User test report

Introduction

This user study was conducted as a part of the second iteration of the eduTrail application development. The main purpose of the study remains the same as in previous iterations – to gain insight into the usability and learnability of the eduTrail application – however, in this iteration factors other than the program's structure were reviewed. Going into this study, the developers' assumptions were that the application was easy to navigate and had a high degree of learnability, like the previous user test showed. *Unlike* the previous iteration, this study featured a Minimal Viable Product (MVP), in other words a functioning and interactive program containing strictly necessary features. This round of user tests revealed that the developers' assumptions were wrong, and the application requires copious alterations.

Selection of participants

Although the eduTrail application is intended for a specific demographic, rebus administrators, it should have a relatively high degree of both learnability and usability. Since rebus administrators can range from students to retirees, the application should be easy to use regardless of prior experience or skillsets. This has allowed for an arbitrary selection of participants. This round of user tests had 6 participants aged 15, 19, 19, 27, 35, and 45, including both men and women.

Method

Each participant was provided a short introduction to the program and its background prior to the test itself. The introduction included amongst other information the purpose of the study, the type of tournament the program was intended for and its various functions. Participants were provided a computer with the user interface on screen, showing what would appear when the application is first opened. At its current stage, this included a Main Menu with the 5 interactive options.

Menu option "1. Teams menu" would lead the user to a new set of 4 options. From there, option 1. would allow the user to create a new team. Option 2. would allow the user to edit or delete a selected team. Option 3. would allow the user to display all previously registered teams. Option "0. Back to main menu" leads the user back to the main menu. Menu option "2. Posts menu" would lead the user to an identical menu as option 1, where the features would make changes to posts rather than teams.

Menu option "3. Show results" would lead the user to a new set of 3 options. From there, option 1. would allow the user to view registered points for all teams. Option 2. would allow the user to view all points registered for a selected team, and option 3 would allow for viewing points for a selected post.

Menu option "4. Register points" would ask the user to input a team number. Then, an overview of created posts would appear, and the user would be asked to select a post to associate the points with. The last menu option "0. Exit program" would simply close the application.

Execution

While looking at the program, each participant was asked to perform a set of tasks. This included creating a new team, creating a new post, registering points for a created team, show the registered points, and show teams. A moderator would observe the participants without interfering and take notes of any difficulties or generally noteworthy events during the test. Creating new teams and new posts were the tasks with the highest success rate, while adding points and viewing results had the lowest success rate.

Feedback

This section covers specific comments from participants as well as assumptions based on moderators' observations.

User input

Some issues regarding navigability related to the user input system. Two participants noted that the program instructed the user to input numbers beginning from 0, rather than 1, and that this was strange. For example, when creating a new post, the application instructed the user to enter which type of point system they wish to assign to the post. The message "Choose post type (points, standardTime, rankedTime) (0-2):" would then appear. This particular message was a reoccurring obstacle. Participants failed to understand that the numbers related to the options withing the first set of parentheses.

The numeric system was in general an obstacle for all users. One participant specifically requested that the numerical system be swapped with a character-based system. Another thing that frustrated some users was the lacking ability to cancel actions on some of the menu options. Users were also confused by the ambiguous use of the symbol "0". A zero was in some instances used to cancel an action, while in others used to retreat to the main menu.

Aesthetics

Although aesthetics may not directly affect the programs functionality, a poorly designed interface can interfere with the program's overall usability. The most common problem regarding aesthetics was the spacing between related and unrelated content. After completing an action, the main menu would often appear on the very next line, without any additional spacing. This confused multiple users and reduced he navigability of the program and tire out users. Two users complained about the very appearance of the applications. They expressed that the black background was boring and unappealing. Unfortunately, there are limits to what can be done to a console application. Some less than ideal solutions to the appearance of the console will be discussed in 4.1.2 Aesthetics and navigation.

Managing teams and posts

Multiple of the participants were displeased with the fact that the application allowed for a team to be created, without adding a fixed minimum number of members. The same applied to posts and registration of points. Since the registration of points is dependent on selecting a post, participants were frustrated by being able to click on "register points" when no posts were created. A few participants had problems with finding out where/how to add new members to a team and to delete a team. It was not clear which options one should enter to execute said actions.

Application feedback

Three participants expressed a difficulty with keeping track of certain actions. After creating bigger changes, such as deleting a team or a member, the user should be provided a

confirmation that the action has been executed successfully or has been cancelled. A lack of such feedback left participants uncertain of whether the changes had been applied or not.

Solutions

The sections 6.4.1.1 through 6.4.1.4 discuss practical solutions to the problems unveiled during this user study. All relevant feedback will be implemented in the next iteration of the application. The third iteration should be a fully functioning program with all features discussed with the customer implemented. The goal of these changes will be to have a complete prototype. Since there are many separate problems with his iteration of eduTrail, it is necessary to prioritize the implementation of various solutions. Solutions with a perceived high impact *and* low effort will have the highest priority. Solutions with a perceived low impact *or* high effort will have the lowest priority. The following sections are placed in order of highest to lowest priority.

Menu options and user input

As seemingly only two of the menu options caused confusion, exclusively option "1. Teams menu" and "2. Posts menu" will be altered. These should be renamed to "1. Manage teams" and "2. Manage posts" or something along those lines. This will depend on the alterations done to the user input system. Doing so should clarify the contents of said options and improve navigability. Users across all ages expressed a distaste for the numerical navigation of the menu. Simply swapping numbers with representative characters would clarify some confusion.

Aesthetics and navigation

The simplest improvements to the aesthetics can be done directly on the command prompt. By accessing the command prompts properties, the text size can be enlarged, and the background lightened to cater to older users. Unfortunately, such changes do not apply to the application itself, and must thus be done manually on every computer that runs the program. This is one of the limitations of creating a simple command prompt application. Other problems relating to aesthetics, such as spacing between related content, must be altered in the source code. Adding well place tabulators and increasing line breaks should improve both navigability and user comprehension.

Application feedback

A few specific features, such as deleting teams and posts, would allow the user to implement consequential alterations without confirming that the action was done successfully. Simply adding a check for if the action was successful and printing a short message would solve this problem.

Teams, posts, and points

It is not always a positive thing that the user has a lot of freedom. Some restrictions can in fact assist the user and create a better user experience. When creating new teams, the user should be forced to add a fixed minimum number of members before proceeding to a new action. This also applies for registering points. Since the registration of points is directly related to posts, and a rebus game requires a at least a few posts, the user should also be forced to add a fixed minimal number of posts before being allowed to register points and view results. One solution would be to add an automatic mechanism that initiates the creating of for example 5 posts on start-up, prior to the main menu. The sub-options within the Teams menu require

rewording to ensure that the related actions are unambiguous. How to best rephrase these will partially be up to the customer.

Conclusion

The user tests showed that the eduTrail application at this stage has a considerable number of problems. The gravest problems are those relating to navigation and readability. Some of these problems can be difficult to solve as they require reaching beyond the capabilities of a console application, whereas others are easily implementable alterations to the source code. Overall, the internal structure seems to still be fulfilling its purpose and will thus remain as it is in this phase of the eduTrail development.