

TrailTales Design Evaluation: Data Collection, Statistical Analysis, and Results

1. Data Collection Process

Purpose

The purpose of our evaluation was to assess the usability, functionality, and user experience of the *TrailTales* prototype, focusing on its ability to meet user needs effectively.

Survey Design

- **Platform:** We used Google Forms to distribute a survey.
- **Structure:** The survey included:
 - Questions based on Table 1 criteria, such as ease of use, interactivity, and enjoyment.
 - Additional questions sourced from HCI research papers (IEEE Xplore [1] and ScienceDirect [2]) to evaluate the prototype's appeal, usability, and novelty.
- **Scoring System:** Respondents rated statements on a scale from 1 (Strongly Agree) to 5 (Strongly Disagree).
 - A few multiple-choice questions as well

Respondents

- We targeted a diverse group of our classmates, family, and friends.
- Participants were informed of:
 - The purpose of the evaluation.
 - What the survey entailed.
 - Their anonymity.

Distribution

- The survey was shared via email and social media platforms, particularly WhatsApp and LinkedIn.

- 10 responses were collected, we would have liked to have gathered more but this amount will have to suffice.

2. Statistical Analysis

Methodology

Using the survey responses, we performed statistical analysis to identify trends and insights:

1. **Data Preparation:**
 - a. Responses were exported into Google Sheets for organization and analysis.
 - b. Each question's responses were aggregated into a table for clarity.
2. **Key Metrics Calculated:**
 - a. **Mean:** Average score for each question to identify overall trends.
 - b. **Standard Deviation:** To measure variability in responses.
 - c. **Response Distribution:** Charts (e.g., bar graphs and pie charts) to show how responses were distributed.
3. **Visualization Tools:**
 - a. Bar charts were used to compare ratings for different questions.
 - b. Pie charts illustrated overall satisfaction.

Results Overview

TrailTales Survey: Statistical Analysis for Linear Scale Questions

| Question | Mean | Standard Deviation |
|--------------------------|------|--------------------|
| I tried something. | 1.4 | 1.2 |
| I didn't like something. | 4.0 | 1.1 |

| | | |
|--|-----|------|
| I experienced something. | 1.4 | 0.6 |
| I learned something. | 1.6 | 0.66 |
| I enjoyed something. | 1.5 | 0.59 |
| I did something. | 1.3 | 0.58 |
| I easily used it. | 1.2 | 0.4 |
| It helped me in something. | 1.6 | 0.66 |
| I am excited for something. | 1.8 | 0.92 |
| I find it interactive. | 1.0 | 0.0 |
| How attractive was our website? (Attractiveness) | 1.3 | 0.46 |
| How innovative and creative did you find the design of TrailTales? (Novelty) | 1.9 | 0.9 |

Analysis of Additional Questions

1. Did it motivate you to experience nature in any capacity? (Stimulation)

- **Responses:**
 - 7 Yes (70%)
 - 3 Somewhat (30%)
- **Insights:**
 - The majority of respondents (70%) felt strongly motivated by the design to engage with nature, while 30% felt somewhat motivated. This indicates that the design is generally effective in inspiring users but could further emphasize features that foster a stronger connection to outdoor activities.

2. Do you think that our TrailTales design reflects principles of human-computer interaction, such as ease of use and interactivity?

- **Responses:**
 - 10 Yes (100%)
- **Insights:**

- All respondents agreed that the design reflects key HCI principles, affirming the success of the user-centered approach and emphasis on interactivity and usability.

3. Were the terms and icons used in TrailTales intuitive and easy to understand without much or any explanation?

- **Responses:**
 - 10 Yes (100%)
- **Insights:**
 - The unanimous agreement highlights the intuitiveness of the design and the clarity of the visual language, indicating that users had no difficulty navigating or understanding the interface.

Key Observations

1. Strengths:
 - The design effectively motivates users to engage with nature, as evidenced by the 70% "Yes" response rate for stimulation.
 - 100% agreement on HCI alignment and icon intuitiveness validates the user-centered design choices.
2. Opportunities for Improvement:
 - While respondents were motivated, enhancing specific features like dynamic maps or interactive trail guides could further inspire engagement with nature.
3. Overall Trends:
 - The positive feedback across usability, interactivity, and motivation metrics underscores the platform's strength in meeting user needs while providing opportunities for innovation and feature enhancement.

