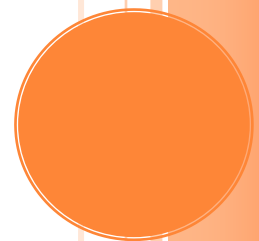


HEURISTIC EVALUATION

ACL Injury Prevention Team — Evaluation Assignment 2

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1. DESCRIPTION OF UNDERGRAD DESIGN

This app is a web application and mainly for helping users to evaluate the effectiveness of activities in preventing traumatic knee injuries. Its design features a clean and appropriate scheme. A form/checklist would be included in the survey page. Through answering 5 to 6 questions in the form/checklist, users can receive the score of the assessment and corresponding suggestions to their workouts. The submitted data from users would be gathered by the database. Scientists and researchers can view such collected data and extract the information from this database.

2. UI DOMAIN

This app is a website and optimized for mobile viewing. It allows users to submit the survey data about their recent practices, and then sends such survey data to the database. According to the information provided by users, it gives corresponding feedback to help users to prevent traumatic knee injuries. This UI also offers an entrance to scientists. Through it, scientists would view the data gathering by the database, and analyze these data for research.

3. HEURISTIC USABILITY PRINCIPLES

This evaluation used following heuristic usability principles, which are based on the work from Jakob Nielsen (<https://www.nngroup.com/articles/ten-usability-heuristics/>).

Visibility of system status

Users should be informed about their activities, including what they have done, what they are doing and how to do what they will do.

Match between system and the real world

The system should use the words and concepts that users can easily understand. In particular, the terms used in the system should match the expectations and the understanding of users.

User control and freedom

Users might accidentally make the mistakes to select system functions, therefore, it should allow users to undo or redo the actions.

Consistency and standards

The application should keep clear and consistent across the different sections. It should not confuse users and minimize the time on searching.

Error prevention

The system should be designed to prevent the mistake from happening, and when problems occur, it should be easy to recover.

Flexibility and efficiency of use

The application should be easy and quick to finish the tasks for both experienced and inexperienced users. It should give enough support to help users complete the tasks.

Help and documentations

A help or documentation might be necessary to the novice users for understanding the system. If such help documentation cannot be offered, the interfaces should be clear and simple enough so that the users can learn naturally with the flow of the system.

4. USABILITY PROBLEMS GENERATED FROM THE HEURISTIC EVALUATION

It does not provide the feedback to users to inform them the results about their actions, for example, the confirmation of the form/checklist submission. This violates the principle of visibility of system status.

The back button is not offered by the application. Then users cannot back to the form/checklist to correct the answers if they accidentally make the mistakes. This violates the principle of user control and freedom and the principle of error prevention.

It does not explain the meaning of some terms used in the application. Therefore, if the user is not working in the area of traumatic knee injuries prevention, it might cause confusion or erroneous data. This violates the principle of match between system and the real world, and the principle of error prevention.

Without enough background or explanation about traumatic knee injuries and the application, it is possible that novice users make some mistakes during the process of completing the task. This violates the principle of help and documents.

There is no special entrance for scientists in this app. To view and analyze the data, scientists might need to learn the skills to operate the database. Also, updating the questions in the form/checklist could be a challenge for some scientists without enough tech knowledge. This violates the principle of flexibility and efficiency of use.

The application allows everyone to fill out the form/checklist and then submit it for infinite times. Therefore, it gives the chance to the users with bad intentions to break the system or submit meaningless data. This violates the principle of error prevention.

There is no button or navigation to help users back the the homepages when they are in the page of scores and feedback. Users only can email the results or exit the survey in this page. But it is possible that some users want to evaluate more than one type of training. This violates the principle of flexibility and efficiency of use.

5. CRITICAL USABILITY CONCERNS

The lack of confirmation of the form/checklist submission is a critical usability concern, since it could increase the accidental erroneous data and thus create the challenge for scientists to clean the data.

Tim is an athlete and wants to evaluate his training. When he finishes half of the questions, he accidentally clicks the button of submission. Then the uncompleted survey data is immediately analyzed for the assessment of the training and sent to the database for the data collection. When scientists use the data from the database for research, they need to remove or clean such meaningless data.

Every user has infinite chances to submit the form/checklist. This is a critical usability concern as it also gives the infinite chances for the users without good intentions, which might cause the breakdown of the system.

Ava feels boring and wants to create some problems to others. By using the feature of the system that every user can submit the form/checklist for infinite times, she continuously fills out and submits the form/checklist. However, all such useless data from Ava is sent to the database for the analysis by researchers, and occupies the memory in the system.

There is no button or navigation to help users back the homepage when they are in the page of scores and feedback. It is a critical usability concern because this causes the only action for users is to close this website.

Olivia and Sophia are close friends. They share one computer and both of them want to evaluate their trainings. So they decide to do it together and would like to share their feedback with each other. They do the assessment for Olivia first. However, after Olivia received the feedback and corresponding suggestions to her training, they cannot find anything in the webpage to help them back to the homepage or the page of form/checklist. Therefore, they have to re-enter the address of the website to do the evaluation for Sophia.

The application does not provide the back button. This is a critical usability concern because it could lead to the increasing of erroneous data. Users might fill out form/checklist with errors and they do not realize that until they receive the feedback.

As a soccer coach, Jackson would like to assess several kinds of practices that he used. He submitted the forms/checklists for the first two kinds of practices, and then received the feedback. When he compares the results of these two practices, he finds that he mixed the answers of one question in the form/checklist, which means he put this answer for the first practice in the form/checklist for the second practice, and the answer for the second practice has been filled in the form/checklist for the first practice. Since he already submitted two forms/checklists, and there is no back button to allow him to correct the data, Jackson has to go back to the home page and then start over.

No special entrance for scientists in the app is a critical usability concern, because this might cause challenges for the scientists who do not have enough tech skills.

A scientist does not know how to use database, but he wants to extract some data from the database for the analysis. Therefore, he needs to spend some time on exploring the database before doing his research. Besides, some knowledge about website programming is necessary for this scientist if he wants to update the questions in the checklist/form in the future.