‘It Is Not Always Discovery Time’: Four Pragmatic Approaches in Designing AI Systems

by Jalesh Ramkhalawan

Background

Authors

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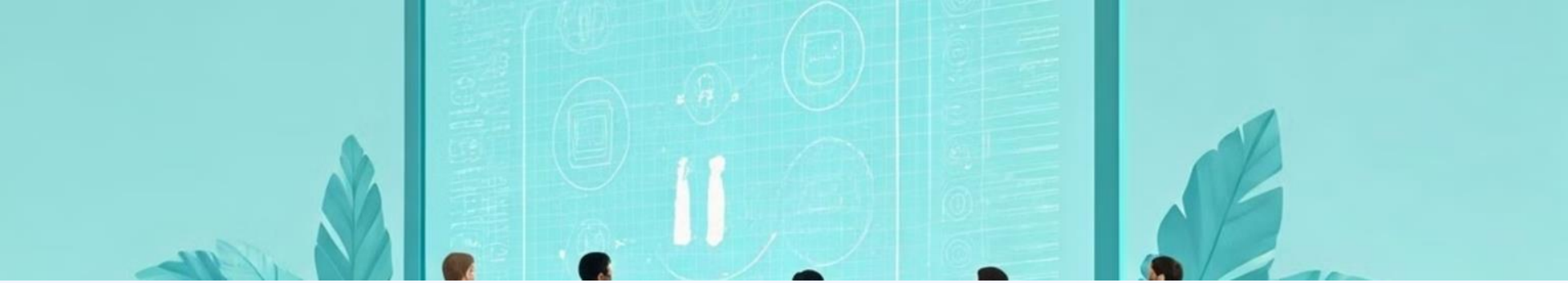


Abstract

The main objective of this paper is to explore how designers work with AI in practical design settings and how AI integration alters traditional design processes. The study highlights four approaches for integrating AI into design processes: a priori, post-hoc, model-centric, and competence-centric approach. These approaches describe how design teams adjust their processes in response to the complexities of working with AI. The paper contributes to HCI research by providing a pragmatic understanding of AI's role in the design process, particularly in human-centered AI (HCAI).

Research Context and Methodology

Participant Recruitment

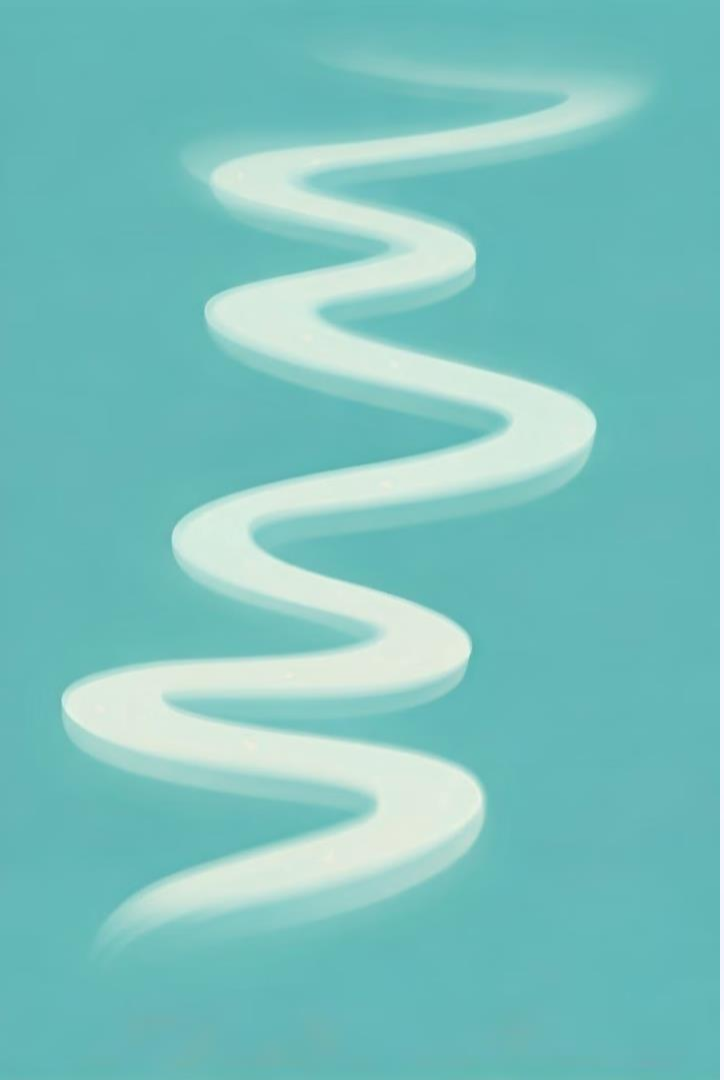
The research involved 20 participants recruited from various platforms including LinkedIn, AI x Design communities, and other professional networks. Participants represented a diverse mix of professionals from design, computer science, and engineering backgrounds.