5. Presentation of Results

Methodology

- **Presentation Format:** Results were presented as part of a recorded 15-minute presentation, which included:
 - A walkthrough of the prototype and website.
 - Explanation of survey design and statistical findings.
 - Insights from the analysis.

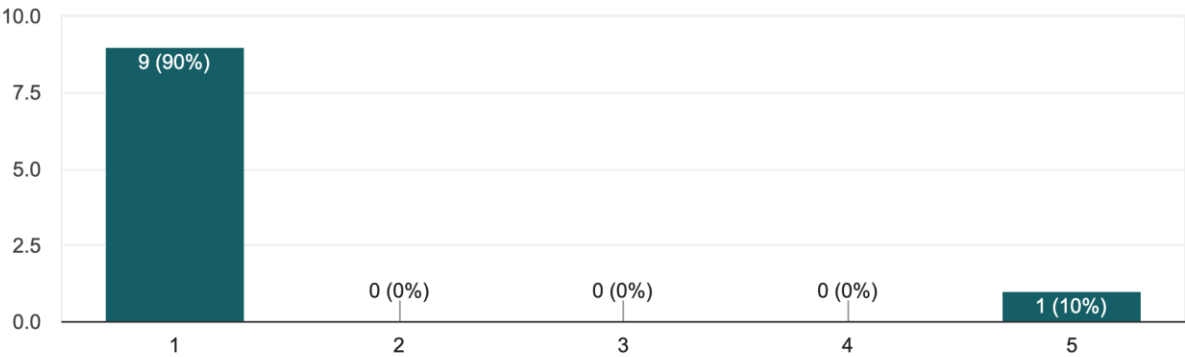
Charts and Visuals

The following were included in the presentation:

1. **Bar Chart:** Showing the distribution of responses for each evaluation criterion.

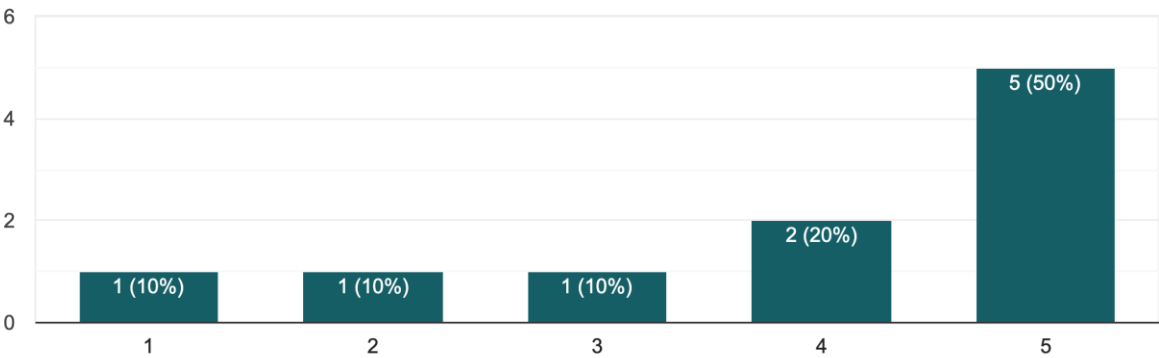
I tried something.

10 responses



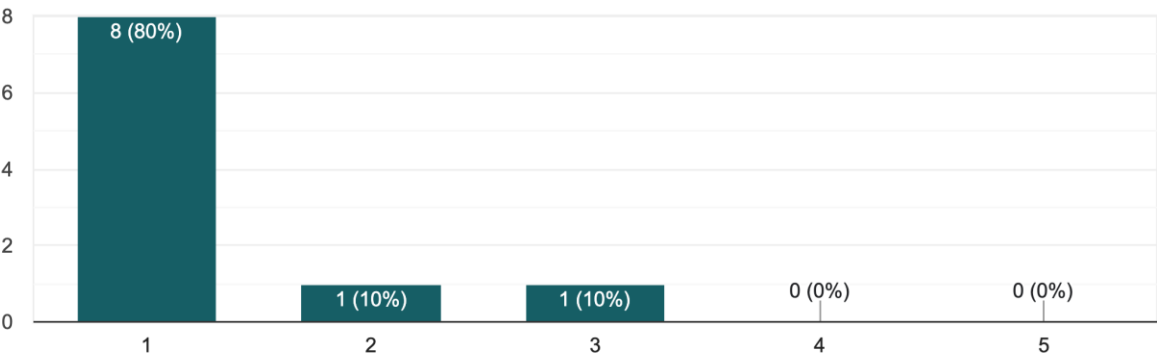
I didn't like something.

