Aloha <Participant>

Mahalo for participating in my research project on Program Planning through a Visual Novel-style Game. Your input and feedback were greatly appreciated. If you haven't done so, please take the time to complete this post-survey on how your experience went. This final reflection on the process will help me better analyze my prototype.

Please go to this link: [Link to Post Survey]

Once again, mahalo for your time and impact. From your contributions to this study, you are greatly benefiting future students requiring this training. If you have any questions or concerns, please email me at mlochman@hawaii.edu.

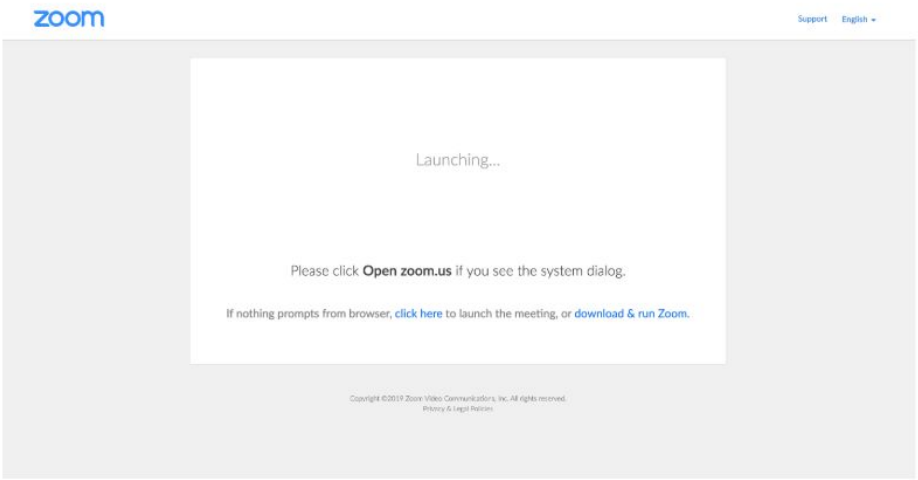
Mahalo,
Mellissa Lochman, Project Investigator
mlochman@hawaii.edu

Figure D-4: Example Follow-up email to participants after the conclusion of the cognitive walkthrough.