Data Collection

Semi-structured interviews, lasting an average of 70 minutes, were conducted to gather insights from participants on their experiences working with AI in design projects. Pre-interview surveys provided additional context to the interview data.

Data Analysis

The interview data was analyzed using Atlas.ti, a qualitative data analysis software, to identify key themes and patterns related to AI design practices. This approach allowed for a comprehensive understanding of the research findings.



Results:

Four Approaches to AI Integration in Design

A Priori: Pre-built AI Models

In this approach, designers work with pre-existing AI models, focusing on adapting the user interface to the model's functionality. This approach assumes that the AI model is static and readily available for integration.

Post-hoc: AI Tailored to Design

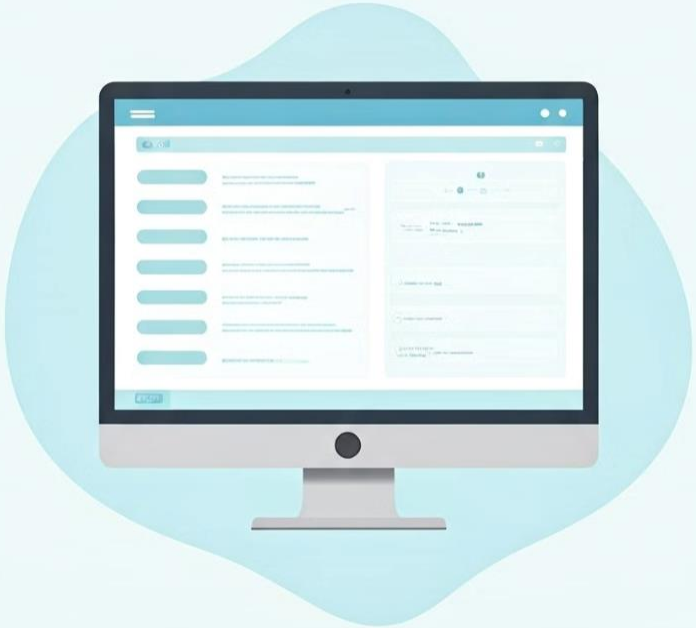
Here, designers first develop the user interface and then integrate the AI model afterward. This approach allows the AI model to be tailored to meet the specific design requirements, offering greater flexibility.

Model-Centric: Collaborative Development

This approach centers on the AI model, fostering iterative collaboration between designers and developers. Designers are actively involved in data collection, model development, and interface design.

Competence-Centric: Diverse Expertise

This approach emphasizes the diverse expertise within the design team, allowing designers and developers to contribute their respective skills. Team members work concurrently on different aspects of the project, ensuring coordination and alignment.



Discussion

A Priori: Pre-built AI Models

1

Stage 1: Model Selection

Designers select an existing AI model, often based on predefined functionality and specifications. The model is assumed to be static, limiting the design team's ability to customize or modify its core capabilities.

