Usability Study – Home Page of Second-life App

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Introduction	● **Title:** Usability study of Second-life App ● **Author:** Hsinyi Lee, UX specialist ● **Stakeholders:** ● **Date:** ● **Project background:** The Second-life app tackles electronic waste by providing a platform for recycling, refurbishing, and reselling old electronics. Targeted at eco-conscious consumers and tech enthusiasts, users can schedule pickups, offer delivery services, and shop for refurbished items. Delivery service earnings can be used as credits for purchases or transferred to bank accounts, blending dual-role services with e-commerce experience.
Research Goals (Study Objectives)	● Evaluate the usability of the four different interface versions (A, B, C, D (E)) for the Second-life app. ● Identify any usability issues and gather feedback on the overall user experience. ● Determine which interface version best meets user needs and preferences. ● Collect qualitative and quantitative data to inform design improvements.
Methodology	● **Participants:** Recruit 12-15 participants from the target user groups (e.g., tech enthusiasts, small business owners, environmental advocates, office workers). ● **Sessions:** Conduct one-on-one usability testing sessions, each lasting approximately 60 minutes. ● **Environment:** Sessions can be conducted in-person or remotely using screen-sharing tools. ● **Facilitator:** A usability expert to guide participants through the tasks, observe, and take notes.
Test Materials	● Prototypes of the four interface versions (A, B, C, D (E)). ● Task scenarios that participants will complete using each version. ● Pre-test and post-test questionnaires. ● Recording equipment (if applicable) to capture participant interactions and verbal feedback.
Test Scenarios and Tasks	● **Scenario 1: Navigating the Main Menu** Task: Locate and explore the "Recycle/Trade-in" option. ● **Scenario 2: Scheduling a Pickup** Task: Schedule a pickup for an old electronic device. ● **Scenario 3: Browsing Articles** Task: Find and read an article about e-waste trends. ● **Scenario 4: Using the Marketplace** Task: Search for and view details of a refurbished electronic item. ● **Scenario 5: Becoming a Carrier** Task: Sign up to become a carrier for delivery services.

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Data Collection Methods	● **Observations:** Note participants' interactions, difficulties, and behaviors during tasks. ● **Think-Aloud Protocol:** Encourage participants to verbalize their thoughts as they complete tasks. ● **Questionnaires:** Use pre-test and post-test questionnaires to gather demographic information and subjective feedback. (1) Pre-Test Questionnaire a. Demographics: Age, Gender, Occupation, Tech Savviness (Beginner, Intermediate, Advanced): b. E-Waste Management: ● How often do you recycle old electronics? ● Have you ever bought refurbished electronics? ● Are you familiar with the concept of electronic waste (e-waste)? (2) Post-Test Questionnaire a. Overall Satisfaction: Rate your overall satisfaction with each interface version (A, B, C, D (E)) on a scale of 1-5 b. Ease of Use: ● Which interface version did you find the easiest to use? ● Which interface version did you find the most difficult to use? c. Feedback: ● What did you like most about each interface version? ● What did you dislike or find confusing about each interface version? ● Any additional comments or suggestions? ● **Usability Metrics:** (1) Task success rate (2) Time on task (3) Number of errors (4) User satisfaction ratings (e.g., SUS - System Usability Scale)
Data Analysis	● **Qualitative Data:** Analyze observations, verbal feedback, and open-ended questionnaire responses to identify common themes and usability issues. ● **Quantitative Data:** Calculate task success rates, average time on task, error rates, and SUS scores for each interface version. ● **Comparison:** Compare performance and satisfaction metrics across the four interface versions to determine the best-performing design.
Reporting	● **Executive Summary:** Provide a high-level overview of findings and recommendations. ● **Detailed Findings:** Document usability issues, user feedback, and data analysis results for each interface version. ● **Recommendations:** Offer specific design improvements based on study findings. ● **Appendices:** Include raw data, test scripts, and questionnaires for reference.
Timeline	● **Preparation:** 1 week (recruit participants, prepare materials) ● **Testing:** 1 week (conduct usability sessions)

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	• **Analysis:** 1 week (analyze data and compile report) • **Reporting:** 1 week (present findings and recommendations)
Ethical Considerations	• **Informed Consent:** Obtain consent from all participants before the study begins. • **Confidentiality:** Ensure that participant data is kept confidential and anonymized in the report. • **Voluntary Participation:** Inform participants that they can withdraw from the study at any time without penalty.

