

## 1. Background

**Behaviour Support Applications (BSA)** play a crucial role in our daily lives, assisting users in making decisions aligned with their values.

**User models** incorporating specific values enhance **personalized behaviour support** in various domains.

However, the **challenge** lies in accurately capturing and updating user values. In this case, using a **textual interface**.

## 2. Research question

*"Are the user values elicited by a textual interface that uses questions in isolation accurate?"*

## 3. Methodology

- Identify relevant **user values** and **scenarios**.
- Define questions and explore in **isolation questioning** context.
- Design and develop a textual interface **prototype**.
- Conduct a **user study** to create user models and evaluate the **effectiveness** of the interface.
- Compare** the results.

## 4. User study

- A group of fifteen **technologically literate** people.
- Four** different scenarios related to health improvement.
- General** and **context-based** questions to elicit user values.
- Minimalistic** and simple interface design.
- User decides if the user model is **accurate**.
- System Usability Scale (SUS)** survey to measure user-friendliness.

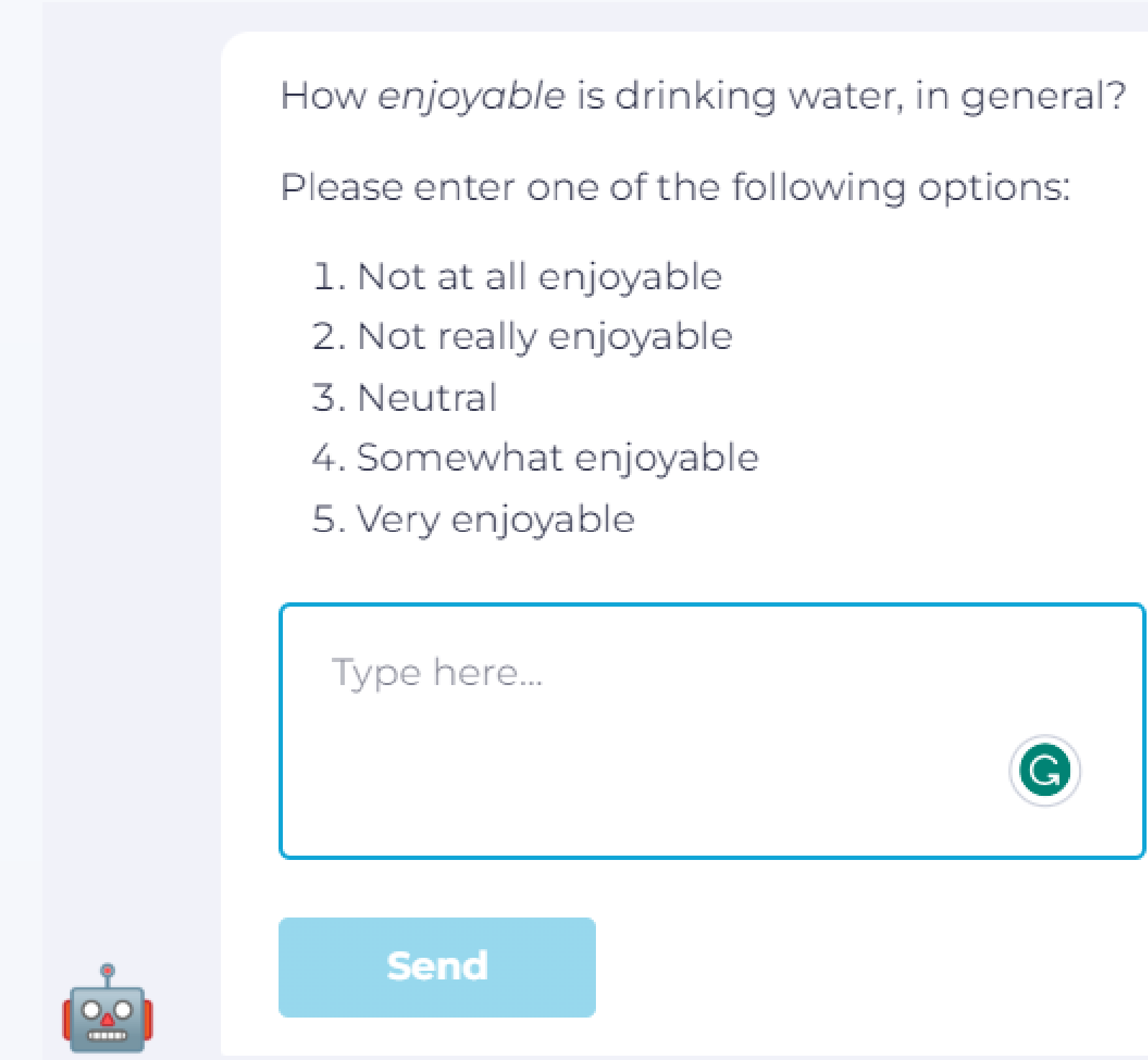


Figure 1: The textual interface used to elicit user values asking a question in isolation about the enjoyment value of drinking water.