2

Stage 2: User Interface Design

The focus shifts to designing the user interface to accommodate the AI model's capabilities. This involves integrating interactive elements, such as input fields and visual feedback mechanisms, to facilitate user interaction with the AI.

3

Stage 3: Implementation and Evaluation

The designed user interface is implemented and evaluated to assess its usability and effectiveness in conjunction with the AI model. The evaluation may involve user testing and feedback to identify areas for improvement.

Discussion

Post-hoc: AI Tailored to Design

1 **User Interface First**

Designers prioritize developing the user interface, focusing on user needs and experience. This allows for a user-centered approach, ensuring that the design is intuitive and meets user expectations.

2 **AI Integration as an Add-on**

Once the user interface is finalized, the AI model is integrated into the design, tailored to fit the existing user interface elements. This approach offers flexibility, allowing designers to adjust the AI's functionality to meet specific design requirements.

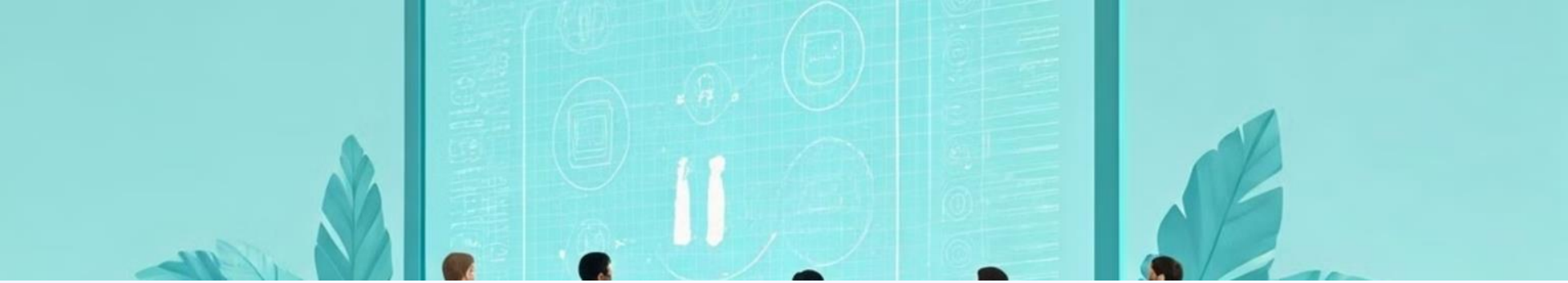
3 **Potential for Dissonance**

This approach can create dissonance if the AI model's limitations are not addressed early in the design process. A mismatch between the user interface and the AI model's capabilities can result in a less-than-optimal user experience.