10 responses



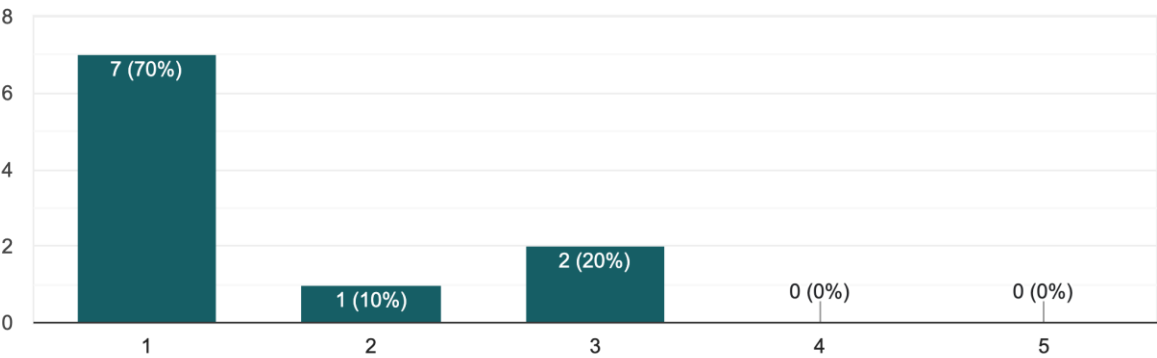
I experienced something.

10 responses



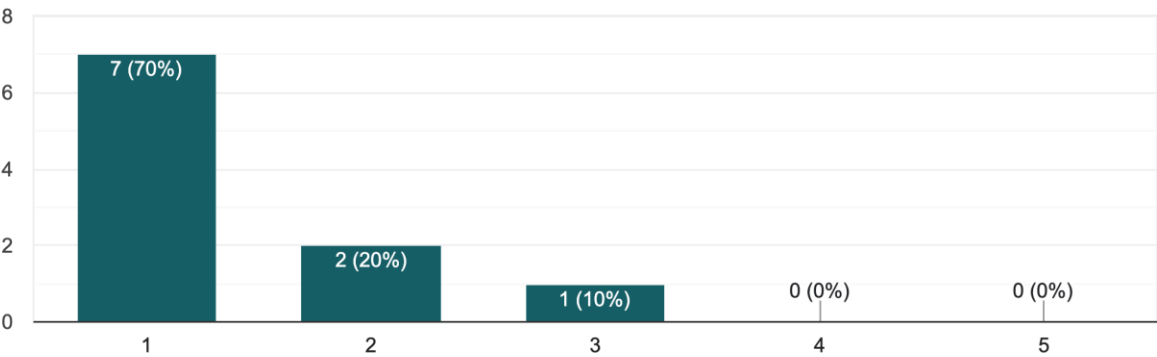
I learned something.

10 responses



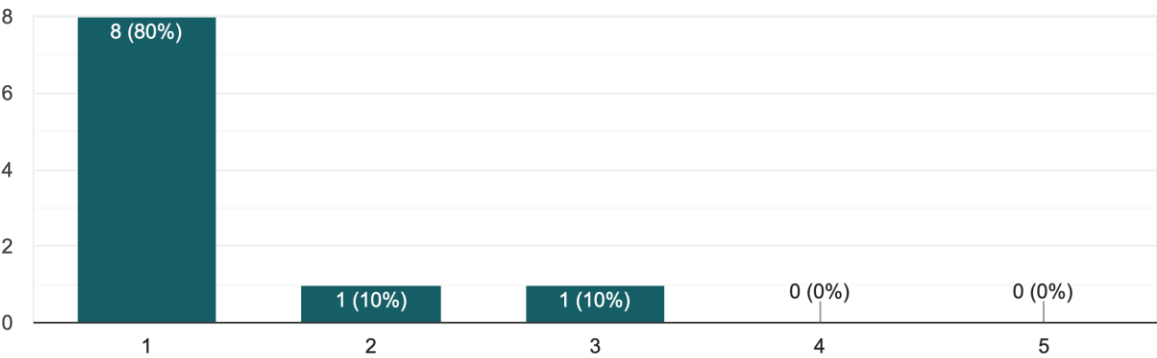
I enjoyed something.

