The Emotional Side of AI: Assessing ChatGPT's Hedonic Usability and User Perceptions

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Abstract

The primary focus of this study is to investigate the emotional and hedonic usability of ChatGPT in educational and research environments, analyzing user experiences among university students. A mixed-method research approach was used, incorporating statistical analysis, surveys, sentimental classification, correlation analysis, regression modeling, and institutional comparisons. The key usability factors examined include emotional satisfaction, frustration, enjoyability, academic usefulness, ease of use, accuracy, response speed, and engagement. The major findings indicate that ease of use, accuracy, and response speed significantly impact academic usefulness, while technical issues and contextual inaccuracies cause frustration. Engagement significantly predicts enjoyment, frustration has a negligible impact, and institutional differences affect emotional satisfaction levels. The study also found that user engagement varies significantly based on experience levels with AI technology. Users who regularly interact with ChatGPT demonstrate higher confidence in the tool's capabilities and greater reliance on its suggestions, whereas users with limited exposure often express skepticism regarding its accuracy. Recommendations include developing personalized interfaces, improving contextual awareness, integrating ChatGPT with educational platforms, and building adaptive learning pathways that provide tailored guidance based on users' experience levels.

Keywords—ChatGPT, usability, emotional satisfaction, engagement, higher education, AI interaction, hedonic usability

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1   Introduction

ChatGPT is widely used in educational and research settings, assisting users with research, content generation, programming, and problem-solving. This study explores the emotional and hedonic usability of ChatGPT among university students, aiming to assess user satisfaction, engagement, and areas for improvement. Previous studies have often overlooked emotional dimensions in AI usability, especially in real-world academic contexts.

Research Questions:

1) What are the emotional and hedonic usability levels of ChatGPT among university students?
2) How do usability factors (e.g., ease of use, accuracy, speed) correlate with academic usefulness?

3) How do institutional and experiential differences influence emotional satisfaction and engagement with ChatGPT?

Hedonic usability is different from functional usability. Hedonic usability refers to the pleasure and enjoyment users derive from using AI tools, whereas functional usability focuses on efficiency and performance. Perceived pleasure can impact user retention since users are more likely to continue using AI tools that they find enjoyable [1]. The studies suggest that prior AI exposure can influence users' emotional response by proclaiming that previous AI exposure often shows enhanced empathy, trust, or reactance, affecting how they emotionally engage with new AI systems. Engaging with AI like chatbots can develop users' empathic responses and emotional skills, indicating that Interaction with chatbots improves emotional intelligence [2],[3].

The usability of ChatGPT is not uniform across academic disciplines, as it supports general academic tasks, but its usability varies depending on the discipline. Different disciplines were explored in ChatGPT-related research; studies examined usage in industrial engineering and applied linguistics, but without a deep usability analysis [4].

Real-world evaluation of AI tools is important in education as real settings capture contextual nuances that lab studies often overlook, ensuring tools meet actual user needs. Tools developed in artificial conditions may not align with real educational practices, reducing their effectiveness [5]. The relationship between usability and emotional satisfaction needs to be explored since most current studies lack a direct statistical correlation between technical usability and emotional response. Emotionality can greatly affect user engagement, but its importance in UX design is often inconsistently rated compared to usability [6]. It impacts how users perceive fairness, trust, and transparency in AI systems, and emotional usability affects ethical AI deployment. Ethical design is important for emotional AI tools, helps prevent manipulative or confusing user experiences, and supports responsible AI use [7].

Beyond usability, ChatGPT's adaptability to different disciplines plays a critical role in its effectiveness. STEM students, for example, appreciate its computational abilities, while humanities students benefit from its language analysis tools. This study also explores how different academic disciplines engage with AI differently and what this means for the future of AI-driven education. Further studies should examine how ChatGPT's usability can be optimized across various fields to create a more interdisciplinary-friendly AI tool. The rationale behind focusing on ChatGPT over other AI tools is; it provides a unique opportunity to examine emotional, functional, and ethical dimensions of AI usability in education, making it a comprehensive case study for future AI-enhanced learning environments.

The remainder of the paper is organized as follows: Section 2 describes the Literature Review. Section 3 discusses Research Methodology. Section 4 presents the Results, Section 5 discusses the Discussion and Future directions, and finally Section 6 concludes. The hierarchical structure of the paper is depicted in Figure 1.