Discussion

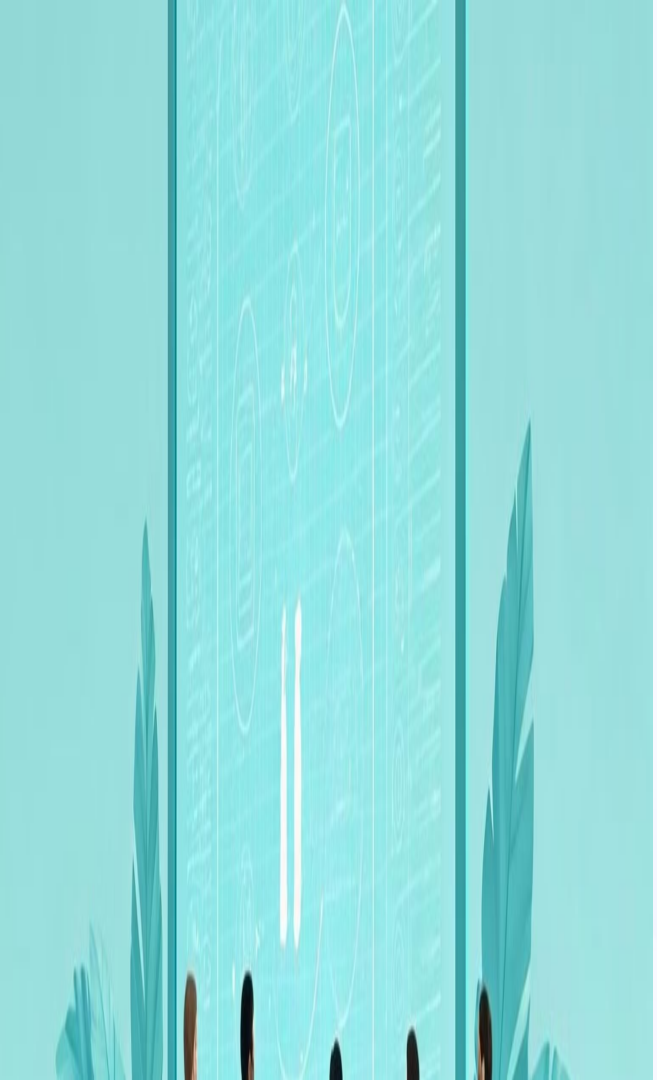
Competence-Centric: Diverse Expertise

Designers	**Focus on user experience, interface design, and visual aesthetics.**
Developers	**Responsible for implementing the technical aspects of the AI model and integrating it into the user interface.**
AI Specialists	**Provide expertise in AI algorithms, model development, and data analysis.**



Conclusion

This research contributes significantly to the HCI domain by presenting empirical insights into how design processes change with AI integration. The four approaches serve as a framework for understanding how design teams interact with AI technologies. The study underscores the need for deeper collaboration between designers and AI specialists to ensure user-centered and ethically sound AI systems and also highlights the importance of improving AI literacy among designers to foster better communication and collaboration within multidisciplinary teams.



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Maximiliane Windl, Sebastian S. Feger, Lara Zijlstra, Albrecht Schmidt, and Paweł W. Woźniak. 2022. ‘It Is Not Always Discovery Time’: Four Pragmatic Approaches in Designing AI Systems. In CHI Conference on Human Factors in Computing Systems (CHI ’22), April 29-May 5, 2022, New Orleans, LA, USA. ACM, New York, NY, USA, 12 pages. https://doi.org/10. 1145/3491102.3501943

Transparency, fairness, and coping: How players experience Moderation in Multiplayer Online Games.

BACKGROUND

Authors:

- Renkai ma
  -A Ph.D candidate in Human-Computer Interaction at Pennsylvania State University.
- Yaoi li
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- Yubo Kou
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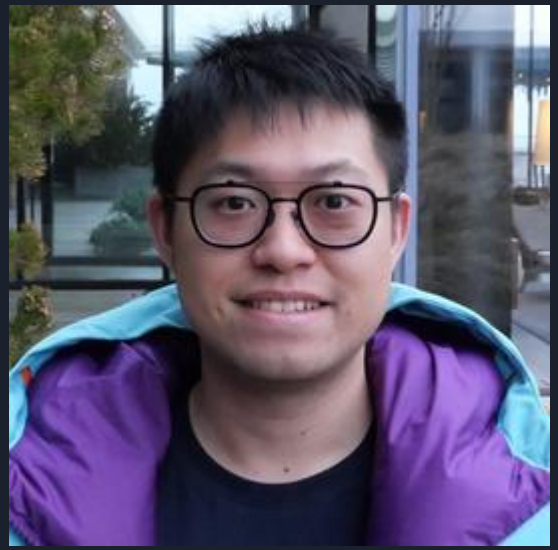
Paper published: 19th April, 2023
Conference: CHI ‘23: CHI Conference on Human Factors in Computing Systems.