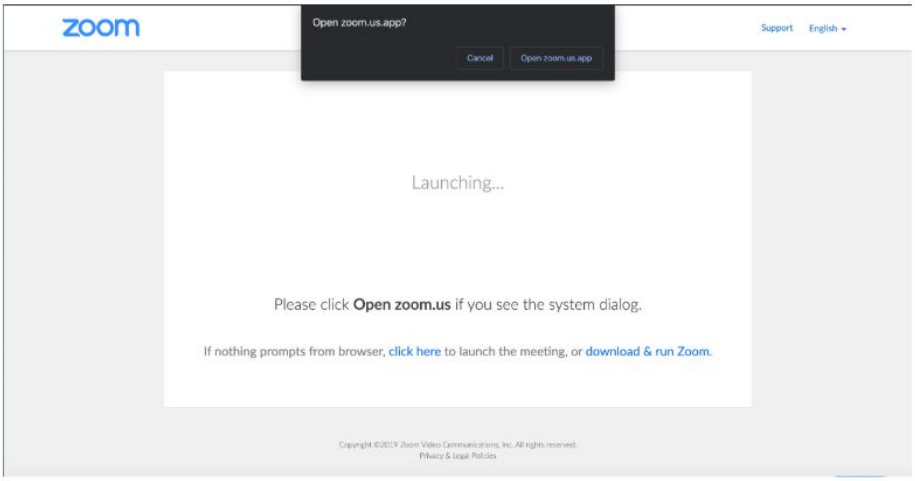
Appendix E: Zoom Set-up Instructions

Quickstart Guide for Zoom

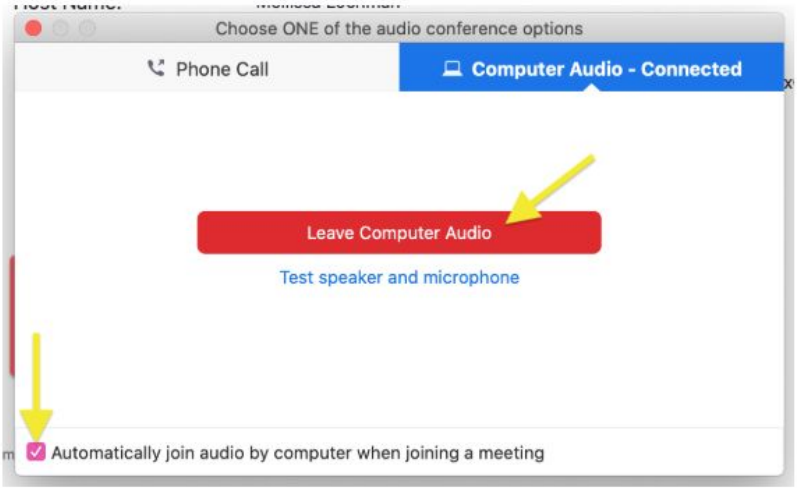
1. Be sure to use the latest version of Google Chrome, Safari, or Mozilla Firefox for the best experience.
2. Click on this link to my Zoom room: Mellissa's Zoom Room
3. Go to http://zoom.us
4. If you are a new user, you will be prompted to download the Zoom installer:



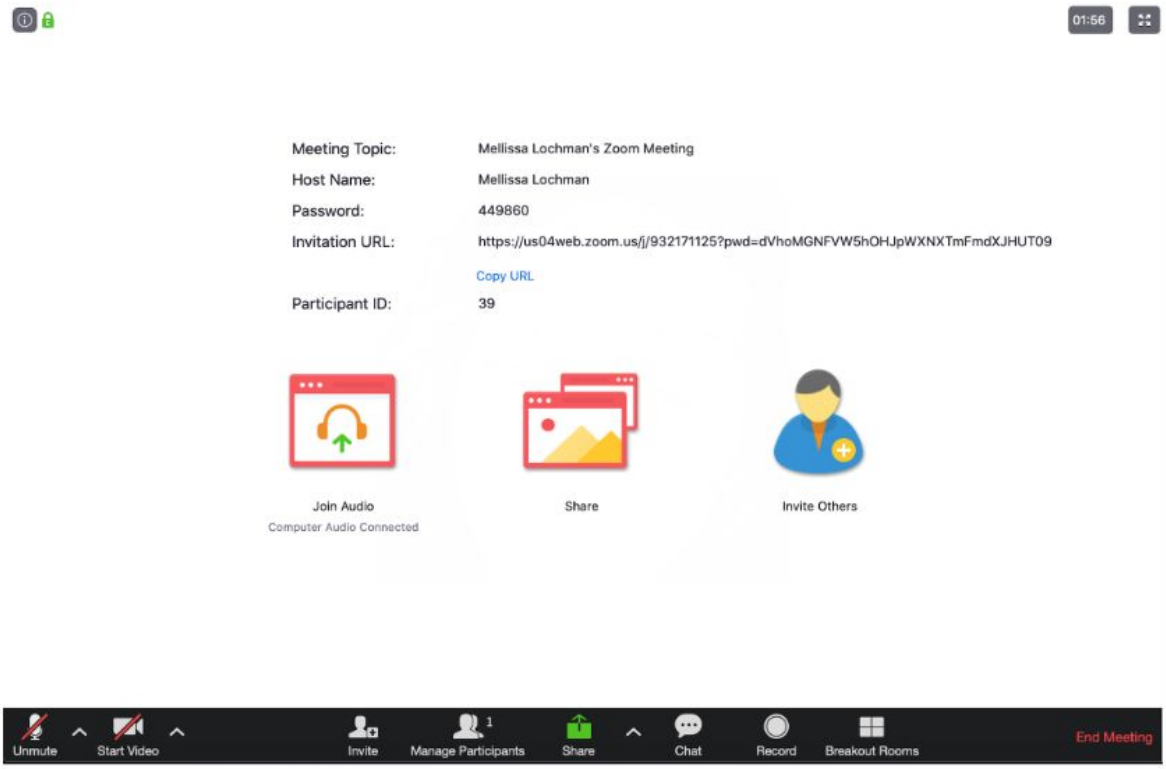
5. Once you have downloaded Zoom, please join the meeting:



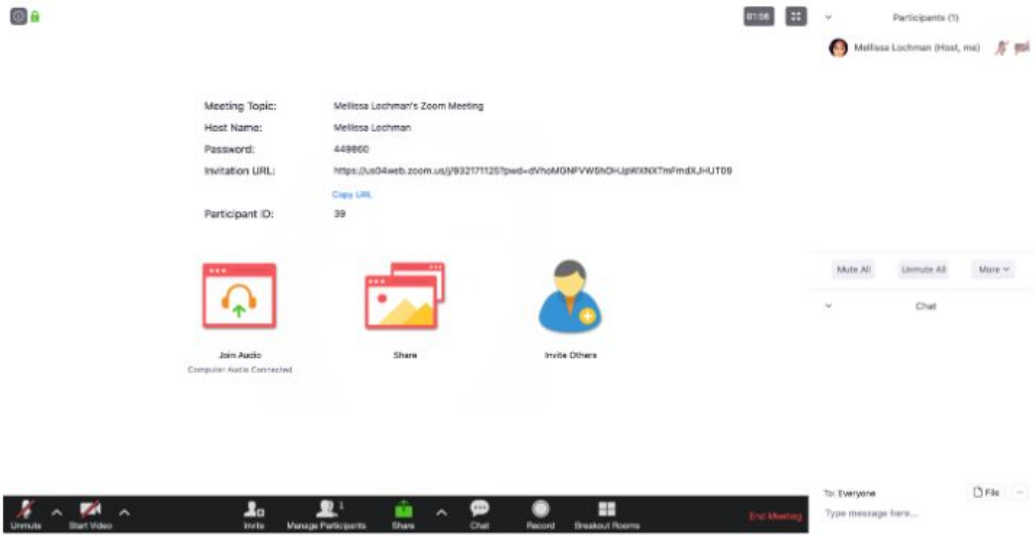
6. Choose Audio Conference Options and check the box in the lower left-hand corner:



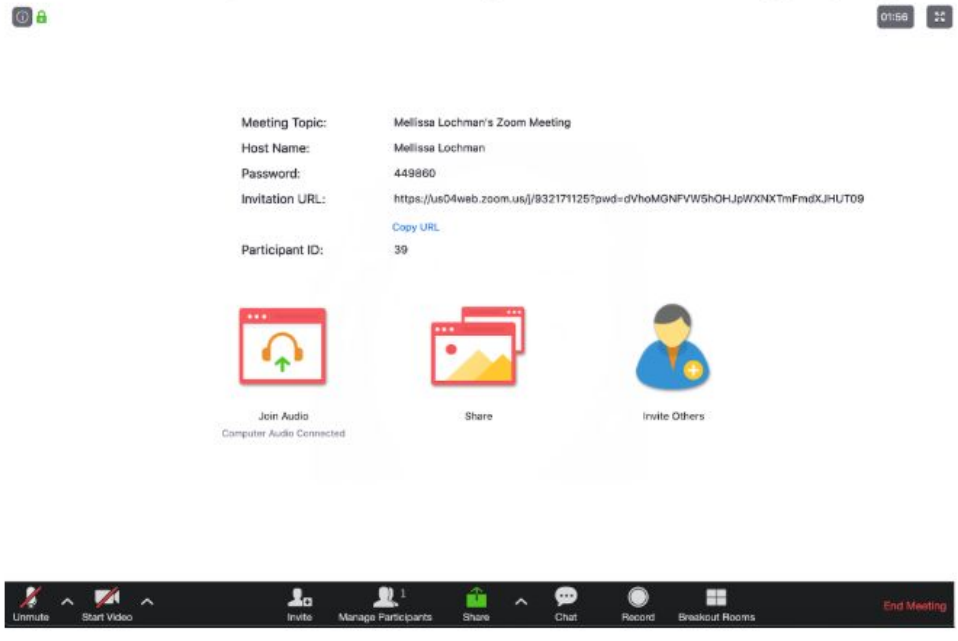
7. Your screen may appear similar to this:



8. You can view the chat or participants window by clicking on the icon on the bottom of the screen. When both windows are open, your screen will look similar to this:



9. On the lower left-hand corner, there are icons to mute/unmute and start video/stop video.
    a. You may get prompts to allow video and audio in your browser settings. Please accept these to ensure your audio is working properly.



10. To share your screen, click on the Share Icon as shown below.
    a. You may get prompted to allow screen-share in your web browser settings. Please accept these to ensure you are about to share your screen.

11. Please test your microphone, camera, and the share function prior to the usability interview. If you need any help, please email Mellissa Lochman at mlochman@hawaii.edu.

