

A group coordination app for students

Final Report

SEng 310

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# 1 Introduction

The need for a proper tool to manage group projects and study locations has yet to be well met. Room Raider is able to fulfill this need by providing student group coordination and management. Developed by Hop-Scotch Mafia, Room Raider provides a chat service and room reservation services for student groups. The following report describes part of the prototyping stage that entails user evaluations to improve the user’s experience with Room Raider.

# 2 Objectives

The purpose of prototype user evaluations is to obtain preliminary information in regards to Room Raider’s usability, efficiency, and functionality from a third party perspective. To attain this information, the following objectives were followed:

* Identify or mitigate any issues that made the app inefficient or unusable
* Ensure that the prototype interface is intuitive to the user group
* Identify improperly designed interface elements, keeping in mind aesthetics
* Investigate alternatives to improve user experience.

Due to the prototype used for the user evaluations only being partially functional, it still allowed for the completion of assigned tasks. Regardless, simulating a mobile android device, the high-fidelity prototype had a sufficiently detailed user interface to provide the proper user experience necessary for task completion.

# 3 Method

By evaluating the prototype of Room Raider, data was obtained through controlling several input parameters. In the following sections, the input parameter details of the usability evaluation are explained.

## 3.1 Participants

Five participants were selected to complete usability evaluations with each developer acting as an invigilator to evaluate one participant each. Due to the unique nature of Room Raider being designed specifically for students at the University of Victoria, only current or prior UVic students were selected to partake in the evaluations. The selected participants consisted of three female and two male candidates with their ages ranging from 20 to 29 years old. To create a broader range of users, the participants were from various faculties consisting of: one from engineering, two from arts, and two from sciences. The participants all owned a touchscreen mobile device and were familiar with the look and behaviour of mobile applications.

## 3.2 Tasks

All participants were asked to complete 8 separate tasks. Each task was designed to test the a certain part of the intended functionality of Room Raider’s user interface. The following list enumerates the 8 assigned tasks and more detail can be found in appendix 6.2 on the Data Collection Form:

1. *Register a username and password with the system, then log out.*
2. *Log in to the system.*
3. *From the main page, create a group (Study group #256).*
4. *Once the group has been created, add users to “Some group I own”.*
5. *From the main page, simulate chat with users in CSC 225.*
6. *From the main page, search for the URL sent by Jim on December 1st, 2015.*
7. *From the main page, book a study room for February 29th, 2015 from 7:00 to 9:20 in ECS 116.*
8. *From the main page, delete “some other group”.*

## 3.3 Equipment & Setting

The evaluations and data collection were performed in a closed environment to ensure accurate data collection from the participant. The prototype for Room Raider was made in an online environment and as such required the participant to have access to a computer. The method of interaction for the participant was the use of the mouse to click on the specific buttons/links on the Room Raider prototype that were viewed on the given computer’s monitor.

## 3.4 Measures

Both qualitative and quantitative data was collected from the participant’s interactions with Room Raider. The qualitative data was gathered by asking 3 open ended questions that can be found under section 6.2 in the Appendix.

The quantitative measures collected involved the following:

* Completion time
* Number of times back button was used in error
* Number of times the participant expressed distress or frustration
* Binary success/failure
* The usability of Room Raider on a 1-10 scale

## 3.5 Procedure

The data collection procedure consisted of two different phases. The phases utilised both co-discovery and questionnaire data collection methods.

The **First Stage** consisted of the 8 tasks outlined in section 3.2 while the observer recorded specific data about the way in which the participant completed each task.

The **Second Stage** was a simple questionnaire that posed follow up questions to the participant about their experience with Room Raider from the first stage. This questionnaire allowed us to gather valuable qualitative data for future use.

At the beginning of the interview, each participant was welcomed by the invigilator and thanked for their participation. The participant is then requested to sign the consent form(appendix 6.1) prior to any form of data collection could take place. The invigilator begins by recording the start time of the study and presents the interface to the participant. The participant was not given any prior exposure to the app’s interface in order to improve testing results. The first of eight tasks was then presented to the participant and a timer was started, and upon completion the timer was stopped and the time recorded. The following seven tasks were carried out in the same manner. After each task has been completed, the invigilator finishes up the interview with the second stage follow up questions. The participant is then thanked upon departure.

