Discussion Leader Cover Letter

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1 INTRODUCTION

In my research discussion, I will be reviewing two papers that incorporate usability studies to guide and evaluate conversational and virtual agents. The topic of HCI usability design around agents has had heightened interest as more e-commerce platforms and user-related issues emerge. Through these readings, I will explore how heuristics and usability methods are prominent in the design of agents and where improvements are needed.

2 PAPERS

The following papers explore design techniques for conversational agents:

- Heuristic Evaluation of Conversational Agents [2]
  https://dl.acm.org/doi/abs/10.1145/3411764.3445312?casa_token=QDAw_tUtudEAAAAA:6qad-HCOhSoli50qz_0YJxUdQyUf8LXtqiH88anh1rxxc7OT2B7vOuDcJlYCVUZTwdUjWbgo2-l6
- Designing Embodied Virtual Agent in E-commerce System Recommendations using Conversational Design Interaction [1] https://ieeexplore-ieee-org.proxy.library.nd.edu/stamp/stamp.jsp?tp=&arnumber=9640258

3 PAPER SUMMARIES

3.1 Heuristic Evaluation of Conversational Agents

The first paper is an interesting read on the expansion of Nielson's heuristics to support conversational agent design. Their research questions are "How well do the existing heuristics apply to the design of conversational agents? Can we develop a set of heuristics that are more applicable and useful for conversational agent interface design?" To do this, they adapt and modify Jakob Nielsen's 10 usability heuristics to conversational agents through a four phase design process:

- Heuristic generation: Through literature review, the authors establish 13 heuristics for designing conversational agents.
- Expert Review: An expert evaluation is conducted to gather feedback on the modified heuristics.
- Validation Through Heuristic Evaluation: The modified heuristics are applied to two conversational agents: (1) Amazon Echo's Alexa and (2) a hospital emergency department text-based survey chatbot.
- Validation of revised heuristics: The authors revised and reevaluated the chatbot heuristics from Phase 3.

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The results show that the modified conversational agent heuristics are more useful in identifying usability issues than Nielson's alone. Their expanded heuristics make a significant contribution to text and voice based conversational agents and their techniques offer design adaptations for future interfaces.

3.2 Designing Embodied Virtual Agent in E-commerce System Recommendations using Conversational Design Interaction

This paper looks at the use of conversational agents through e-commerce and how to improve design so that a trust is built between consumer and retailer. The authors aim to increase users' trust toward e-commerce through conversational design interaction in the form of virtual agent recommendation systems. There are three issues that the authors believe to be urgent to address; the cold start problem where data is lacking to correctly recommend products, the privacy issue which inhibits the user to purchase, and the absence of social presence which results in a lack of needed psychological components for the user. The authors developed an e-commerce virtual agent to solve potential problems in system recommendation through understanding the context of use and using User-Centered design methodologies.

REFERENCES

[1] Nadya Anastasia, Lenny Putri Yulianti, et al. 2021. Designing Embodied Virtual Agent in E-commerce System Recommendations using Conversational Design Interaction. In *2021 8th International Conference on Advanced Informatics: Concepts, Theory and Applications (ICAICTA)*. IEEE, 1–6.

[2] Raina Langevin, Ross J Lordon, Thi Avrahami, Benjamin R Cowan, Tad Hirsch, and Gary Hsieh. 2021. Heuristic evaluation of conversational agents. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*. 1–15.