Appendix F: Consent Form

University of Hawai'i
Consent to Participate in a Research Project
Dan Hoffman, Principal Investigator
Mellissa Lochman, Co-Investigator
Project title: Program Planning through a Visual Novel-style Game

Aloha! My name is Mellissa Lochman and I'm conducting a research project as part of the - requirement for my graduate program with the Department of Learning Design and Technology. The purpose of the project is to evaluate the usability of an online game-based training through a visual novel for Chartered Student Organizations (CSOs) at UH West Oahu to learn program planning. Your participation is needed because of your affiliation with a CSO or interest in learning program planning and are at least 18 years or older.

What am I being asked to do?
As part of the study, you will be asked to complete several tasks pertaining to the online program planning training though a video conference. This will take approximately 75 minutes to complete. Additionally, you would also need to complete two surveys, one before the study and one after the study has concluded.

Taking part in this study is your choice.
Your participation in this project is completely voluntary. You may stop participating at any time. If you stop being in the study, there will be no penalty or loss to you. Your choice to participate or not participate will not affect your status as a CSO board member.

Why is this study being done?
The purpose of this project is to assess an online program planning training use for UHWO CSO students. I am asking you to participate because you are associated with program planning training, are a current CSO board member, or have been a member within the last year.

What will happen if I decide to take part in this study?
You will receive an email confirming a date and time for a walkthrough of the program planning online training. Before the study, you should ensure that you have the following:

- Complete the pre-survey (included in the email with your confirmed testing date)
- Have access to a computer.
- Familiarize yourself with Zoom.
- Ensure you are connected to a reliable internet or wi-fi source.
- Have access to headphones with a microphone. (optional)

One testing day, you will have to connect to Zoom 5 – 10 minutes prior to your testing time. I will be recording this session (video and audio) to observe your navigation through the study. Your face will not be recorded in this video. Video and audio recording is necessary to analyze your movement through the online training and for documentation. You will be asked to "think out loud" during the study, which means to verbally express your thoughts and actions while maneuvering through the online training module. Once you've completed the walkthrough of the online training, you will be asked to take a post-survey to provide any feedback you have for the training module.

What are the risks and benefits of taking part in this study?
I believe there is little risk to you for participating in this research project. You may become stressed or uncomfortable answering any of the survey questions. If you do become stressed or

uncomfortable, you can skip the question or take a break. You can also stop taking the survey or you can withdraw from the project altogether.

There will be no direct benefit to you for participating in this survey. The results of this project will help improve program planning training at the UH West Oahu Student Life Office to benefit future students.

Confidentiality and Privacy:
I will not ask you for any personal information, such as your name or address. Please do not include any personal information in your survey responses. I will keep all study data secure on an external password protected hard drive. Only my University of Hawai'i advisor and I will have access to the information. Other agencies that have legal permission have the right to review research records. The University of Hawai'i Human Studies Program has the right to review research records for this study.

Future Research Studies:
Even after removing identifiers, the data collected for this study will not be used or distributed for future research studies.

Contact information: If you have any questions about this project please email me at mlochman@hawaii.edu, or my faculty advisor, Dr. Daniel Hoffman, hoffman2@hawaii.edu. If you have concerns about your rights as a research participant, please go to http://go.hawaii.edu/jRd for more information.

If you agree to participate in this project, please sign and date this signature page and return it to: mlochman@hawaii.edu.

Keep a copy of the informed consent for your records and reference.

Signature(s) for Consent:
I give permission to join the research project entitled, "*Program Planning through a Visual Novel-style Game.*"

Please initial next to either "Yes" or "No" to the following:

____ Yes ____ No I consent to be audio-recorded for the interview portion of this research.

____ Yes ____ No I consent to being video-recorded for the interview portion of this research.

Name of Participant (Print): _____

Participant's Signature: _____ **Date:** _____

Signature of the Person Obtaining Consent: _____

Date: _____

Mahalo!

Appendix G: Screenshot of Google Form Pre-Survey

Program Planning Training through Visual Novel Game - Pre-Survey

Aloha,
Mahalo for participating in this usability study for training Chartered Student Organization (CSO) members on program planning through a visual novel game. During this study, you will be asked to complete several tasks navigating the visual novel game to test the functionality of the site prior to other CSO members taking the training. Your responses are completely anonymous. Responses to anonymous surveys cannot be tracked back to the respondent and no personally identifiable information will be collected unless you offer it voluntarily.