Renkai ma

- Esports Governance: An Analysis of Rule Enforcement in League of Legends
- User Experience of Symptom Checkers: A Systematic Review and Conceptualizing
- Rethinking the Design of Cross-platform Creator Moderation

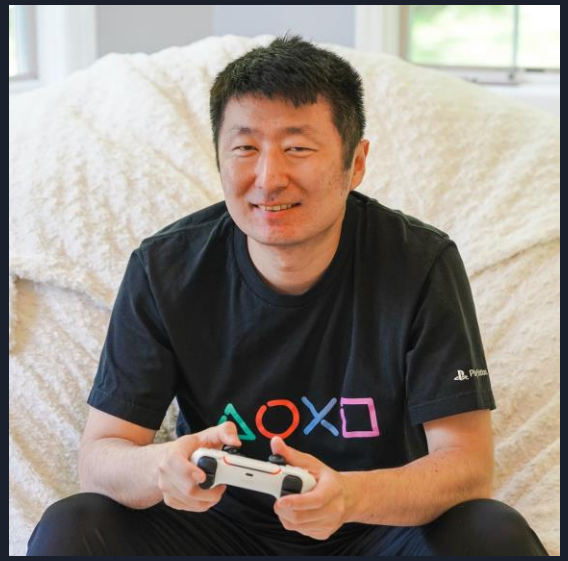


Yao li

- A Tale of Two Cultures: Comparing Interpersonal Information Disclosure Norms on Twitter
- Multi-Stakeholder Privacy and Safety on Content Creation Platforms
- Beyond Self-diagnosis: How a Chatbot-based Symptom Checker Should Respond

Yubo Kou

- Toxic behaviors in team-based competitive gaming: The case of league of legends
- Conspiracy talk on social media: Collective sensemaking during a public health crisis
- Mediating the undercurrents: Using social media to sustain a social movement



Notable context

Punishment design:

1. **Punishment types**
2. **Notification provision**
3. **Explanation provision**

received fairness:

1. **Outcome fairness**
2. **Retributive justice**
3. **Procedural justice**
4. **Restorative justice**

Coping strategies/efforts:

1. **Problem coping**
2. **Social support**
3. **Detachment**
4. **Positivity**

ABSTRACT

The paper seeks to answer the following questions:

1. Does punishment design affect players' perceptions of behavior moderation and their post-moderation behaviors?
2. Do players' perceived transparency and fairness of behavior moderation affect their coping strategies for punishments?

It determines how behavior moderation impacts a player's experience(PX), bridge the game and moderation literature, and provide design implications for behavior moderation in multiplayer online games.

METHODOLOGY

A 3 part survey was created consisting of:

1. Consent and screening - (18 years+ and experience in moderation behavior)
2. Punishment experience
3. Demographics - age, race, gender, and education levels.

This survey was distributed on Prolific.co. Participants were only recruited if they met all the following requirements:

1. Understood English
2. Experienced punishments in online multiplayer games
3. Resided in the US

A total of 432 responses were received, while 291 were complete and also passed the attention check questions.

RESULTS

Punishment type did not significantly affect player's perceived transparency, fairness and coping strategies. However, Punishment notification and explanation did.

- Punishment notification positively affected player's perceived transparency.
- Punishment explanation positively affected all dimensions of player's perceived fairness and adoption for coping strategies.