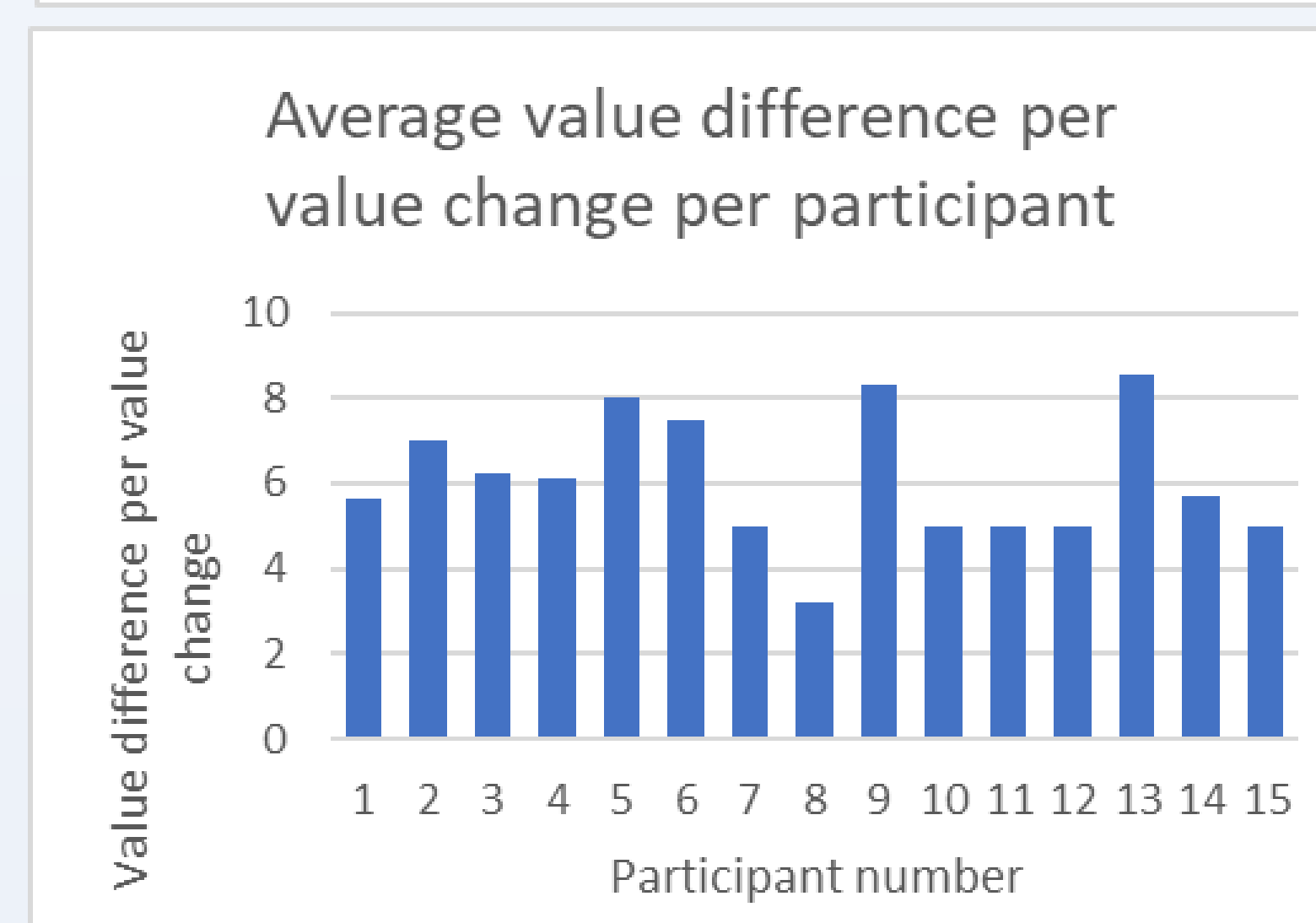
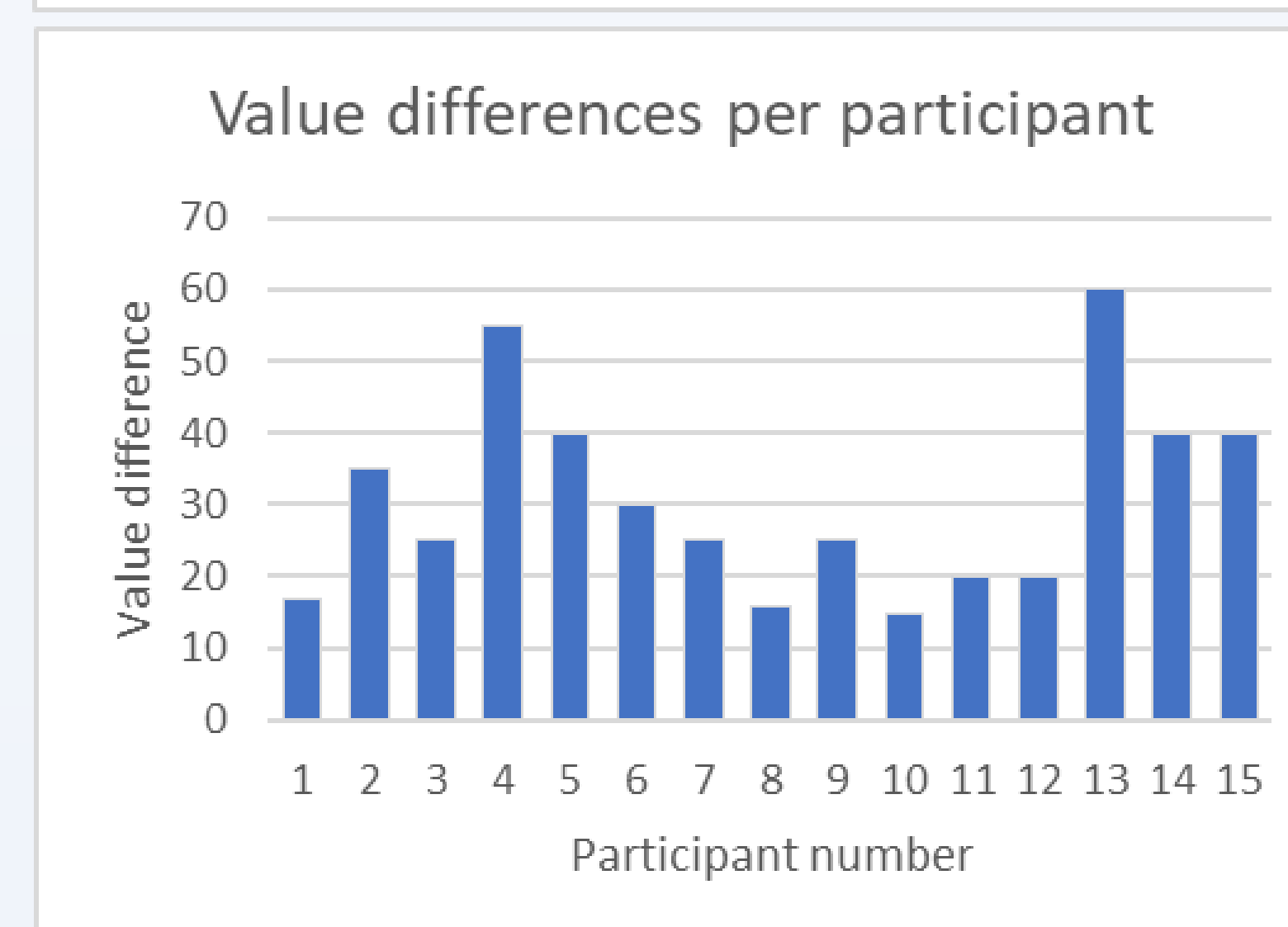
