Evaluation Plan

Stretch-a-Little: take a break from your computer

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1 POPULATION

Stretch-A-Little is a desktop application designed for individuals with prolonged computer usage. The University of South Florida (USF) students and working adults especially the ones who work in IT industry are our study's main target audience. We chose this population because students and working adults are frequent and prolonged computer users, aligning with our target user base.

To select participants for our study, we will employ a convenience sampling technique. We will approach our target audience in person in campus buildings like libraries, dining spaces and among classmates. Additionally, we will actively seek out our target audience among friends who are employed in the IT sector. We will then provide them with all the details of our study. If they are interested in participating, we will collect their contact details and determine a time that works well for both for the evaluation. We may conduct the evaluation immediately if the participant expresses willingness and has time. We seek to include participants from different teams or groups to foster a diverse range of perspectives. We aim to recruit a minimum of 15 participants to gather a wide range of feedback. No specific skills are needed to take part in our study.

We believe that by targeting the USF student population and working adults, valuable feedback will be gathered that closely resembles the target user base of our desktop application.

2 HYPOTHESES

Primary Hypotheses: Regular use of the Stretch-a-little desktop application, prompting users to take standing breaks during computer usage, will lead to improved health outcomes, including better posture, reduced risk of back pain, and increased circulation, resulting in overall enhanced well-being.

Primary Null Hypotheses: The use of the Stretch-a-little desktop application will have no significant impact on users' health outcomes, and there will be no observable improvements in posture, back pain reduction, or circulation.

Secondary Hypotheses: a) Users who customize their standing break preferences and receive regular prompts will exhibit better adherence to standing breaks compared to those using default settings. b) The inclusion of basic stretches and related articles in the application will contribute to increased user engagement and motivation to adopt a healthier lifestyle.

Secondary Null Hypotheses: a) There will be no significant difference in adherence to standing breaks between users who customize their preferences and those using default settings. b) The availability of basic stretches and related articles will not impact user engagement or motivation for adopting a healthier lifestyle.

3 STUDY CONDITIONS

The study is going to include a single group of participants and will be conducted in a non-experimental manner. No multiple groups or measures are being studied. A within-group design approach will be employed, where every participant in the group will interact with both the existing solution (Workrave, a desktop application which is customizable and prompts the users to take breaks) and our new solution – Stretch-a-Little. Half of the participants will be interacting with the existing interface first and then with the proposed solution and the remaining half with our proposed solution first and then the existing solution. This will help us

balance any impact the users face because of using an interface first instead of the other and for a balance of data between the solutions. Because of the limited participants in the study and the ability to make direct comparisons of each participant's interaction for a better evaluation, this approach was chosen. To reduce the fatigue and its impact on the users, a time-limit of two hours will be set on each interaction, where each user will be doing their regular activities on their computers after setting up their custom settings, with little to no impact on their daily activities. The imposed time limit will let them interact with the systems ensuring more accurate evaluation of the systems. Furthermore, the concern with learning effect is low as the interface interactions with the existing system versus our new system will be significantly different. For a more comprehensive evaluation of our new solution, Stretch-a-Little, the above study conditions will be used which aim for less participant fatigue, learning effects and better comparison of the new system with the existing one.

4 METHOD

4.1 Participant Procedure

Our evaluation method will be divided into two parts. Firstly, the participants should agree to participate in the questionnaire. If they are children under 18 years, a consent will be obtained from their parents or guardians. In the first part of the evaluation, the participants will have to interact/use the two interfaces to assess them. As mentioned previously, half of the participants will be running the existing system first and the remaining half will run our proposed system first and then the other one. The participants will be interacting with the systems for 2 hours each by setting up their personalized preferences and performing their day-to-day activities. In the next part, after interacting with each system, the participants will have to fill out a questionnaire by answering some questions regarding their experience using the applications and over-all experience.

4.2 Equipment

The participants will only need a laptop or computer with internet access to be able to download the applications and fill out the online questionnaire. Also, each piece of equipment should be a Windows system that is able to download and use the desktop applications. Because we plan to do the evaluation both in-person and virtually, based on the participants' preferences, MS Teams can be used to do the evaluation virtually and we may record the whole process if needed based on the situation. Upon interacting with the interfaces, the users will have to fill the questionnaire online. If they prefer doing it over MS Teams, we will be asking them some questions and record their responses.

4.3 Location

Participants can participate in the evaluation and questionnaire in-person or remotely, based on their preferences. If they prefer remote, they will receive email invitations with a set of outlined instructions on accessing the applications and a URL for the questionnaire to fill after interacting with the interfaces, allowing them to access and complete it from the comfort of their own homes. This flexibility empowers participants to select a time and location that suits them, thus alleviating any undue stress or pressure. In case the participants do not prefer doing it virtually, we plan on conducting the study in-person at the USF campus.

4.4 Time

Every participant is expected to allocate approximately 4 hours and 15 minutes for the entire process. During this time, the 4 hours will be dedicated to using both the applications (2 hours for each application), followed by the subsequent 5 minutes each devoted to completing the questionnaires (10 minutes in total for both). We have a buffer of 5 minutes for the participants to take a break after interacting with one interface and filling out the first questionnaire before moving on to the next one. Though the time for the study is estimated to take around 4 hours and 15 minutes per participant, it is going to have little to no impact on their daily activities, as setting up the custom settings takes around 5 – 7 minutes and the users can proceed with their work and take breaks, and interact with the system when prompted, based on their preferences. We emphasize the significance of immediate feedback, which is why we encourage participants to engage with the applications first.

5 METRICS

Metrics are crucial to determine how well the desktop application, Stretch-a-little works. These are a few primary and secondary metrics

Primary Metrics:

1. *Customization Usage:* Percentage of people who have engaged with the application and actively personalized their break settings
2. *Stretching session completion:* The number of people successfully completing the stretching sessions when prompted by the application
3. *User Satisfaction:* Measure the user satisfaction on using the application on a Likert scale (1 – 5)

Secondary Metrics:

1. *Effectiveness Feedback:* Comments and feedback from the user on whether the stretches and articles suggested by the applications help relieve their discomfort

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2. *User feedback/complaints:* Comments or feedback from the users about any frustration or concerns they faced when using the application
3. *User comments:* Comments on the interface of the application and overall prompting system

After interacting with each system, the participants will be filling an online questionnaire (URL will be provided). The questions included are as follows:

1. Did you use the customization features available in the application? (yes/no)
2. Did the customizations help you maintain control over the application, such as receiving notifications in your preferred frequency and manner? (Open-response question)
3. How satisfied are you with the customization options provided by the application? (Likert scale)
4. How often did you comply with the breaks prompted by the application? (Options: Rarely – Sometimes – Often - Always)
5. How frequently did you complete the stretching session as prompted by the application? (Options: Rarely – occasionally – Sometimes – Often – Always)
6. If you have skipped the stretching session, what factors influence the decision? (Open-response)
7. How satisfied are you with the stretches provided by the application? (Likert scale)
8. Any comments on the effectiveness of the stretches suggested by the application? (Open-response)
9. How often do you read the stretch-related articles provided by the application? (Options: Rarely – occasionally – Sometimes – Often – Always)
10. Did you find the articles useful? (Open-response)
11. Any complaints you may have when using the application? (Open-response)
12. Any comments on the overall application interface? (Open-response)
13. How satisfied are you with the overall user interface and ease of use of the application? (Likert Scale)