Northeastern University, Department of: Computer Science

Name of Investigator(s): *Principal Investigator's name:* John Alexis Guerra Gómez

Student Researcher's name: Zihan Xu, Yuting Shao

Title of Project: Stellaris

Sponsor: N/A

Request to Participate in Research

We would like to invite you to take part in a research project. The purpose of this research is to _evaluate final project usability and accessibility__.

Key Information

- Your consent is being sought for participation in a research project and your participation is voluntary.

- The purpose of the research is……
- The anticipated amount of time that your participation will take will be……
- The procedures that you will be asked to complete will be… (bulleted synopsis)
- The foreseeable risks to the subject
- The potential benefits to the subject
- Appropriate alternative procedures, if any

You must be at least 18 years old to be in this research project. *[Unless specifically approved otherwise by HSRP]*

The study will take place at __Zoom__ and will take about ___20_minutes_____ ==*[minutes/hours/sessions/etc.]*==. If you decide to take part in this study, we will ask you ==*[to fill out a survey/answer a series of questions/discuss your opinions/etc.]*== about __ usability and accessibility _____.

There are no foreseeable risks or discomforts to you for taking part in this study.

OR

The possible risks or discomforts of the study are minimal. You may feel a little ==*[uncomfortable/embarrassed/sad/tired/etc.]*== answering ==*[personal/sensitive/many/etc.]*== questions.

There are no direct benefits to you for participating in the study. However, your answers may help us to learn more about ____ usability and accessibility of web application_____.

Your part in this study is anonymous. That means no one will know if you took part in this study and no one, including the researcher, will know what your answers are. Any reports or publications based on this research will use only group data and will not identify you or any individual as being of this project.

OR

Your part in this study will be handled in a confidential manner. Only the researchers will know that you participated in this study. Any reports or publications based on this research will use only group data and will not identify you or any individual as being of this project.

Future Use of Data or Biospecimens – ==This section should be included in the consent form per 46.116 (9) (i)==

Your de-identified information and/or biospecimens could be used for future research **without additional informed consent.**

The decision to participate in this research project is up to you. You do not have to participate and you can refuse to answer any question. Even if you begin the study, you may withdraw at any time.

You will not be paid for your participation in this study.

If you have any questions about this study, please feel free to call ___716-9070-493____ the person mainly responsible for the research. You can also contact **911** the Principal Investigator.

If you have any questions about your rights in this research, you may contact the Human Subject Research Protection, Mail Stop: 560-177, 360 Huntington Avenue, Northeastern University, Boston, MA 02115. Tel: 617.373.4588, Email: IRBReview@northeastern.edu. You may call anonymously if you wish.

This study has been reviewed and approved by the Northeastern University Institutional Review Board..

You may keep this form for yourself.

Thank you.

Zihan Xu & Yuting Shao

Usability Study Report

Note: Don't forget to add evidence of the recordings, and that I can access the document from john.guerra@gmail.com

Author: Zihan Xu & Yuting Shao

Application scope

Application description:
A web app for nature science researchers to simulate the growth of a planet. This app allows users to manipulate different features of an original planet (like earth 4.5 billion years ago) to see how nature environment and civilization on a planet grow, iterate, maintain and decay.

Users - Target audience: (user personas, as specific as possible)
People of all ages, especially science researchers and young kids can access this web app to see how different variables (Carbon Dioxide, Amino Acid, Mitosis, etc) combinations lead to different results of a planet's growth.

Data description: (what data is stored and displayed)
Users adjust the value of different variables (Carbon Dioxide, Amino Acid, Mitosis, etc), these values will be stored at MongoDB, and calculated at backend to gives out different results, these results are different type of planets or satellites, and will be displayed at Universe List page.

Main tasks - use cases: (specific, measurable, concrete)
- T1: Build two different types of planet or satellite.
- T2: Check and find your planet from the universe list page, and check your records.
- T3: Use delete, update function to change the universe you built.

Experiment

Preparation

Introduction
- Welcome participants
- Ask for consent to record
- Ask to think out loud
- Remind them that they aren't being evaluated, and that they can leave at any time
- Ask participant to think like the target audience

Prepare demographics questions (offer the option to refuse to answer any of the questions. Only include relevant questions for the target audience)

Prepare recording setup (audio, video and screen)

Prepare Script of the tasks to be read to participants:
- Script for intuitiveness (initial approach)
- Script for T1
- Script for T2
- Script for T3

Prepare Post questionnaire Likert Scales
- How effective was the application for T1
- How intuitive/easy to use was the application for T1
- How effective was the application for T2
- How intuitive/easy to use was the application for T2
- How effective was the application for T3
- How intuitive/easy to use was the application for T3
- …
- How effective was the application overall
- How intuitive/easy to use was the application overall
- Any final comments suggestions of improvement

Experiment Notes (Zihan)

Participant 1: Irene Cai
Link:
https://drive.google.com/file/d/1x9xI0orA8FB3iKrBP0uHDQc8Hk1xOE0Y/view?usp=sharing

Demographics answers
Detailed notes
- Notes for initial approach: This goes well since the web app does not have too many extra pages.
- Notes for T1: Irene suggests we should change some names in the build page, so that users would not confuse the relationship about universe, satellites, planets, and multiverse.
- Notes for T2: Irene suggests a more detailed description about each variable would definitely help users to understand how these variables help in building their ideal planets.
- Notes for T3: Irene believes if we can add an empty line between each line (universe information in universe list page) will help users read more clearly. She thinks that it might be too messy to put all the results as a list. However, she then thinks we can just keep it since the universe is full of chaos.