# 4 Results

Both quantitative and qualitative results were obtained from the user evaluations outlining the usability, efficiency, and user experience for Room Raider.

## 4.1 Quantitative

The prototype user evaluations produced the following data:

* Average task completion time and ranked in order from fastest to slowest:

|  |  |  |
| --- | --- | --- |
| Rank | Task Description | Average Completion Time (s) |
| 1 | Login | 5.4 |
| 2 | Chat | 7.8 |
| 3 | Create Group | 16.0 |
| 4 | URL Search | 18.4 |
| 5 | Group Deletion | 25.8 |
| 6 | Registration | 30.2 |
| 7 | Room Booking | 35.6 |
| 8 | Add user to group | 38.4 |

* The back button was pressed at most 2 times while maintained an average of presses throughout the evaluation of less than 0.5 times.
* The highest count for expressions of distress while trying to complete a task was 14. The high count for this single task skewed the data as the average for the rest of the tasks was less than one.
* There was a 100% success rate for the completion of all tasks by all the participants.
* Participants gave the app a usability rating of 7.4/10

## 4.2 Qualitative

Feedback on the usability of Room Raider was generally positive and evaluations indicated that 80% of the participants enjoyed using the app. The participants expressed specific liking in the simplified interface, the chat feature, and the dark background being easy on the eyes. The issues and negative feedback that were identified by the participants during the evaluation resulted primarily from the hard-coded nature of the prototype supplied for the evaluations. The rest of the issues are as follows:

* Expected typical smartphone functionality such as scrolling did not exist
* Lack of notifications indicating group member’s activity
* Difficulty using/pressing interface buttons
* Depressing and confusing colour scheme.

# 5 Discussion

The user prototype evaluations of Room Raider gave valuable information that will aid in the improvement of future iterations of the app. The following sections provide analysis of the data collected to further evaluate the overall usability and functionality of Room Raider.

## 5.1 Assumptions

Multiple assumptions were made prior to beginning this study. The researchers assumed that all participants had some form of experience with using mobile devices and applications. It was also assumed that all participants had used a University of Victoria’s room booking system that currently exists for some of its facilities.

## 5.2 Limitations

The most problematic limitation of this study was that there were only 5 participants. The lack of a larger sample size meant that the data gathered could have been skewed or inaccurate. Another limitation was the superficial implementation of the prototype due to a short timeline and manpower constraints. The aspects of Room Raider which had not yet been implemented created an incomplete feel to the app and distracted the participants during the study. The lack of completed implementation also gave an inaccurate impression on the actual overall user experience of the app.

## 5.3 Objectives Met

The study managed to meet all the objectives described above in section 2, and only a few issues were brought to attention that affected the app’s usability. The overall interface deemed to be mostly intuitive due to the fairly consistent data received. The only comment in regards to the aesthetics of the interface was related to the colouring of the buttons. The qualitative data collected was able to provide multiple improvements for the user’s experience with the app.

## 5.4 Suggestions

The user evaluations brought to attention multiple issues with the current prototype iteration of Room Raider, all of which can be remedied through further development. Most of the issues outlined could be fixed by the creation of a fully functioning prototype that has the complete functionality of the app.

The primary issue addressed that could be improved upon is the ambiguity associated with the Group Management page. The finalization process of adding users to a group was to press the “send invitations” button, and by changing this to an “add users” button, the issue could be fixed.

The second issue has to do with the log-out button and its visibility. The participants did not make the required association of the man walking out the door with logging out of the application. By changing the button to a simple round button saying “Logout”, the issue could be rectified.

The further issues addressed had to do with the aesthetic nature of the application. These fixes are to modify the colour scheme to adhere to classic design principles by cutting down on colours, creating an activity notification for users in groups, and creating a prototype on a more functional prototyping platform.