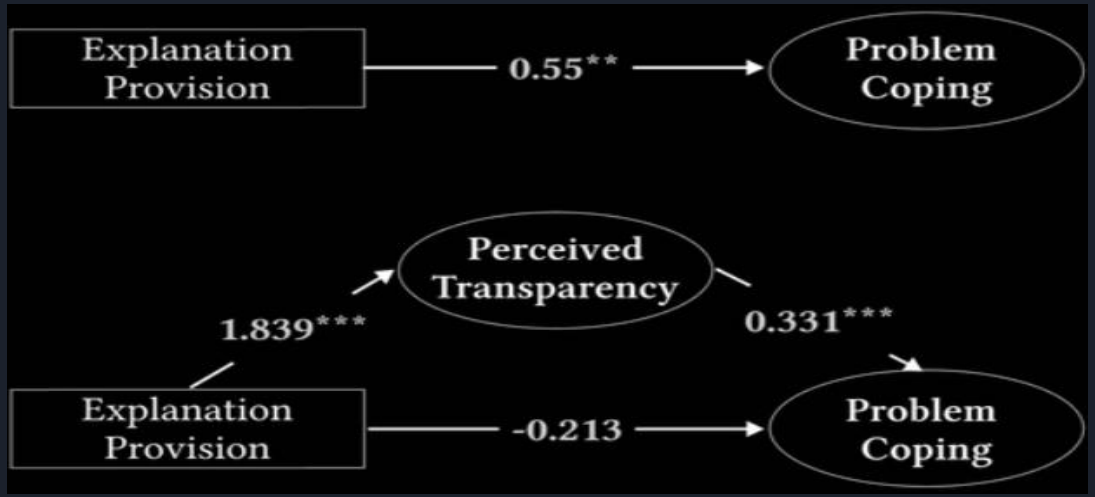
Table 1, is a table demonstrating the participants exposure to punishment notification and explanation.

Table 1:

		Explanation Provision			
		Yes	No	Not sure	Total
Notification Provision	Yes	204	26	18	248
	No	7	20	2	29
	Not sure	6	2	6	14
	Total	217	48	26	291

perceived transparency fully mediates the relationship between explanation and problem coping. If players are given punishment explanations, they will perceive more transparency of the behavior moderation and inherently are more likely to improve the adoption of problem coping strategies for punishments.

Figure 1:



DISCUSSION

The study advocates for better design in moderation systems to focus more on notifications and explanation of punishments as these design elements have a profound impact on the player’s experience.

Severity of punishment is less of a concern compared to notification and explanation provision. Effective moderation involves not just issuing penalties, but also providing support and resources to help players understand and address their behavior. This ensures perceived fairness and aiding in behavior reform.

Limitations

- a larger sample size can be used to carry out the study.
- Game genre variety can be narrowed down in future research
- players situated in different online games might conceptualize punishment design differently

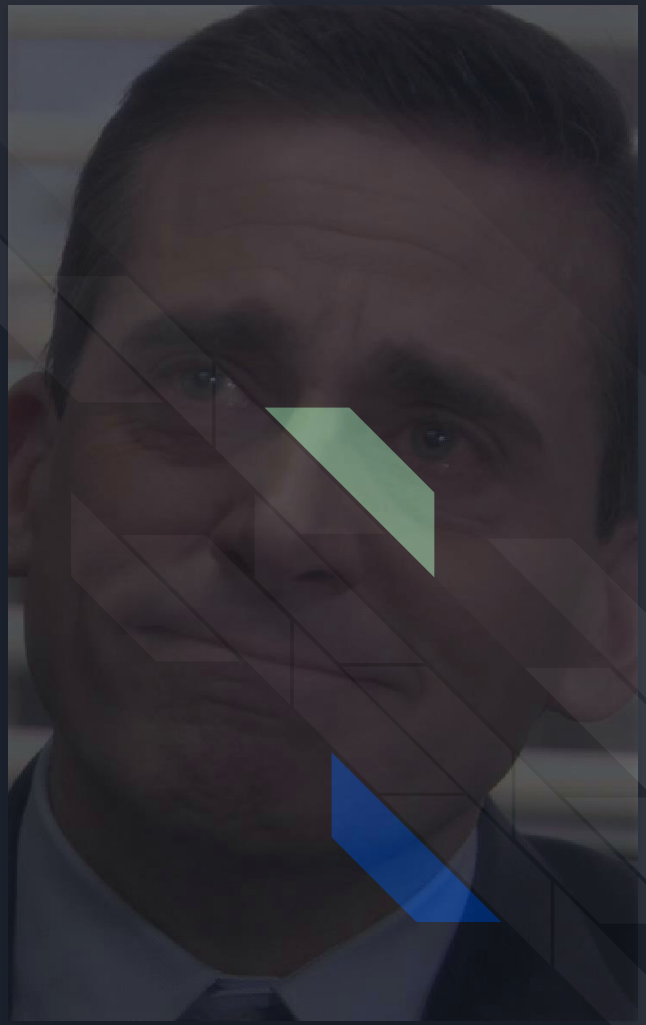
CONCLUSION

Moderation explanation plays a critical role in improving players' perceived transparency and fairness of moderation. This perceived fairness more significantly affected players to adopt different coping strategies for punishments.