10 responses



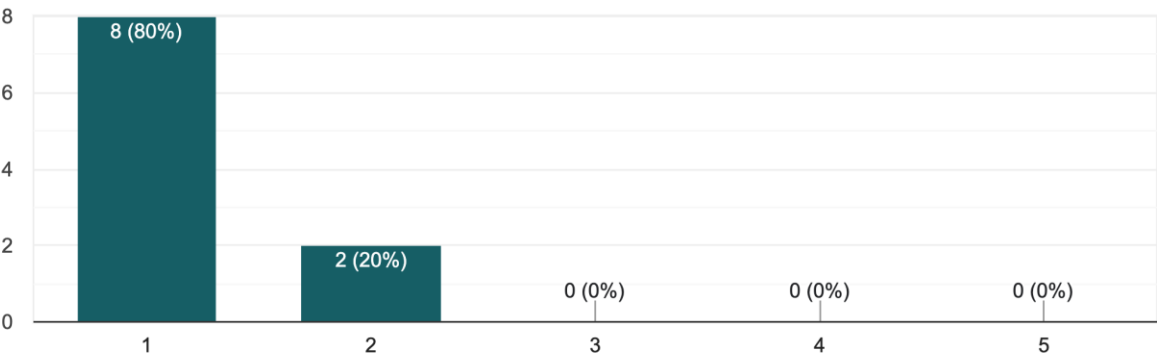
I did something.

10 responses



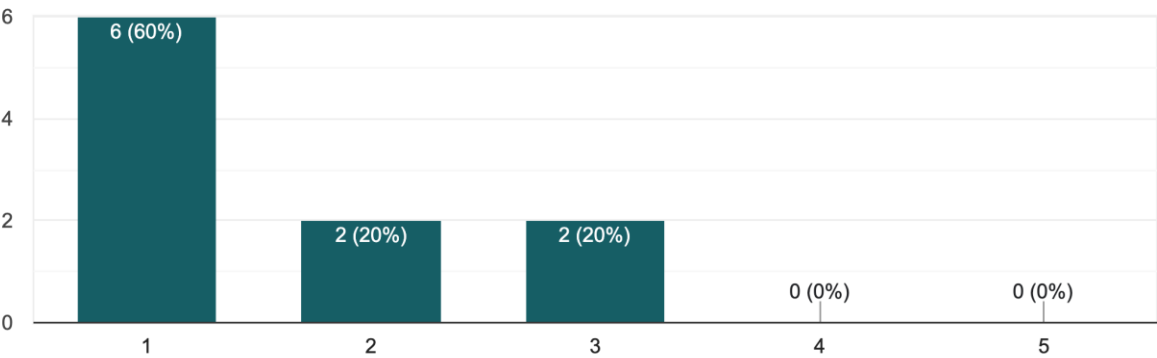
I easily used it.

10 responses



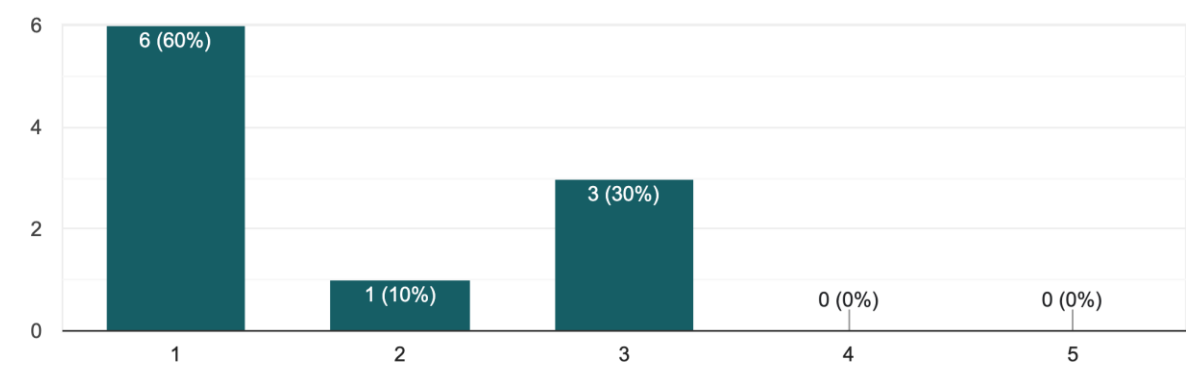
It helped me in something.