In preparation for the study, please complete this survey to the best of your ability prior to taking the walkthrough.
Mahalo,
Mellissa Lochman

* Required

Electronic Consent

By clicking on the "Agree" button below, you indicate that: 1) you are at least 18 years or older, 2) are a current CSO member or have been a member within the last year, and 3) you voluntarily agree to participate in this study. *

- ○ Agree
- ○ Disagree

NEXT

Page 1 of 5

Participant Demographics

This section regards questions pertaining to you as the participant and your affiliation with a Chartered Student Organization. Please answer the following questions to the best of your knowledge.

Gender *

Please choose one.

- ○ Male
- ◉ Female
- ○ Prefer not to say

Age *

- ○ 18 - 22
- ○ 23 - 28
- ○ 29 - 34
- ○ 35 and up

Are you a current CSO member? *

- ○ Yes
- ○ No

Please select the CSO you are (or have) held a position with. *

- [ ] Campus Center Board (CCB)
- [ ] Associated Students of the University of Hawaii - West Oahu (ASUHWO)
- [ ] Student Media Board (SMB)
- [ ] Student Activity Fee Board (SAFB)
- [ ] PUEO Leadership
- [ ] Other: _____

If you are a CSO member (or past member), how many hours a week do you dedicate to your board member duties. (Duties can include meetings, event preparation, dedicated hours, etc.) *

- ○ Less than 5 hours a week.
- ○ 5 to 10 hours a week.
- ○ 11 - 13 hours a week.
- ○ 14 -18 hours a week.
- ○ More than 19 hours a week.
- ○ Other: _____

How many courses are you taking this semester? *

- ○ 1 - 3 courses
- ○ 4 + courses
- ○ No courses (Graduated or no longer affiliated with UHWO)

Are you affiliated with any extracurricular activities on campus? *

- ○ Yes
- ○ No

If yes, please select the types of extracurricular activities in which you participate. (check all that apply)(If you were a CSO member within the past year, please indicate the number of extracurricular activities you were a part of during your CSO position.) *

- ☐ Student worker
- ☐ Club officer or club member
- ☐ Intramural Sports
- ☐ Teachers Aide
- ☐ Internship
- ☐ Extracurricular activities outside of campus (i.e. church, volunteer work, community clubs, etc.)
- ☐ I do not or have not had any extracurricular activities.

If yes, how many hours a week do you dedicate to extracurricular activities. *

- ○ Less than 5 hours a week.
- ○ 5 to 10 hours.
- ○ 11 to 13 hours.
- ○ 14 to 18 hours.
- ○ More than 19 hours a week.
- ○ I am not or have been a part of any extracurricular activities.
- ○ Other: _____

Do you currently work outside of the university while attending college courses? *

- ○ Yes
- ○ No

If yes, how many hours a week do you dedicate to work hours. *

- ○ Less than 5 hours a week.
- ○ 5 to 10 hours.
- ○ 11 to 15 hours.
- ○ 16 to 19 hours.
- ○ More than 20 hours a week.
- ○ I do not have a job outside of the university while attending classes.

Program Planning

The questions in this section regard your knowledge of Program Planning. Please answer these questions to the best of your ability.

Can you define "Program Planning"? *

- ○ Yes
- ○ No

If yes, please explain what you know about program planning in 1-2 sentences. (If you answered no to the previous question, please input n/a for this answer here) *

Your answer

Where did you learn about Program Planning? (Check all that apply) *

- ☐ Student Life Office
- ☐ Another UHWO department on campus
- ☐ Read about it online
- ☐ From a friend/colleague/co-worker
- ☐ I don't know what program planning is.
- ☐ Other: _____

Online Learning

This section pertains to your interactions with online learning. Please answer the following question to the best of your ability.

Have you taken an online course before? *

- ○ Yes
- ○ No

Please indicate the type of online course you have taken before. (Check all that apply) *

- ☐ An online hybrid course (Online course with Face-to-Face meetings)
- ☐ Synchronous Online Course (Online course with regular meeting times)
- ☐ Asynchronous Online Course (Online course with no regular meeting times)
- ☐ Online course including game-based learning (Online course that include some gaming elements in its instruction, i.e. Kahoot)
- ☐ I don't know.
- ☐ I have not taken an online course.
- ☐ Other: _____

Please indicate the number of online courses you have taken in your college career. *

- ○ I have never taken an online course before.
- ○ Between 1 - 3 online courses
- ○ Between 4 - 8 online courses
- ○ More than 9 online courses
- ○ I don't know

Please rate the next few answers on a scale from 1-5

1- Strongly Disagree 2-Disagree 3- Neutral 4 - Agree 5 - Strongly Agree

I am confident in my ability to navigate an online course. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I am capable of locating and using information in an online course. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I enjoy online learning environments. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Visual Novel Game

This section will cover your knowledge of visual novels. Please answer these questions to the best of your ability.