The study emphasizes the indirect role of explanation provision to support players in coping with punishments.

It also helps frame moderation experience as part of player experience, so game developers can rethink moderation design in online multiplayer games.

Example of behavior moderation in League of Legends



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  Article No.: 574, Pages 1 - 21
  https://doi.org/10.1145/3544548.3581097

Shift In Design Practices Using Generative AI.

The following paper will highlight the usefulness of AI in creating simplified and easy to understand summaries of academic papers.

Background

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- Gary Hsieh
  -University of Washington Seattle, WA, USA

Publications:

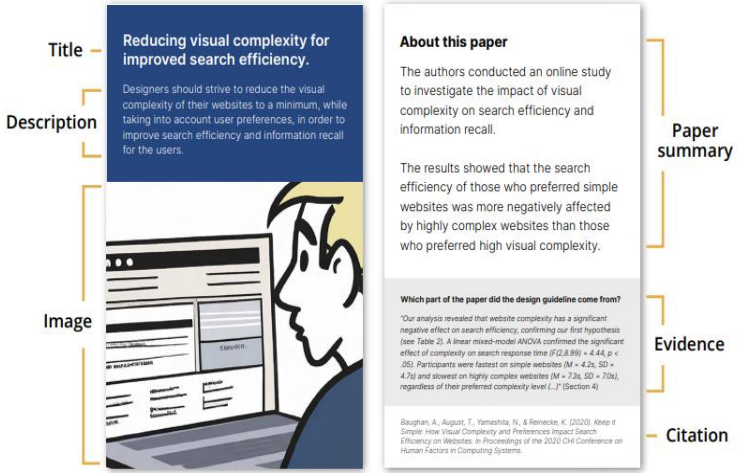
Published May 2024 at the CHI conference on Human Factors in Computing Systems in Honolulu

Abstract

The main goal of the paper is to propose design cards that can be used to convey pertinent information from academic papers to readers in a manner that is easily understandable, the study proposes generative AI as the medium to perform this task, by using a language learning model and a text-to-image model to bridge the gap between complex jargon-filled papers and the reader to aid in the digestion of information. Further improvements to these cards may arise in the form of enhancements to the AI models.

Methodology

The study was conducted among 21 designers recruited from the university of the authors and 12 authors of HCI papers, 4 HCI papers were chosen with varying themes, for each paper a segment of text was selected that contained a design implication, this was then fed to the AI system to generate the design cards. Each participant conducted an online survey where they were presented with two randomly selected papers in both raw text and the card formats having the original paper available to them for reference. The participants were asked to then evaluate the format of each paper based on specific metrics, once the participants were finished they were asked to select which design format they
preferred and to provide a reason for their choice.