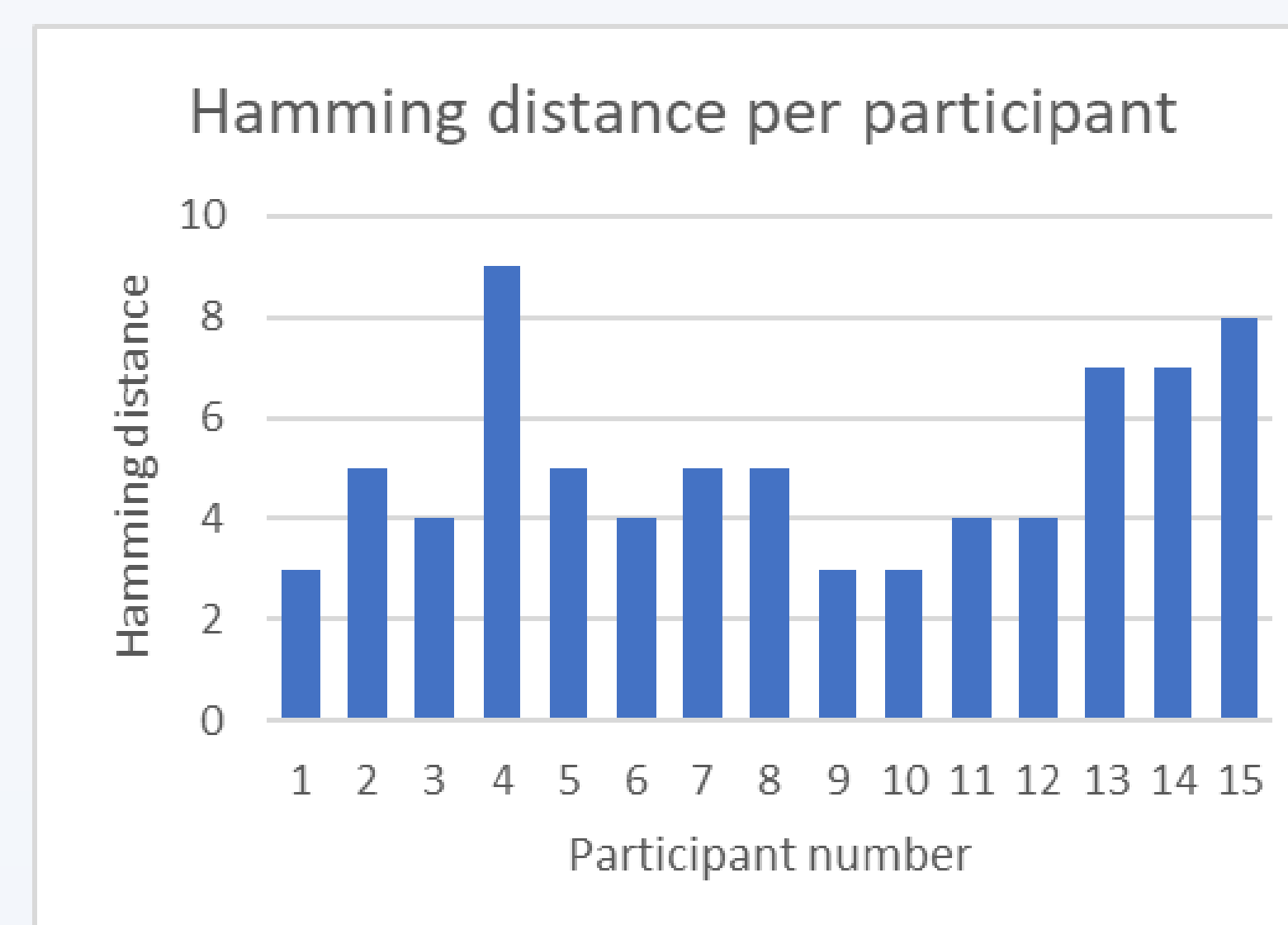