Can you define "Visual Novel"? *

- ○ Yes
- ○ No

If yes, please write your definition of "visual novel". (If you do not know what a Visual Novel is, please answer n/a to this question.) *

Your answer

Please rate the next few questions on a scale from 1 - 5.

1- Strongly Disagree 2-Disagree 3- Neutral 4 - Agree 5 - Strongly Agree

I play a lot of video games in my free time. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

I am interested in learning about a new subject through a game. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Appendix H: Screenshot of Usability Protocol and Script (adapted from Krug, 2010)

Usability Protocol - Program Planning

Technology Set-up Checklist (for Facilitator)

1. Facilitator should set up computer and connect to a power outlet.
2. Facilitator should be in a quiet place for good audio quality and have headphones with a microphone at hand.
3. Make sure there is a strong Internet connection established.
4. Set up audio and test.
    a. Check microphone is working
    b. Check audio levels
5. Log in to Zoom Account.
6. Contact participant and double-check if participant's computer is set up and participant is ready.

After Participant computer is set up

7. How to test if Zoom is working correctly:
    a. In Zoom settings, ensure that participant is able to join room prior to host starting the meeting and that the consent to record video by participants is checked.
    b. Start meeting by clicking on 'host a meeting' in the top right corner of the screen near your name.
8. Run an audio and screen share test with Zoom account.
    a. If screenshare is not working, review preparation of Facilitator's computer for Zoom and retest.
9. Ensure participant can screen share their screen.
    a. If screenshare is not working, review troubleshooting guide. (link)

Technology Set-up Checklist (for Participant)

10. Participant sets up their computer. If they are on a laptop, ensure that they are connected to a power outlet.
11. Check that they have a strong Internet connection established.
12. Participant should log in to Zoom 5 - 10 minutes prior to meeting time and use the link provided to them through email.
13. Set up audio and test
    a. Check that the microphone is working
    b. Check audio levels to ensure that it is at an appropriate level
14. Wait for prompt to begin screen and audio recording.

Both Facilitator and Participant will be logged into Zoom for meeting.
This script will mentions several different scenarios through the cognitive walkthrough portion of the study. Potential open-ended questions and follow-up questions will be utilized dependent on the participant response.

Aloha ***<Participant>***. My name is Mellissa Lochman, and I'm going to be walking you through this session today.

Before we begin, I have some information for you, and I'm going to read it to make sure that I cover everything.

You probably have a good idea of why we are here today, but let me go over it again briefly. Today, I'm asking you to try using an online program planning training that I am working on to see whether it works as intended. The session should take about an hour. Following our testing, there will be a 5 to 10 minute informal interview, where I will be asking you questions about what you just experienced.

The first thing I want to make clear is that I am testing the ***training program*** and not you. You cannot do anything wrong here. This is probably the one thing you do today that you don't have to worry about making mistakes.

As you go through the training, I'm going to ask you several times to try and think out loud: to say what you are looking at, what you are trying to do, and what you are thinking. This will be a big help to me. Also, please do not worry that you are going to hurt my feelings. I am doing this to improve the online training module, so I need to hear your honest reactions.

If at any time you have any questions, just ask. I may not be able to answer them right away, since I am interested in how people do when they don't have someone sitting next to them to help. But if you still have questions when we are done, I will try to answer them then. And if you need to take a break at any point, just let me know.

As you can tell, we are meeting online via a video conferencing website for this meeting. Soon I will be sending you a link to the training in the chat. When you open it, I will be asking you to share your screen with me so that I am able to observe your movements through the training. With your permission, I will be recording what happens on your screen and our conversation, but not of your face. The recording will only be used to help me figure out how to evaluate and improve the training, and it won't be seen by anyone except for myself and my professor. It also helps me because I don't have to take as many notes.

Prior to this session, I've requested that you sign a consent form stating some of the things I've explained thus far. Along with what the study entails, it also includes a signature with permission to record your audio and video. To reinforce this, I will also be prompting you through Zoom to provide consent before we start recording, which you should be seeing now.

<Researcher starts recording to create consent to record video prompt>

If you consent to video and audio recording, please indicate so in the dialogue box on your screen.