10 responses



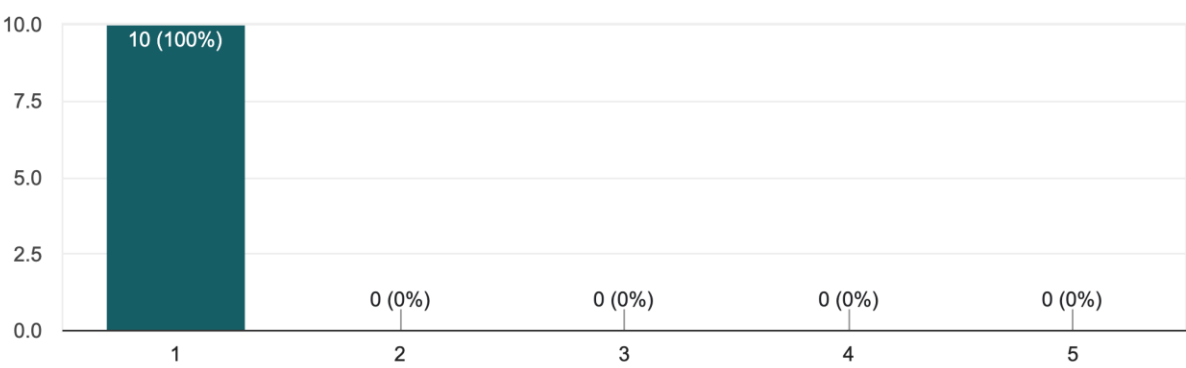
I am excited for something.

10 responses



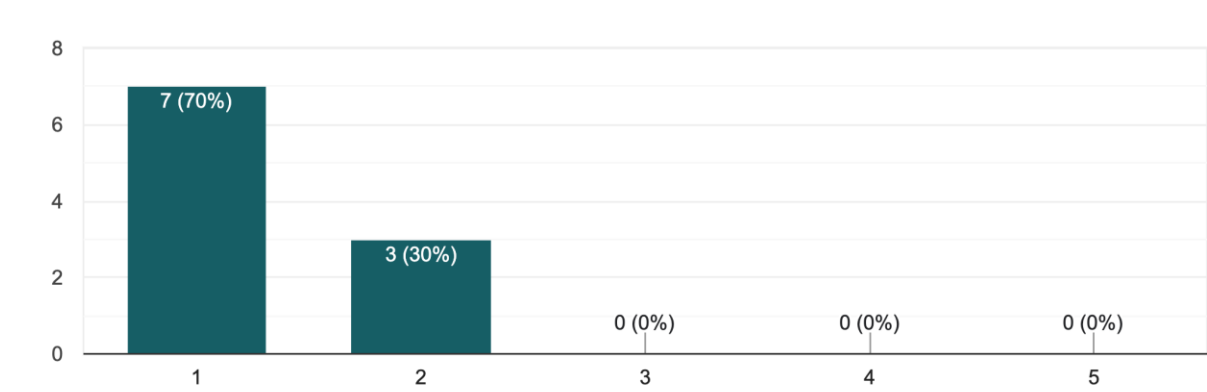
I find it interactive.

10 responses



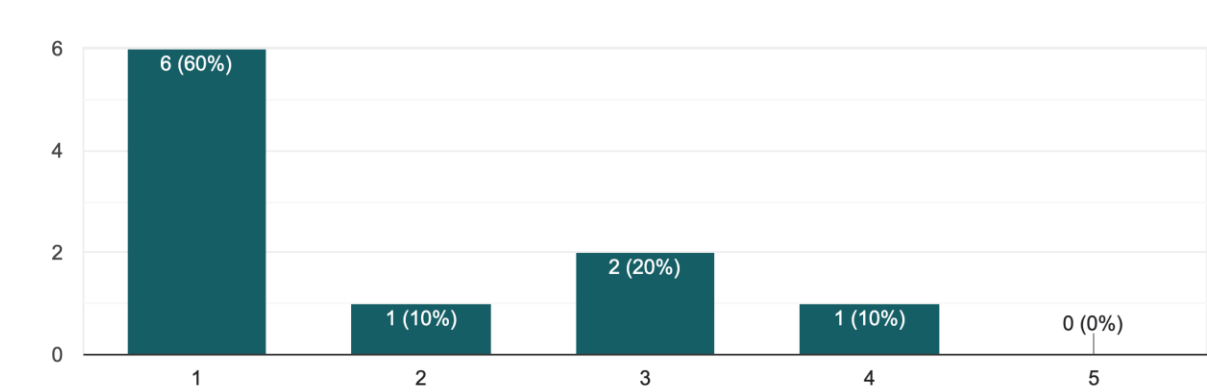
How attractive was our website? (Attractiveness)