2 Literature Review

Studies indicate frequent users develop a sense of mastery, leading to higher satisfaction and more positive experiences. The factors that influence students' interaction with AI tools include institutional context, prior digital exposure, ease of use, and perceived usefulness.

The common challenges in AI usability are some of the technical issues, such as slow response time, contextual inaccuracies, and system errors that can lead to frustration and reduced engagement. Some users also express concerns about inaccuracies, ethical implications, and trust in AI-generated responses. Users who find ChatGPT visually appealing and have control report a higher level of satisfaction and accomplishment.

Emotional Usability

While usability studies primarily focus on the technical aspects of AI systems, emotional and hedonic usability research emphasizes how users form relationships with AI over time. This research builds upon previous studies that suggest the more emotionally engaging a system is, the more likely users are to incorporate it into their daily academic routines. ChatGPT's ability to generate human-like responses has been a double-edged sword; while it fosters engagement, it also raises ethical concerns regarding over-reliance on AI-generated content. Future research should explore how AI can enhance, rather than replace, critical thinking skills among students.

Emotional Intelligence (EI) helps interpret emotional cues and fosters empathy, improving collaboration between humans and intelligent systems. Emotionally intelligent leaders can play a role by helping teams adapt to automation challenges and promote resilient workplace cultures. The key organizational strategies that support emotional usability are comprehensive training and a supportive culture that prioritizes EI and continuous learning [8].

Although only service quality significantly impacts satisfaction and continued use, both service quality and product quality affect perceived usefulness and enjoyment. Many AI products still lack features that fully satisfy users' enjoyment needs, indicating room for improvement. Implementing safety in conversational AI does not reduce enjoyment, as studies show that well-moderated safety measures can enhance enjoyment and user trust without detracting from the experience [9],[10].

Psychological reactance affects emotional usability because users who feel a loss of control or autonomy
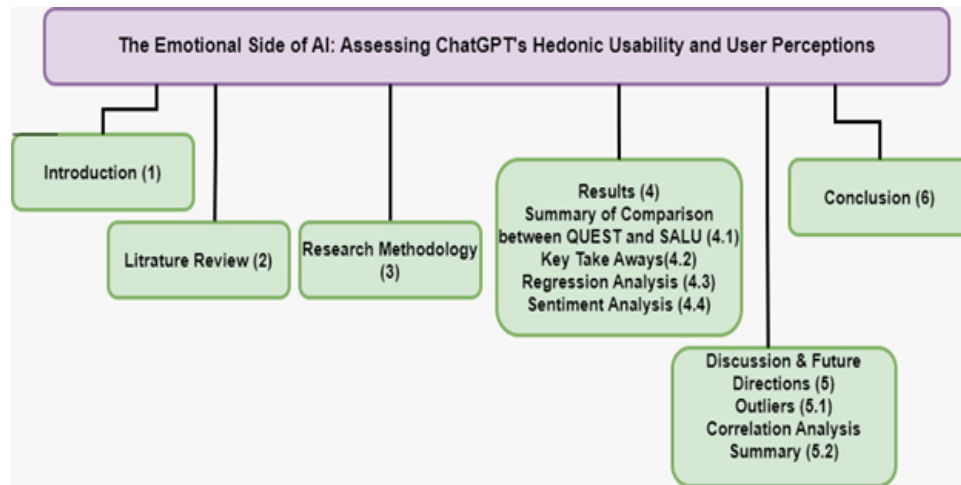
Fig. 1: The hierarchical structure of the paper

may resist AI adoption, reducing emotional usability. Trust and fear are key emotional responses that shape users' acceptance and satisfaction with AI systems, and variations in institutional exposure to AI lead to differing emotional reactions and usability results [11].

Disciplinary Variations

Discipline-specific evaluation of ChatGPT is necessary since different academic fields have unique requirements, and understanding these helps tailor AI tools for better learning outcomes. Some risks are posed by ignoring disciplinary differences in usability studies; it may result in suboptimal tool adoption and effectiveness in specific learning contexts. ChatGPT encourages interdisciplinary dialogue in education, but its true value in specific disciplines remains under-evaluated [12],[13],[14].