Do you have any questions so far?
<Wait for participant response. Answer questions if possible in the moment.>

Okay. Before we proceed with the online training, I would like to ask you a few questions.

First, what do you do for work? What kind of activities do you do throughout the day? This could be from school, work, family, student employment, church activities, clubs, etc.

Now, roughly, how many hours a week do you dedicate to these different activities?

Have you taken any online courses during your college career and how many?
(Follow-up question: What was your favorite online course?)

Great! We are done with questions for now and we can start looking at things.
<Researcher sends link to Participant in the chat>

In the chat area I have a sent a link to the program planning training. Please open it in your web browser and then share your screen with me. The share button is located on the bottom of your Zoom window.

Program Planning Home Screen Tour (5 minutes)

First, I'm going to ask you to look at this page and tell me what you think about it: what do you think the training is about, what can you do here, and what is it for. Just look around and please speak your thoughts out loud.

Please do not scroll, advance the screen, or click on anything.
<Allow Participant to continue speaking out loud for 3 - 4 minutes, at most>

Usability Testing Start (30 - 45 minutes)

Thanks! Now, I'm going to ask you some specific tasks. As we approach a new section of the training module, I will be asking you to play normally for a couple minutes and then I'm going to read each one out loud. If you need me to repeat the task, please ask me and I will do so.

I'm going to ask you to do these tasks without using any Search function or leaving the training. I will learn more about how the training works this way.

And again, as much as possible, please try to think out loud as you go along.
[Ask Participant to play through each new section for 3 - 5 minutes to observe gameplay and identify any discrepancies with the system.]

[Read scenario]

[Allow the user to proceed until you don't feel like it's producing any value or the user becomes very frustrated.

[Repeat for each task or until time runs out]

Based on these scenarios, navigation questions will be asked per each section the participant is able to complete.

Scenarios for Usability Study for Research Question #1
How easy is it to navigate the online visual novel game (VNG)? (DO NOT READ)
Navigation Questions (30 - 45 minutes):

1. **Can you please find the instructions on how to navigate this training.**
2. **Where would you go to find out more about the training?**
3. **Please press the start button. Where do you go? What are you expecting?**
4. **As an example, say you had to leave the training for any reason and closed the module. Because there is no real save points in the game, how would you find your way back here?**
5. **How would you know you've returned to the same spot?**
6. **Say you accidentally scrolled your mouse wheel and landed on a random part of the training. What would you do?**
7. **Being that you have choices to make during this training, what would happen if you came to a different ending?**
8. **If you would like to go to a specific portion in the training, for example talking to people enjoying an event, how would you get there?**
9. **Where can I find information about what program planning is?**

Based on these scenarios, efficiency questions will be mixed with navigation questions per each section for the participant to complete.

Scenarios for Usability Study for Research Question #2
How efficient is the VNG in providing program planning information? (DO NOT READ)

Efficiency:

1. **From here, please go to the chapter that you will have to organize a plan.**
2. **Can you find the Chapter 2 map?**
3. **Please find for me the chapter that discusses evaluation of an event.**
4. **Where would you find information about assessing a program?**
5. **Where would you go to learn more about organizing a program plan?**

Note: *If the participant gets stuck or is quiet, use the following phrases from the chart to prompt them:*

WHEN THIS HAPPENS:	SAY THIS:
You're not absolutely sure you know what the participant is thinking.	"What are you thinking?" "What are you looking at?" "What are you doing now?"
Something happens that seems to surprise them. For instance, they click on a link and say "Oh" or "Hmmm" when the new page appears.	"Is that what you expected to happen?"
The participant is trying to get you to give him a clue. ("Should I use the _____?")	"What would you do if you were at home?" (Wait for answer.) "Then why don't you go ahead and try that?" "What would you do if I wasn't here?" "I'd like you to do whatever you'd normally do."
The participant makes a comment, and you're not sure what triggered it.	"Was there something in particular that made you think that?"
The participant suggests concern that he's not giving you what you need.	"No, this is very helpful." "This is exactly what we need."
The participant asks you to explain how something works or is supposed to work (e.g., "Do these support requests get answered overnight?").	"What do you think?" "How do you think it would work?" "I can't answer that right now, because we need to know what you would do when you don't have somebody around to answer questions for you. But if you still want to know when we're done, I'll be glad to answer it then."
The participant seems to have wandered away from the task.	"What are you trying to do now?"