Usability Study Results

Participant Details

1. Tech Enthusiast: Jane Doe, Francisco Guerrero, Ben Brooks
2. Business Client: Lisa Wong, George Chen, James Park
3. Environmental Advocate: Mary Green, Katherine Clawson. Ellen Huang
4. General Consumer: John Smith, Juliana Barela, Gabriel Ornelas

Participant Feedback and Observations

A	Task Success (out of 5)	Time on Task (minutes)	Errors	Satisfaction (out of 5)	Ease of Use	Feedback Summary
Jane	4	10	2	3	3	Confusing dropdown
Francisco	3	8	2	3	3	Dropdown cumbersome, suggests different navigation
Ben	3	8	2	3	3	Dropdown cumbersome, feels outdated
Lisa	3	11	3	2	3	Dropdown not user-friendly
George	3	10	3	3	2	Dropdown confusing, distracting
James	2	10	3	2	2	Dropdown frustrating and not user-friendly
Mary	4	9	2	3	3	Outdated dropdown
Katherine	3	9	2	2	2	Dropdown not intuitive
Ellen	3	9	2	3	3	Needs a more user-friendly interface
John	4	10	2	3	3	Manageable dropdown
Juliana	3	9	2	3	3	Dropdown disrupts flow
Gabriel	3	9	2	3	3	Dropdown confusing for new users
	3.17	9.33	2.25	2.75	2.75	

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B	Task Success (out of 5)	Time on Task (minutes)	Errors	Satisfaction (out of 5)	Ease of Use	Feedback Summary
Jane	5	8	1	4	5	Clear buttons, missed visual cues
Francisco	5	6	0	5	5	The buttons are intuitive and work well.
Ben	5	6	0	5	5	The buttons are straightforward and easy to use.
Lisa	4	9	1	4	4	Straightforward buttons
George	5	7	0	5	5	The buttons are simple and user-friendly.
James	5	7	0	5	5	The buttons are clear and uncomplicated.
Mary	5	8	1	4	4	Simple, clear buttons
Katherine	5	6	0	5	5	Navigation with the buttons is smooth.
Ellen	5	6	0	5	5	Easy navigation with buttons
John	5	8	0	5	5	User-friendly buttons
Juliana	5	7	0	5	5	The buttons provide easy and efficient navigation.
Gabriel	5	7	0	5	5	The buttons are intuitive and hassle-free.
	4.92	7.08	0.25	4.75	4.83	

C	Task Success (out of 5)	Time on Task (minutes)	Errors	Satisfaction (out of 5)	Ease of Use	Feedback Summary
Jane	3	12	4	2	2	Sidebar not intuitive
Francisco	3	8	2	3	3	The menu icon is confusing.
Ben	3	8	2	3	3	Menu icon confusing
Lisa	2	14	5	1	2	Sidebar confusing
George	3	9	2	3	3	The menu icon is not straightforward.
James	3	9	2	3	3	Initial confusion with menu icon
Mary	4	10	3	3	2	Sidebar somewhat useful
Katherine	3	9	2	3	3	There is a delay with the menu icon.
Ellen	3	9	2	3	3	The menu icon response is slow.
John	3	13	4	2	2	Confusing sidebar
Juliana	3	8	2	3	3	The menu icon requires a learning period.
Gabriel	3	8	2	3	3	The menu icon has a learning curve.
	3.00	9.75	2.67	2.67	2.67	

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D (E)	Task Success (out of 5)	Time on Task (minutes)	Errors	Satisfaction (out of 5)	Ease of Use	Feedback Summary
Jane	4	9	2	4	4	Cumbersome location input
Francisco	5	6	0	5	5	The interface is smooth without issues.
Ben	5	6	0	5	5	The navigation is seamless and easy.
Lisa	5	7	1	5	5	The interface is intuitive and user-friendly.
George	5	6	0	5	5	The layout is clear and straightforward.
James	5	6	0	5	5	Clear, straightforward
Mary	5	7	1	5	5	Easy input for location
Katherine	5	6	0	5	5	Navigation is fluid and straightforward.
Ellen	5	6	0	5	5	The interface offers smooth and effective navigation.
John	5	7	1	4	4	Intuitive interface
Juliana	4	7	1	4	4	Slight hesitation with entering location.
Gabriel	4	7	1	4	4	Minor hesitation with the location input field.
	4.75	6.67	0.58	4.67	4.67	

Overall Summary

1. **Version B** remains the top performer with high task success, low errors, and high user satisfaction. Participants found it the easiest to use due to the clear buttons.
2. **Version D (E)** also performed well, especially praised for its intuitive layout and straightforward location input.
   - **User Satisfaction:** High across all participant types, particularly due to the availability of e-waste articles.
   - **Ease of Use:** Generally smooth navigation with minor issues at location input.
   - **Areas for Improvement:** Consider making the location input less prominent or more intuitive.
3. **Version A** and **Version C** were less favored, with participants citing confusion with dropdown menus and sidebar navigation respectively.