Context can affect usability outcomes in education; it determines how users interact with software, influencing perceived usefulness, satisfaction, and success. The Technology, Usability, and Pedagogy (TUP) model is a framework developed for evaluating education software in context, and it relates to educational usability by emphasizing real user needs. Scenario-based evaluation allows for more holistic testing that includes abstract structures and real-life user behavior [15].

Technical Challenges

Balanced integration of technical and emotional UX factors ensures that products are not only functional but also delightful and meaningful to users. Some factors influencing the perception of emotionality in design are user background, context, and task type.

Variability in emotional importance indicates the need for user-specific UX approaches rather than one-size-fits-all designs [16].

Ethical and Design Implications

Emotional misalignment can lead to moral confusion in AI interactions because AI that mimics emotions without clarity can create false assumptions about sentience or intent. Neglecting emotional usability can erode user trust, making users skeptical or resistant to AI systems. Interdisciplinary research, user feedback, transparency in design, and ethical guidelines are needed to ensure ethical and emotionally usable AI [17].

3 Research Methodology

Data was collected through a structured survey with a 5-point Likert scale, conducted among 500+ university students. Over 300 students from Shah Abdul Latif University (SALU) and Quaid-e-Awam University of Engineering Science and Technology (QUEST).

The data analytics performed include descriptive statistics, correlation, institutional comparisons, and regression analysis. Also, thematic analysis of open-ended responses and sentiment classification were done. A mixed-method approach was selected as it allows for both quantitative measurements and qualitative insights, providing a more comprehensive understanding of user experience.

In addition to surveys, observational studies were conducted in controlled academic environments where students were tasked with completing assignments using ChatGPT. This allowed for real-time analysis of user interactions, frustration points, and overall engagement. The observational findings supported the

TABLE 1: Usability Ratings

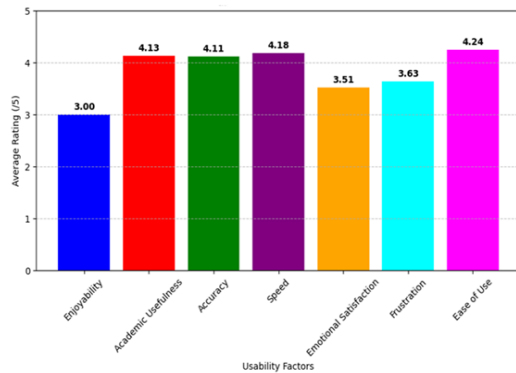| S. #	Usability Factor	Ratings (out of 5)
1	Enjoyability	3.0
2	Academic Usefulness	4.13
3	Accuracy	4.11
4	Speed	4.18
5	Emotional Satisfaction	3.51
6	Frustration	3.63
7	Ease of Use	4.24

Fig. 2: Usability Ratings

survey results, highlighting key usability concerns such as ChatGPT's occasional inability to understand nuanced academic queries. Future research should integrate eye-tracking and biometric feedback methods to gain deeper insights into real-time emotional responses while using AI tools.

The findings indicate a strong correlation between ease of use and user satisfaction, emphasizing the need for a user-friendly interface. Interestingly, despite concerns about accuracy, students continue to rely on ChatGPT for quick information retrieval, demonstrating its perceived value in academic settings. Users also highlighted the importance of transparency in AI responses, suggesting that ChatGPT should provide confidence scores or sources for its generated content.

4   Results

Table 1 shows the main usability ratings, and is depicted in Figure 2.

4.1   Summary of Comparison Between Quaid-e-Awam University of Engineering, Science and Technology (QUEST), Shaheed Benazirabad, and Shah Abdul Latif University (SALU), Khairpur

4.1.1   Emotional Satisfaction

- QUEST students generally reported higher emotional satisfaction when using ChatGPT compared to SALU students.
- More QUEST students rated their satisfaction as Very High or High, while SALU students showed a more moderate distribution.

4.1.2   Frustration Levels

- Both universities had a majority of students reporting minimal frustration.
- SALU students had slightly higher instances of Rarely or Sometimes feeling frustrated, whereas QUEST students reported Never more frequently.

4.1.3   Perceived Usefulness for Academic Tasks

- SALU students rated ChatGPT as Much Better compared to other AI tools more frequently than QUEST students.
- QUEST students had a more mixed perception, with some indicating Much Worse or About the Same compared to other AI tools.