Finally, I have some questions for you prior to wrapping up this usability test with an informal interview.

Scenarios for Usability Study for Research Question #3
How do users rate their level of satisfaction (user control, aesthetic, and perceived relevance) in regards to program planning through the VNG design? (DO NOT READ)

1. What were your thoughts, if any, on the way you navigated the online training?
2. What were your thoughts, if any, the look of the training or its aesthetic?
3. How did you feel on the amount of effort you have to complete during each section of the training?
4. On a scale from one to 10, one being easy while 10 is very difficult, how would you rate your experience from today's test? Why?
5. How do you feel about the delivery of Program Planning training being taught through a visual novel? Why so?
6. After participating in this study, do you think your peers would enjoy this training as well? Why?

Thanks, that was very helpful.
Do you have any questions for me?
<Answer Participants questions>

Now that we have walked through the online training, I am going to be ending with a few questions before we end our meeting today.

[Read questions from Informal Interview script]

Do you have any questions for me, now that we're done?

<Explain to them about the follow-up email and to please complete the post-survey.>
<Stop the screen recorder through Zoom by clicking on the button "end recording"and save the file>
<Thank the participant and end the meeting.>

After the session:

1. Locate the Zoom recording on the facilitators computer to ensure Zoom recording has been saved.
2. Quickly check the video to ensure audio and video recording is okay.
3. Upload Zoom to external harddrive in folder used for data collection.
4. Send follow-up email with post-survey attached with link.

Appendix I: Screenshot of Informal Interview Questions

This script will be a list of questions to follow the cognitive walkthrough portion of the study. Potential open-ended questions and follow-up questions will be utilized dependent on the participant response.

Informal Interview Script

<Start Interview>

Mahalo <Participant> for participating in this cognitive walkthrough. To wrap up our meeting today, I want to go through a series of follow up questions. This will take about 5 - 10 minutes and we will leave the recording running so that I may record your audio answers after our meeting today.

1. What was the most difficult thing you've encountered during the cognitive walkthrough today?
2. What concerns might you have in regards to the usability of this online training?
3. What did you like the least about the online training?
4. What are some features that you liked best?
5. In regards to the training, what do you think can be added or taken away to make this training easier for participant's such as yourself?
6. What is one positive thing you would like to mention about this online training?
7. Finally, what do you think of the training overall?

This concludes our interview portion of the study. Mahalo, again, for your time today. If you have any follow-up questions or would like to give any further feedback at a later time, you can contact me by email, mlochman@hawaii.edu.

Mahalo!

<End Interview>

Appendix J: Screenshot of Google Form Post-Survey

Program Planning - Post Survey

Congratulations on completing the Program Planning Online Visual Novel Game! I hope you found it to be a valuable tool in preparing yourself to start creating your own programs or events at UHWO. In an effort to continually improve the instructional method, I want to hear your feedback via the following survey. You will remain completely anonymous and it should only take about 5-10 minutes.

* Required

How long did it take you to complete the instructional course? *

- ◯ 15-30 minutes
- ◯ 31-45 minutes
- ◯ 46-60 minutes
- ◯ 60-75 minutes
- ◯ 75+ minutes

Responses to the Program Planning Training

For the next few responses, please do your best to answer the following questions by responding 1 through 5, 1 indicating that you strongly disagree and 5 indicating that you strongly agree with the statement.

I feel that my understanding of the general concept of Program Planning has increased significantly. *

	1	2	3	4	5	
Strongly Disagree	◯	◯	◯	◯	◯	Strongly Agree

After this training, I feel more confident in my ability in attending online courses. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The layout of the Visual Novel Game was aesthetically pleasing. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

Navigating the Program Planning training was easy for me. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The flow of the VNG training made sense to me. *

	1	2	3	4	5	
Strongly Disagree	○	○	○	○	○	Strongly Agree

The most difficult aspect of the VNG to learn was the: *

- ○ Navigation/Controls
- ○ Locating information
- ○ Choosing different options
- ○ Other

Please explain the aspect of the Program Planning training that was most effective for you. *

Your answer

What area of the online training could use some improvement? Please include some suggested improvements. *

Your answer

Please feel free to share your experience/testimonial of the program planning training here. *

Your answer

Would you mind me sharing your experience/testimonial in our presentation? *

- ◯ Yes
- ◯ No

SUBMIT

Never submit passwords through Google Forms.