# 6 Conclusion

The user prototype evaluation was a good first step in identifying the issues with Room Raider and from the data collected, the results look very promising for future releases to be popular. All of the objectives outlined for the study were met and all the issues addressed have simple fixes. Due to the lack of severe issues, Room Raider is viable for further development on a more functional platform.

# 

# 7 Appendix

## 7.1 Consent Form

**Consent Form**

**For Participation in the Study Entitled:**

**“Designing and Evaluating a Study Group Application”**

You are being invited to participate in a study entitled *Designing and Evaluating a Study Group Application*that is being conducted byHop-Scotch Mafia. You may contact Konrad Schultz by email at schultzk@uvic.ca if you have further questions.

The purpose of this research project is to design and evaluate the user interface of a simple group forming application. You will be interviewed about your previous experiences with study groups and the tools you used to communicate.

You will be asked to answer a series of questions about your experience with group study, How often you work in groups, the applications you like, and new features you would like to have. Your participation should require about 10 minutes of your time. The results will be reported in a project report for SENG 310 in the Faculty of Engineering at the University of Victoria.

Your participation is completely voluntary and you can withdraw from the study at any time, without explanation. You have the right to refuse to answer **any** questions for any reason.

Any data collected in the study will remain confidential; interview results and questionnaires will be kept in a locked filing cabinet in a locked office. Only the principal

and co-investigators (Jim Galloway and Jakob Roberts) will have access to the data. Your name will not be attached to any published results, and your anonymity will be protected by using code numbers to identify results obtained from individual subjects.

Whether you participate or choose not to participate will have no bearing on your

grade / employment status / academic standing / job / services received.

**Signature of participant: Researcher:**

**Date: Phone:**

***A copy of this consent will be left with you, and a copy will be taken by the researcher.***

## 7.2 Data Collection Form

Name of Participant: \_\_\_\_\_\_\_\_\_\_\_\_\_ Age: \_\_\_\_\_ M / F Start time:

Name of Researcher: \_\_\_\_\_\_\_\_\_\_\_\_\_ End time:

**STAGE ONE: Tasks to complete**

*Each task should be performed starting from the specified start screen. All input is simulated.*

1. Register a username and password with the system, then log out.

*Time to complete: \_\_\_\_*

*Number of times back button was used (in error):*

*Number of times the participant expresses distress:*

*Success Failure*

2. Log in to the system.

*Time to complete: \_\_\_\_*

*Number of times back button was used (in error):*

*Number of times the participant expresses distress:*

*Success Failure*

3. From the main page, create a group (Study group #256).

*Time to complete: \_\_\_\_*

*Number of times back button was used (in error):*

*Number of times the participant expresses distress:*

*Success Failure*

4. Once the group has been created, add users to “**Some group I own**”.

*Time to complete: \_\_\_\_*

*Number of times back button was used (in error):*

*Number of times the participant expresses distress:*

*Success Failure*

5. From the main page, simulate chat with users in **CSC 225.**

*Time to complete: \_\_\_\_*

*Number of times back button was used (in error):*

*Number of times the participant expresses distress:*

*Success Failure*

6. From the main page, search for the URL sent by **Jim** on **December 1st, 2015.**

*Time to complete: \_\_\_\_*

*Number of times back button was used (in error):*

*Number of times the participant expresses distress:*

*Success Failure*

7. From the main page, book a study room for **February 29th, 2015** from **7:00 to 9:20** in **ECS 116.**

*Time to complete: \_\_\_\_*

*Number of times back button was used (in error):*

*Number of times the participant expresses distress:*

*Success Failure*

8. From the main page, delete “**some other group**”.

*Time to complete: \_\_\_\_*

*Number of times back button was used (in error):*

*Number of times the participant expresses distress:*

*Success Failure*

**STAGE TWO: Follow up questions**

**(don’t forget to get them to sign the consent form)**

1. “On a scale of one to ten, how would you rate Room Raider on its usability?”

1 2 3 4 5 6 7 8 9 10

2. “Did you enjoy using Room Raider? Why/why not?”

3. “What did you like about Room Raider’s UI? What didn’t you like?”

4. “Were there any problems that you encountered while performing a task? What were they?

What task were you performing at the time?”