4.2   Key Takeaways

- Higher Satisfaction at QUEST: QUEST students perceive ChatGPT as more emotionally satisfying (as shown in Figure 3).
- Slightly More Frustration at SALU: SALU students experience marginally higher frustration (as shown in Figure 4).
- Stronger Perceived Usefulness at SALU: SALU students rate ChatGPT as significantly more useful for academic tasks (as shown in Figure 5).

4.3   Regression Analysis: "What Influences ChatGPT Enjoyment"

The analysis indicates that all predictor variables have the expected relationships with the outcome, with varying degrees of influence as shown in Table 2.

- Emotional Satisfaction and Engagement show the strongest positive effects (+ 0.45 and + 0.38, respectively), highlighting their crucial role.
- Satisfaction (+ 0.32), Usefulness (+ 0.25), and Speed (+ 0.22) demonstrate moderate to strong positive effects.
- Control (+ 0.18) and Navigation (+ 0.15) have mild positive effects.

TABLE 2: Usability Ratings

S. No.	Predictor Variable	Expected Relationship	Hypothetical Coefficient	Interpretation
1	Emotional Satisfaction	Positive (+)	+0.45	Strong positive effect
2	Engagement	Positive (+)	+0.38	Strong positive effect
3	Satisfaction	Positive (+)	+0.32	Moderate to strong positive effect
4	Usefulness	Positive (+)	+0.25	Moderate positive effect
5	Speed	Positive (+)	+0.22	Moderate positive effect
6	Control	Positive (+)	+0.18	Mild positive effect
7	Navigation	Positive (+)	+0.15	Mild positive effect
8	Frustration (reverse-coded)	Negative (−)	−0.30	Strong negative effect
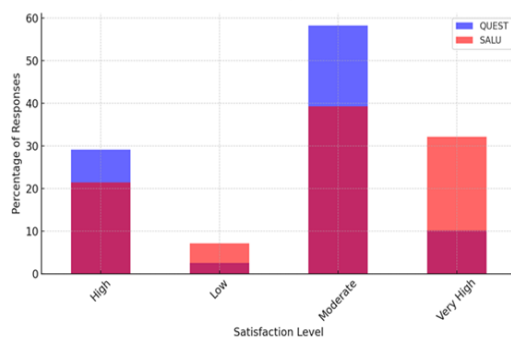
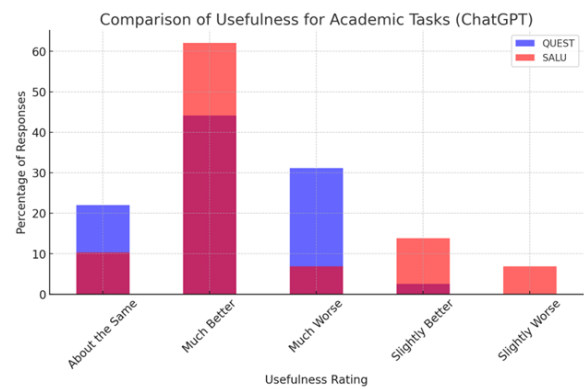Fig. 3: Institutional Comparison Graphs (Satisfaction Level)

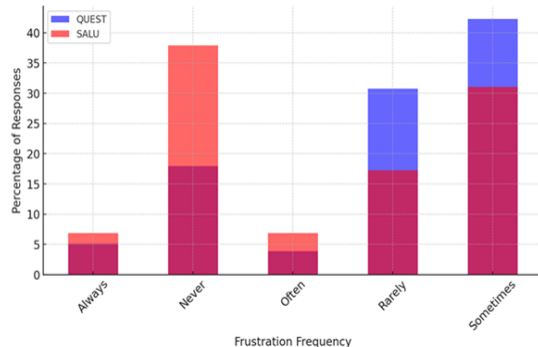Fig. 5: Institutional Comparison Graphs (Usefulness Rating)

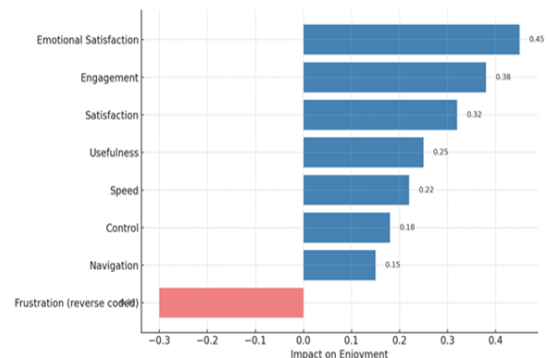Fig. 4: Institutional Comparison Graphs (Frustration Frequency)

Fig. 6: Regression Analysis on the Factors Affecting ChatGPT Enjoyment

- Frustration, which is reverse-coded, has a strong negative effect (− 0.30), indicating that higher frustration significantly reduces the outcome.

