# Appendix-Usability Test Plan for Data Visualization App

Objective:

The goal of this usability test is to evaluate the effectiveness, efficiency, and user satisfaction of the Data Visualization App, focusing on the Waffle Chart and Bubble Chart extensions.

Participants:

Two participants were recruited:

- One participant with a background in early childhood education
- Oneparticipant with general interest but no specific background in data analysis or education

Test Design:

The test was conducted individually with each participant, following a structured plan that includes only qualitative assessments.

Qualitative Measures:

- Think aloud protocol: Participants will be encouraged to verbalise their thoughts while interacting with the application.
- Post-task interview: To gather insights into their experience and suggestions for improvement.

Tasks:

Locate and interpret a specific data point within the Waffle Chart.
Use the Bubble Chart to compare sentiments across different daycares.
Filter data using the global dropdown menu.
Identify a trend or pattern using tooltips in the Bubble Chart.
Rate overall satisfaction and provide open-ended feedback on the app's usability.

Data Collection Methods:

- Think Aloud Protocol: Observing and recording participants' verbalizations.
- Interview: Conducted post-task to delve deeper into user experience.
- Researcher Notes: Documenting observations and notable incidents.
- Survey: Collecting user satisfaction and general feedback.

Analysis:

- Recurrence and Severity of Issues: Common issues include difficulty using the global dropdown menu and interpreting tooltips quickly. The severity was moderate, affecting time and satisfaction but not preventing task completion.

- Success of App: The app was particularly successful in enabling users to compare sentiments across daycares (all participants successfully completed Task 2) and in overall user satisfaction (average rating of 4.2).
- Opportunities for Improvement: Simplifying the global dropdown menu's UI and making tooltips more immediately interpretable could enhance usability. Including a brief tutorial on using the app might also improve efficiency and reduce errors.
- Reflection on Application Success: The app demonstrates strong potential in data visualisation, particularly for users with some background in data analysis. The test revealed valuable insights into making the app more accessible and user-friendly for a wider audience.

Conclusion:

The usability test highlighted the app's strengths in data visualisation and user engagement, alongside key areas for improvement to enhance the overall user experience. Implementing the suggested changes could significantly increase the app's usability and satisfaction levels.

**Introduction to Tasks**

Explain the Purpose:
- "Today, we're testing some features of our data visualisation app to see how easy and intuitive they are to use. Your feedback will help us improve the app."

Set Expectations:
- "You'll be performing a series of tasks using the app. There are no right or wrong answers here; we're just interested in your experience."

Reassure About Mistakes:
- "If you encounter any difficulties, that's completely okay. It's valuable for us to see where users might have issues."

**Providing Tasks**

Be Clear and Concise:
- "Please start by opening the Waffle Chart from the main menu. Take a moment to explore it and then share your initial thoughts."

Use Direct but Neutral Language:
- "Could you try to filter the data by category using the dropdown menu? Let's see how that process feels for you."

Encourage Thinking Aloud:
- "As you work through the tasks, please share what you're thinking. If you're trying to make a decision or you're unsure about something, let us know."

Offer Assistance Without Leading:
- "If you're not sure what to do next or if you have any questions, feel free to ask me. I may not be able to provide direct answers, but I can guide you."

**After Task Completion**

Prompt for Feedback:
- "How was your experience with this task? What did you find easy or challenging?"

Encourage Detailed Responses:
- "Can you tell me more about why you found that feature intuitive (or confusing)?"

Thank Them for Participation:
- "Thank you for completing this task. Your insights are incredibly valuable to us. Let's move on to the next task."

**Interview Questions**

Ease of Use: How easy did you find navigating through the app's features, specifically the Waffle Chart and Bubble Chart?

Functionality: Were you able to easily complete the tasks using the given features? Which features did you find most and least useful?

Interactivity: How effective were the interactive elements like tooltips and dropdown menus in providing you with the information you needed?

Data Interpretation: How easy was it for you to interpret the data presented in the charts? Did you find the visualisations clear and informative?

Suggestions for Improvement: What improvements or additional features would you suggest to enhance your experience with the app?

Overall Impression: What is your overall impression of the app? Would you use it for your data visualisation needs?

**Survey**

The survey will include the following questions, rated on a 5-point Likert scale from Strongly Disagree (1) to Strongly Agree (5):

The app was easy to navigate.

I could easily complete the given tasks.

The interactive elements (tooltips, dropdown menus) were helpful.

The data presented in the charts was easy to understand.

The visualisations were clear and informative.

I am satisfied with the overall functionality of the app.

I would use this app for my data visualisation needs.

**User Satisfaction Rating Likert Scale**

For the satisfaction rating, participants will be asked to rate their overall satisfaction with the app using the following Likert scale:

- 1: Very Dissatisfied - The app did not meet my expectations at all.
- 2: Somewhat Dissatisfied - The app fell short of my expectations in several areas.
- 3: Neutral - The app was satisfactory, meeting basic expectations but not exceeding them.
- 4: Somewhat Satisfied - The app met most of my expectations and was generally pleasing.
- 5: Very Satisfied - The app exceeded my expectations and provided a great user experience.