10 responses



How innovative and creative did you find the design of TrailTales? (Novelty)

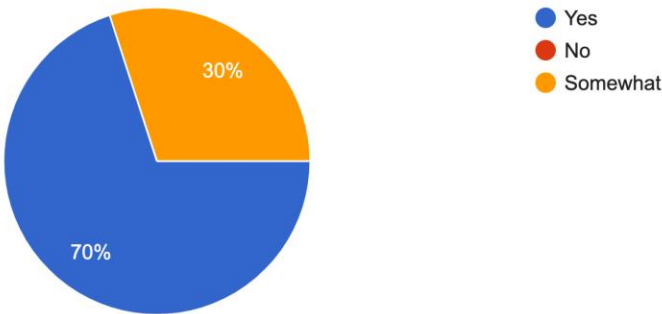
10 responses



2. **Pie Chart:** Summarizing overall satisfaction levels.

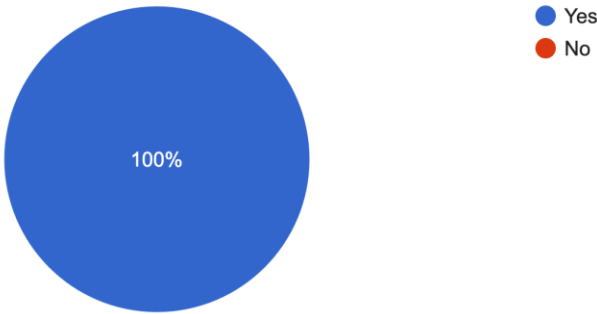
Did it motivate you to experience nature in any capacity? (Stimulation)

10 responses



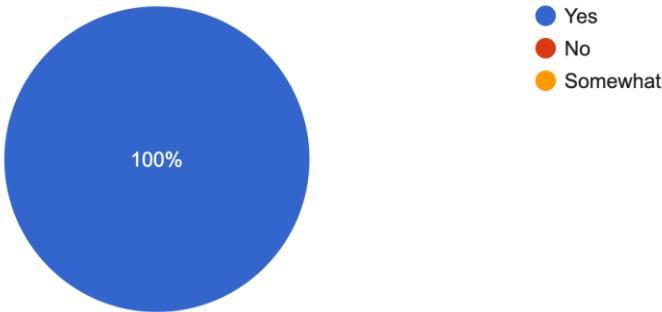
Do you think that our TrailTales design reflects principles of human-computer interaction, such as ease of use and interactivity?

10 responses



Were the terms and icons used in TrailTales intuitive and easy to understand without much or any explanation?

10 responses



Website Integration

- A new tab labeled "**Design Evaluation**" was added to the project website, containing:
 - Survey results with charts.
 - Key insights from the evaluation process.

Conclusion

The evaluation process provided valuable insights into the *TrailTales* prototype. Positive feedback confirmed that the design aligns with user needs, while constructive criticism enabled targeted improvements. These changes were seamlessly integrated into the prototype and website, ensuring a better overall user experience.

References

[1] A. Hendrian, M. L. Hamzah, Zarnelly, Anofrizen and T. K. Ansyar, "Evaluation of User Experience in Mobile Applications Using User Experience Questionnaire and User Centered Design Methods," 2024 International Conference on Circuit, Systems and Communication (ICCSC), Fes, Morocco, 2024, pp. 1-6, doi: 10.1109/ICCSC62074.2024.10616867. keywords: {Accuracy;User centered design;Government;Computer bugs;Data collection;User experience;Mobile applications;User Experience;UEQ;User Cendered Design;Application;Technology},

<https://ieeexplore.ieee.org/document/10616867?arnumber=10616867>

[2] Author links open overlay panelMahdi H. Miraz a b, a, b, c, AbstractA review of research on universal usability, BrajnikG., OppermannR., AkoumianakisD., SavidisA., RitterF.E., CalvaryG., RogersY., ShneidermanB., RubinJ., SottetJ.-S., KitchenhamB., WallaceM., LickliderJ.C., LucasH.C., ... BergmanE. (2021, February 3). *Adaptive user interfaces and universal usability through plasticity of User Interface Design*. Computer Science Review.

<https://www.sciencedirect.com/science/article/pii/S1574013721000034>