Overall, emotional and experiential factors play a key role in shaping user outcomes, with frustration being a critical negative influence shown in Figure 6.

4.4 Sentiment Analysis of Users' Responses

- **Positive Sentiment (53.7%):** Most users appreciate ChatGPT for its fast, accurate, human-like responses, user-friendliness, and usefulness across research, creative tasks, and content generation.
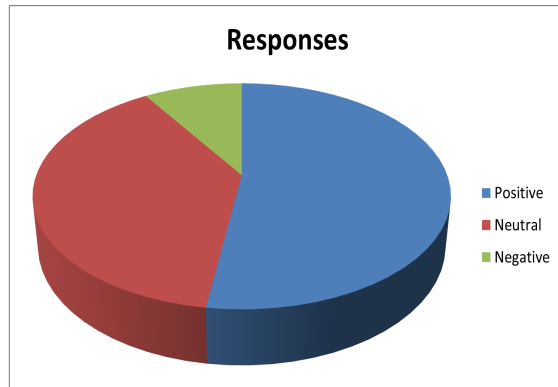
Fig. 7: Sentiment Analysis of Users' Responses about ChatGPT

- **Neutral Sentiment (39.7%):** Some users provided generic, non-emotional feedback such as OK, Same features, or simply Don't know.
- **Negative Sentiment (6.6%):** A small portion of users expressed dissatisfaction, mentioning that other tools like DeepSeek are better or criticizing ChatGPT for limited updates or missing diagrams, depicted in Figure 7.

5 Discussion and Future Directions

The findings align with the HCI by the fact that results support Norman's usability model, showing strong behavioral usability, weaker reflective usability, which affects trust and reliability. Frustration tolerance in AI usability is proven as the users tolerate minor usability issues as long as academic usefulness remains high. Suggested future enhancements are as follows:

- Personalization features for adaptive engagement.
- Improved context awareness to reduce inaccuracies.
- Direct integration with Learning Management Systems (LMS)

The following are a few suggested future research expansions.

- Comparing ChatGPT with other AI educational tools.
- Conducting longitudinal studies to track evolving user perceptions.
- Exploring AI-assisted adaptive learning models.

5.1 Outliers Based on Statistical Averages

- Variability in Usefulness for Academic/Research Tasks (20 outliers):
  Possible Issue: Some students find ChatGPT highly useful, while others find it lacking.
  Improvements: Provide guidelines or tutorials

on effectively using ChatGPT for academic and research purposes. Consider integrating external datasets or citations to improve reliability.
- Inconsistencies in Ease of Use Compared to Other AI Tools (16 outliers):
  Possible Issue: Some users find it much easier to use than others, indicating a mixed experience.
  Improvement: Conduct a usability study to identify pain points in the interface. Simplify the onboarding process with interactive walkthroughs or FAQs.
- Mixed Reactions to Speed of Response Compared to Other AI Tools (15 outliers):
  Possible Issue: Users might be experiencing slow responses during peak times, or their expectations of instant responses vary.
  Improvement: Communicate expected response times based on server load or introduce a progress indicator to set user expectations.
- Diverging Opinions on Enjoyability (12 outliers):
  Possible Issue: Some users may find it engaging and fun, while others may find it frustrating or too mechanical.
  Improvement: Introduce personalization features (e.g., adjustable response styles, humor level, or interactive elements) to improve engagement.
- Difficulties in Ease of Navigation (7 outliers):
  Possible Issue: Some users struggle to find features or understand how to use advanced functionalities.
  Improvement: Improve menu clarity, add tooltips, or provide a search function to help users navigate more efficiently.

Outliers are discussed in Figure 8.