Figure 2: The results of the user experiment per participant, showing the number of changes (Hamming), total value difference of the changes, and the average value difference per value change.

## 5. Results

- Every** participant changed values in their user model. With an average difference of **6.09** per changed value.
- With an average SUS score of **68.9**, the interface is rated just above **average usability**.
  - The participants found the interface easy to understand and easy to use.
  - The participants did not see themselves use the interface frequently.
- Comparing** to other questioning and interface types, this textual interface is not among the most accurate.

	Hamming Distance	Value Difference	Value Difference per Changed Value
Textual in Isolation	5.07	30.87	6.09
Textual in Comparison	0.80	9.67	12.09
Graphical in Isolation	1.30	8.00	6.15
Graphical in Comparison	5.33	36.87	6.92
Audio in Isolation	3.60	13.50	3.75

Table 1: Comparison of data with 4 related studies, with the Textual in Isolation being the one researched in this project.

## 6. Conclusions and further research

Fifteen participants tested the developed textual interface with questions in isolation, revealing that **all participants** wanted to **change** certain aspects of their user models. Indicating that there is definite need for **improvement**.

While the participants found the interface to be relatively **user-friendly**, they indicated to have a **no current need** for this interface in its existing state.

The study suffered from other **limitations**, including time constraints, incidents of faulty user input, and question clarity.

**Future research** should address these limitations and include a larger participant pool, as the small participant group **limited generalizability**.

## References

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