Post-test questionnaire results (Likert scales):

- Score for T1: 5/5
- Score for T2: 5/5
- Score for T3: 5/5
- Score In general: 5/5

Participant 2 Debra Xu
Link:
https://drive.google.com/file/d/1Tmgluh_oXY6I7furpGkaMedvcvLtqfGu/view?usp=sharing

Demographics answers
Detailed notes
- Notes for initial approach: The introduction paragraph is white, and it is hard to distinguish from "The Starry Night".
- Notes for T1: Debra is not sure of the upper bound and lower bound for each variable, she suggests we can add tips for users to understand what is an "acceptable/reasonable" value for each variable.
- Notes for T2: Debra finds the buttons for each variable are all the same, it would be great if we can set up a unique button for each of them.
- Notes for T3: Debra suggests we can add notification each time users build/delete/update their planet, so that users can know the next step is to check the universe list.

Post-test questionnaire results (Likert scales):
- Score for T1: 7/10
- Score for T2: 7/10
- Score for T3: 6/10
- Score In general: 7/10

Participant 3 Vincent Tam
Link:
https://drive.google.com/file/d/17f6dHU-y7Se8xqfT6Wb_RcIqsDyYkySi/view?usp=sharing

Demographics answers
Detailed notes
- Notes for initial approach: Vincent also thinks the introduction paragraph is too white, and it is hard to distinguish from "The Starry Night".
- Notes for T1: Vincent is also not sure of the upper bound and lower bound for each variable, he suggests we can add tips for users to understand what is an "acceptable/reasonable" value for each variable.
- Notes for T2: Vincent found users with same name or same universe name may mess up on their results, since the results with same name or same universe name will overlap in the universe list page.
- Notes for T3: Debra suggests we can highlight the result from the list in the universe list page, so that users can notice their result sooner.

Post-test questionnaire results (Likert scales):

- Score for T1: 6/10
- Score for T2: 7/10
- Score for T3: 6/10
- Score In general: 6.5/10

Experiment Notes (Yuting)

Participant 1: Xiaoxiao Liu
Link:
https://drive.google.com/file/d/1eRx_NcbHPv3DhYGd000GPGnSZ2cdLedm/view?usp=sharing

Demographics answers
Detailed notes
- Notes for initial approach: This smart Xiaoxiao thinks this web app is intuitive enough. Xiaoxiao seems to prefer the nav-bar instead of buttons on the page content.
- Notes for T1: Xiaoxiao successfully built target planets. She likes the DIY idea on planets' names, and feels like she owns this planet.
- Notes for T2: Xiaoxiao also feels the universe list page messes up a little bit.
- Notes for T3: Xiaoxiao thinks the color and font of content conflict with background color, but she successfully updated variables and deleted her planet.

Post-test questionnaire results (Likert scales):
- Score for T1: 4/5
- Score for T2: 4/5
- Score for T3: 4.5/5
- Score In general: 4.25/5

Participant 2: Sikao Guo
Link:
https://drive.google.com/file/d/1b9Bq8_JfQiLZXzCnvZZJiT1czhEkwwwi/view?usp=sharing

Demographics answers
Detailed notes
- Notes for initial approach: Sikao thinks the main page is clear
- Notes for T1: Successfully build the planet, he suggests the buttons with different functions can be distinguished by unique colors.
- Notes for T2: Successfully update the planet, he thinks the universe list should have separate pages for results, so that the entire page would not be that crowded.
- Notes for T3: Successfully deleted the planet, he thinks the main page can also add buttons on it, so that users can know the major functions of this web app.

Post-test questionnaire results (Likert scales):
- Score for T1: 4/5
- Score for T2: 4/5
- Score for T3: 4/5
- Score In general:4/5

Participant 3: Wei Zhang
Link:
https://drive.google.com/file/d/14Xk7YoMbJvoJBD2escedSyrMleH2fpS9/view?usp=sharing

Demographics answers
Detailed notes
- Notes for initial approach: User tried to figure out the structure of this web app, maybe the main page is not intuitive enough for her.
- Notes for T1: Wei is not quite sure where to get started with building the universe.
- Notes for T2: Wei was not sure whether her click had passed to the backend.
- Notes for T3: Wei is not sure if she successfully builds the universe

Post-test questionnaire results (Likert scales):
- Score for T1: 3/5
- Score for T2: 4/5
- Score for T3: 3/5
- Score In general: 3.4/5

Prioritized list of issues and corresponding changes:

Summarize the most crucial issues and changes proposed

Issue: Messed up information in universe list page.
Change: Separate each result in the list.
Priority: Must
Was it implemented? How?
Add empty lines, and set each result into different classes.

Issue: Color and arrangement of fonts of either buttons and sentences makes the web intuitive.
Change: Change the fonts and styles, makes them uniformed.
Priority: Should
Was it implemented? How?

Applied Google font to standardize fonts on each page. Titles, subtitles and buttons were set up with different fonts depending on their importance.

Issue: Users cannot figure out their own results in a short time from the universe list page.
Change: Highlight their results or add a search function.
Priority: Could
Was it implemented? How?
Added search function, we do not want to highlight their result because the universe itself is full of chaos, therefore it just should be difficult to find a specific planet, but we need to facilitate some users that have not understood the deep meaning of this project.