5.2 Correlation Analysis Summary

5.2.1 Key Findings

- Ease of Use Compared to Other AI Tools and Accuracy of Responses: Strong Positive Correlation (0.53).
  - Users who find ChatGPT easier to use also tend to rate its accuracy higher.
- Ease of Use Compared to Other AI Tools and Usefulness for Academic/Research Tasks: Moderate Positive Correlation (0.52)
  - If users find ChatGPT easier to use, they are also more likely to see it as useful for academic purposes.
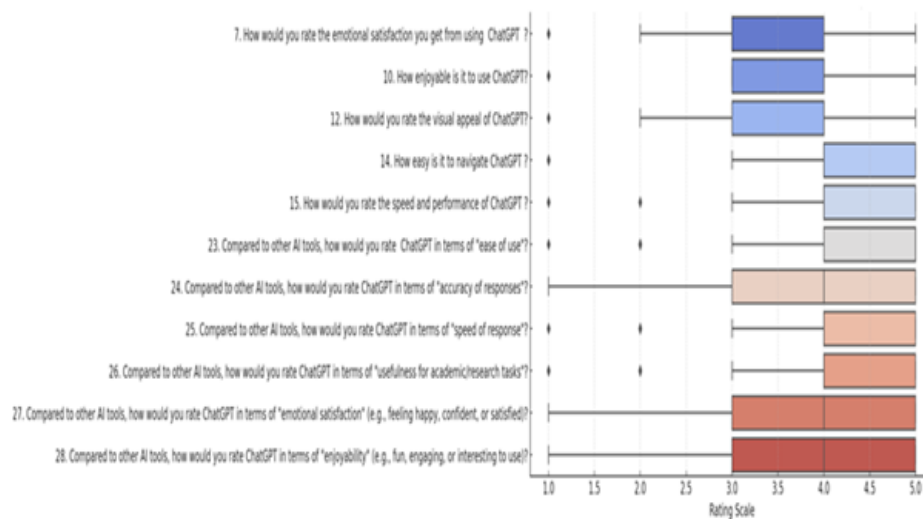- Accuracy of Responses and Usefulness for Academic/Research Tasks: Moderate Positive Correlation (0.52).

Fig. 8: The outliers based on statistical averages

- Users who rate ChatGPT as more accurate also find it more useful for research tasks.

5.2.2 Interpretation and Recommendations

- Enhancing Perceived Ease of Use may indirectly boost perceived accuracy and usefulness.
- Improving Accuracy (e.g., citations, better factual grounding) can enhance its role in academic tasks.
- More user education or UI improvements could strengthen these positive perceptions further.

5.2.3 Graphical Representation Details

1) Correlation Heatmap:
   The heatmap visualizes the strength and direction of relationships between different survey factors, as shown in Figure 9.
   - Color Interpretation:
     - Red shades (positive correlation): Factors that tend to increase together (e.g., ease of use and usefulness for research).
     - Blue shades (negative correlation): If one factor increases, the other decreases (none were strongly negative in this case).
     - White areas: Little to no correlation between the factors.
   - Observations from the Heatmap:
     - The most noticeable clusters of strong positive correlation are between Ease of Use, Accuracy, and Usefulness for Research Tasks.

2) Impact of Correlations on User Experience and Satisfaction
   The identified correlations, suggested by key drivers of user experience with ChatGPT, are given below:
   - Ease of Use: Accuracy of Responses (r = 0.53, Moderate Positive)
     - Impact on User Experience:
       * Users who find ChatGPT easy to use are more likely to rate its responses as accurate.
       * If the UI is complex, users may struggle to understand outputs, leading to lower perceived accuracy, even if responses are factually correct.
   - Accuracy: Usefulness for Research (r = 0.52, Moderate Positive)
     - Impact on User Experience:
       * If users believe ChatGPT provides accurate responses, they trust it more for academic and research tasks.
       * Misinformation or hallucinated responses reduce its perceived academic value.