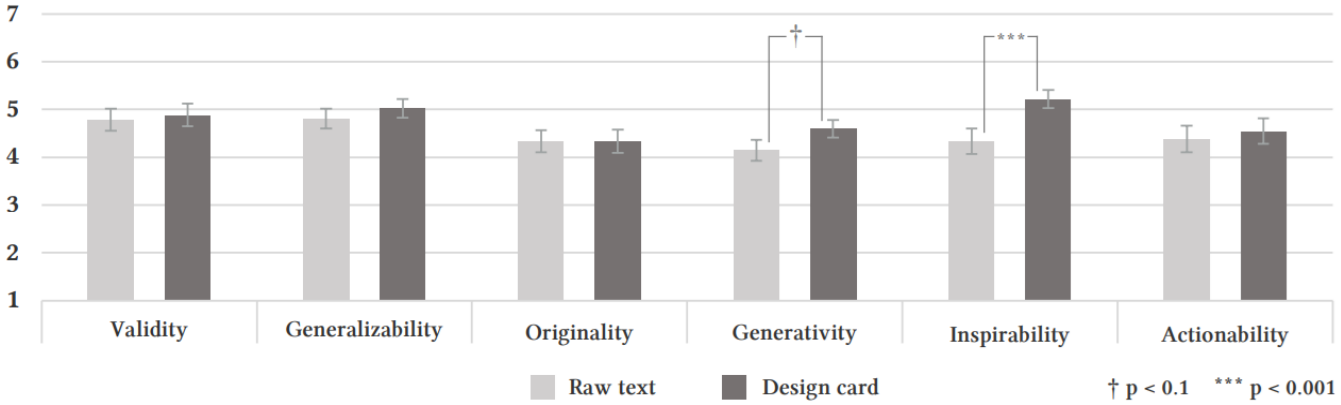


Results

Preference of format:

Quantitative data from the survey 15 designers preferred the cards, while 3 preferred the raw text and 3 had no preference. The trends suggest that the designers prefer the visual representation of the design cards.

Qualitative data shows the participants reported that the visual structure enabled a higher level of understanding and was more appealing to the reader. The images and graphics broke up the raw text, providing context to the reader conveying the information in the way the paper intended, “The generated design card communicates the design implication listed in [section] of our paper effectively.” quoted from one of the authors, although the generated text is sometimes not aligned with the source text.

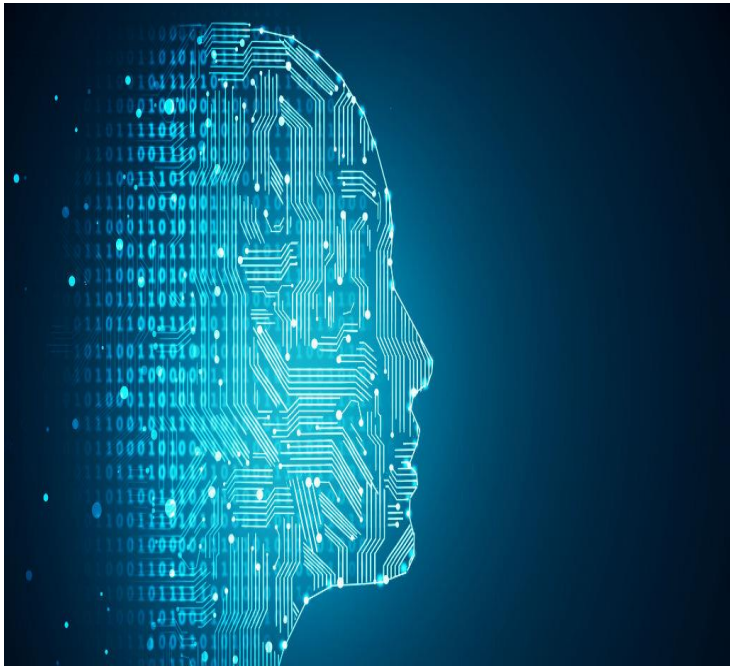


Discussion

The study suggest that while the visual aids of the cards provide ease of understanding the generated text and images can sometimes transmit a different message to what the author intends.

Addressing this issue includes authors in the generation of cards to choose which design formats best represent their work.Some limitations faced were the fact that there may arise some AI biases due to the databases the AI model was trained on, gender and racial stereotypes may occur unintentionally.

Conclusion



The paper proposes a generative AI system to create design cards that aid in disseminating academic papers in a more agreeable manner. Based on interviews conducted with designers and HCI paper authors, the results suggest that there is potential for this AI card generation for the purpose of helping translate design implications to the reader.

References

CHI '24: Proceedings of the CHI Conference on Human Factors in Computing Systems
Article No.: 13, Pages 1 - 15
https://doi.org/10.1145/3613904.3642266