Recommendation: Focus on **Version B**, incorporating positive aspects of **Version D (E)** such as the intuitive layout and location input. Address specific feedback like improving visual cues and refining input features for the best user experience. However, considering **the importance of environment awareness**, doing Version E's iteration is a better choice since **we can display related articles on Home page directly**. Just need to ensure the **refined version E covers all Version B advantages.** Therefore, it is required for us to do another usability study plan for version E only. **Continue with Version E, focusing on refining the location input interface. Enhance the collection of e-waste articles to provide a broader educational experience, catering to user feedback for more comprehensive content.**

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Version E Improvement Plan

To improve Version E and make it the best among the four versions, consider the following enhancements based on user feedback and best practices in UX/UI design:

1. Simplify Location Input

    - Issue: Slight hesitation with the location input field.
    - Solution**:** Implement auto-suggestions or a drop-down list for locations. Use geolocation services to automatically detect the user's location and pre-fill the field.

2. Enhance Visual Cues for Navigation

    - Issue: Some users may find initial navigation slightly confusing.
    - Solution: Add clear visual indicators or tooltips explaining the location input field and other key functions when the user first interacts with them. Use consistent iconography and text labels to make navigation intuitive.

3. Optimize Loading and Transition Times

    - Issue: Ensure smooth transitions and quick loading times for all elements.
    - Solution: Optimize the code for faster loading and transitions. Use lazy loading for images and articles to improve performance.

4. Provide Immediate Feedback on Actions

    - Issue: Users benefit from instant feedback on their actions.
    - Solution: Implement real-time feedback for actions such as submitting the location, navigating between sections, and reading articles. Use animations or simple messages to confirm actions.

5. Improve Article Access and Readability

    - Issue: Ensure that accessing and reading articles is as easy and pleasant as possible.
    - Solution: Design a dedicated section for e-waste articles with filters and categories for easier navigation. Use a reader-friendly format with clear headings, bullet points, and images.

6. Personalize User Experience

    - Issue: Users have varied needs and preferences.
    - Solution: Implement a personalized dashboard based on user preferences and previous interactions. Offer customization options for the home screen layout and content recommendations.

7. Strengthen Onboarding Process

    - Issue: Users may need initial guidance.
    - Solution: Create a brief, interactive onboarding tutorial that guides new users through the main features and functions of the app. Include tips and best practices for using the app effectively.

8. Gather Continuous User Feedback

    - Issue: Continuous improvement is essential.
    - Solution: Implement a feedback mechanism within the app where users can easily submit their suggestions and report issues. Regularly review and incorporate this feedback to keep improving the app.

Example of an Improved Version E Interface:

1. Home Screen:

    - Clear, prominent location input field with auto-suggestions.
    - Quick access buttons for main services (Recycle, Refurbish, Repair, Marketplace, Be a Carrier).
    - Personalized content section with recommended articles and services.

2. E-Waste Articles Section:

    - Filter and search options.
    - Readable format with images, bullet points, and clear headings.
    - Option to save articles for later or share them.

3. Navigation:

    - Intuitive and consistent icons and labels.
    - Real-time feedback for actions.
    - Smooth transitions and quick loading times.

4. User Dashboard:

    - Personalized dashboard showing recent activity, upcoming appointments, and saved articles.
    - Customizable home screen layout.

5. Onboarding:

    - Interactive tutorial for new users.
    - Tips and best practices displayed on the home screen.

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Mockup of the Improved Version E Interface:

1. Home Screen:

    - Location Input Field (with auto-suggestions)
    - Service Buttons: Recycle, Refurbish, Repair, Marketplace, Be a Carrier
    - Personalized Content Section: Recommended Articles, Services, Tips

2. E-Waste Articles Section:

    - Filters and Search Bar
    - Article List with Images and Summaries
    - Read/Save/Share Options

3. User Dashboard:

    - Recent Activity
    - Upcoming Appointments
    - Saved Articles
    - Customizable Layout Options

Post-Improvement Testing

After implementing these improvements, conduct another round of usability testing with a similar group of participants to validate the changes. Collect feedback on the new features and make any necessary adjustments based on user input. This iterative process will ensure that Version E becomes the most user-friendly and effective version of your app.