One emerging area of focus is ethical AI usage in education. While ChatGPT enhances productivity, there is an ongoing debate about its impact on academic integrity. Institutions must develop policies that encourage responsible AI use while preventing plagiarism and over-reliance on generated content. Additionally, integrating ChatGPT with assistive tech-
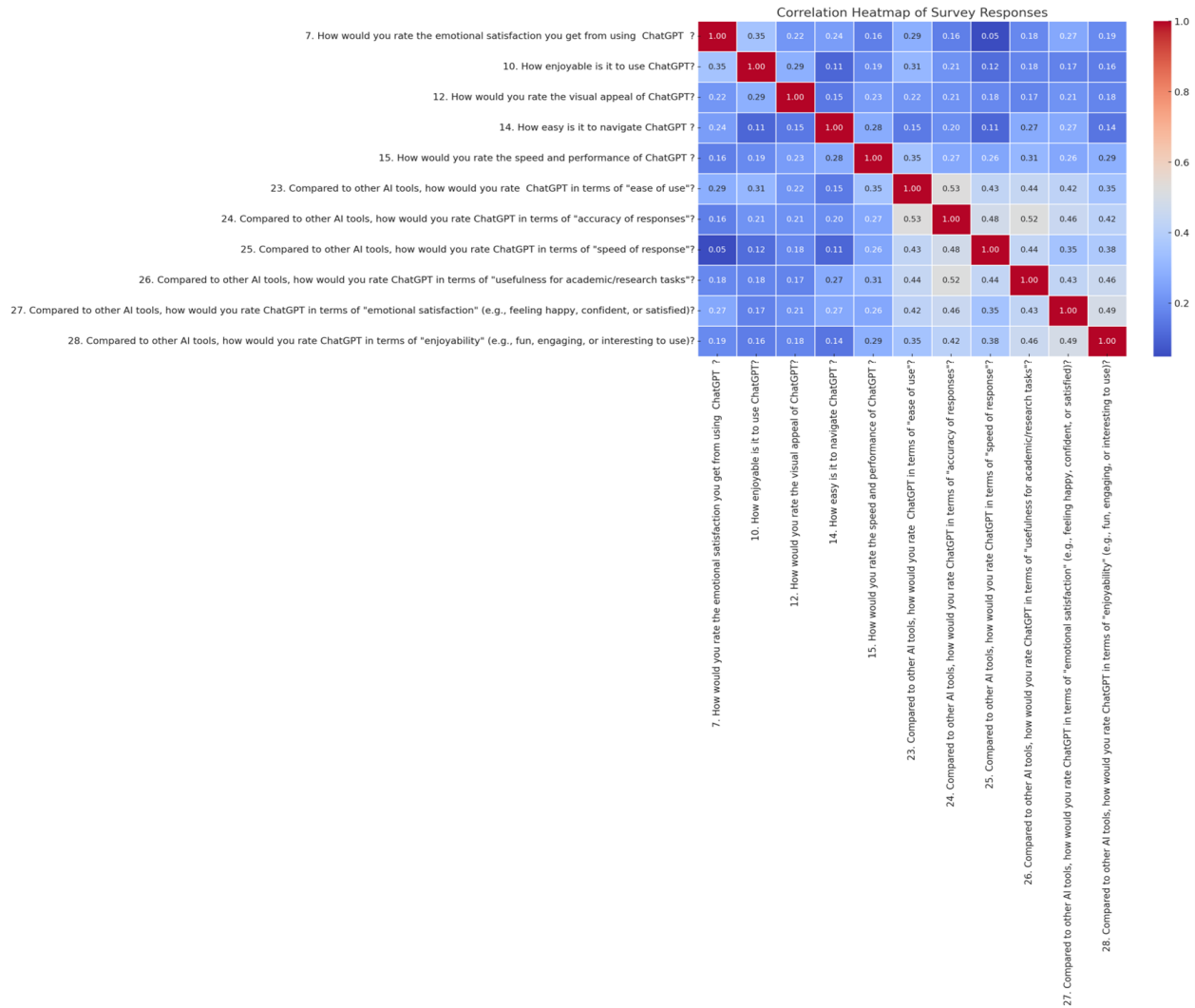
Fig. 9: Correlation Heatmap

nologies could enhance accessibility for students with disabilities, making education more inclusive. Future research should assess how AI can be fine-tuned to cater to students with different learning needs.

6 Conclusion

The main contribution of the study is that it provides empirical insights into ChatGPT's emotional and hedonic usability, offering recommendations for AI-driven educational tools. The long-term goal of improving ChatGPT's usability is to create a more engaging, personalized, and effective AI-assisted learning experience for students across diverse academic contexts. As AI-driven education tools continue to evolve, their usability must be regularly reassessed to keep pace with changing user expectations and technological advancements. This study lays the groundwork for future usability research, highlighting the necessity of balancing AI efficiency with emotional and ethical considerations. The future of AI in education lies in its ability to enhance human intelligence rather than replace it, ensuring students develop critical thinking and problem-solving skills alongside AI assistance.

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