

Response Repetition in AI Chatbots And Its Effect on User Annoyance and Trust: A Survey of College Students

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Abstract—AI chatbots have become an important part of students' everyday lives. However, users may experience frustration when chatbots provide similar or repeated responses to repeated questions. This study investigates the association between repeated responses from AI chatbots, user annoyance, and trust among college students. A structured online survey was conducted with 26 college students using rating-scale questions ranging from 1 to 10 and multiple-choice questions. The results showed that the mean annoyance score was 5.81 (SD = 3.35), while the mean trust score was 5.12 (SD = 3.05), indicating moderate levels of annoyance and trust among the participants. An independent-samples Welch t-test showed no statistically significant difference in annoyance between respondents who experienced repeated responses "almost every time" ($n = 8$, $M = 4.63$) and those who experienced them "sometimes or rarely" ($n = 16$, $M = 6.50$), $t = -1.32$, $p = 0.21$. Furthermore, correlation analysis showed no statistically significant association between annoyance and trust ($r = 0.12$, $p = 0.55$). These findings suggest that, within this sample, response repetition was not significantly associated with differences in annoyance, while annoyance and trust also showed no significant relationship.

Index Terms—AI chatbots, college students, response repetition, trust, user annoyance.

I. INTRODUCTION

AI chatbots like ChatGPT and Google Gemini have integrated into the routines of students. They employ these bots to study, write, and respond to day-to-day queries. In case of an unsatisfactory answer, the user asks the same question repeatedly or rephrases it in an attempt to get a better response. On occasion, the chatbot offers the user an almost identical answer, which may lead to frustration and doubts about the system.

The key factor that drives the continued use of the technology by its consumers is their trust. While

previous studies focused on the accuracy and utility of chatbot responses, few paid attentions to users' feelings in case of repetitions. This study aims to investigate that aspect in the context of college students.

A. Objectives

General objective: To investigate the correlation between repeated AI chatbot responses, user annoyance, and user trust in college students.

Specific objectives:

- 1) To calculate the mean annoyance experienced by students in response to repetitions of AI chatbot answers.
- 2) To measure the trust in AI chatbots demonstrated by students.
- 3) To compare the level of annoyance between students experiencing repetitions often and rarely.
- 4) To analyze the relation between annoyance and trust.
- 5) To determine whether students will continue using AI chatbots despite repetitions.

B. Hypotheses

H₀: There is no difference in mean annoyance between students experiencing repetitions often and rarely. H₁: There is a difference in mean annoyance between the two groups.

II. PROBLEM STATEMENT

The reason why users rephrase or even repeat the same question to the AI chatbot is that they are looking for some other answer. The repetition of the same response can make them believe that the chatbot is not listening to them or developing. The vast majority of scientific studies about AI chatbots focus on the accuracy and

usefulness of their work, but very few studies investigate users' attitudes toward the repetitive nature of responses. Therefore, the effect of receiving the same answer again is not known: does it irritate the users or decrease their trust in the application?

III. MATERIALS AND METHODS

A. Research design

The study adopted a quantitative survey design. Survey questions concerned student experience of interactions with chatbots. Relationships between the student responses were investigated without manipulating their chatbot experiences.

B. Participants and sampling

The survey comprised 26 college students. Convenience sampling was used, with respondents recruited through classmates and friends. Consequently, the sample is representative of the participating students rather than all college students.

C. Data collection

Data were collected using an online survey with structured questionnaire. It covered questions about chatbot usage, repeating a question, frequency of repetition, annoyance, trust, and chatbot continuation. Annoyance and trust were measured by rating scales from 1 to 10. The remaining questions had multiple choice response options.

D. Repetition Groups formation

For the comparison of annoyance, respondents were grouped in the following way:

- High-repetition group: Eight students reported getting repeated answers “almost every time”.
- Lower-repetition group: Sixteen students reported repeated answers “sometimes or rarely”.

Two respondents were excluded from either of the two groups above. In result, group comparison included 24 students.

E. Statistical analysis

R language was used for analysis and summary of data. Frequencies and percentages were provided to describe chatbot usage. Means and standard deviations were used to summarize annoyance and trust. Welch independent samples t-test was conducted to compare annoyance between two repetition groups.

Correlation analysis was performed to assess relationship between annoyance and trust. Furthermore, ANOVA was applied across different chatbot usage groups and 95% confidence interval for mean annoyance.

IV. LITERATURE REVIEW

The rise in usage of AI chatbots in customer service has seen research on the impact of various elements such as trust, anthropomorphism, quality of response, social presence, and reliability. The below-stated studies lay the groundwork for understanding how people engage with AI chatbots.

A. Creating Trust in Users of AI Chatbots

The authors Wang et al [1]. conducted a research study aimed at exploring how human-like characteristics and reliability shape users' perception of trust in AI chatbots used in customer services. The researchers used semi-structured interviews involving 28 respondents from Pakistan and China and then conducted content analysis of the results. The results revealed that there are two main types of trust: affective and cognitive. Emotional trust is created through human-like interaction, empathy, personalization, and social presence, while cognitive trust is based on accuracy, transparency, responsiveness, data security, and competence of the system.

B. Evaluation of Repetition of Tasks by AI Chat Models

"Evaluation of the Effects of Repetitive Task Execution on Performance and Learning in Various AI Chat Models" is an experiment that studies how AI chat models react to execution of similar tasks. Such aspects as response accuracy, consistency, variability, contextuality, and adaptability are taken into account. Inconsistencies and problems such as response degradation and response stagnation, which are associated with repetition of similar tasks leading to repetitive or irrelevant responses, are highlighted. Specifically, the authors point out the problems associated with repetitive customer service-related questions that may cause difficulties for chatbots.

C. Social Presence and Mistakes by Chatbots

The research “The Effect of Social Presence and Chatbot Errors on Trust” examines the association

among anthropomorphic design cues, social presence, perceived competence, chatbot mistakes, and trust. The study suggests that there are human traits within designs that help in creating social presence and perceived competence, which are crucial elements in the process of building up trust. Additionally, a significant correlation was noted between perceived competence and trust. However, chatbot mistakes do not seem to affect trust relationships the same way always.

D. Overall Research Gap

As evident from the literature review, trust, communication mode, social presence, reliability, and consistency in responses are critical variables that should be considered in AI chatbot interactions. Previous research on these variables has looked at them separately or studied them in a certain experimental setting. There is room left for researching these variables simultaneously in actual chatbot settings. In particular, the influence of human-like communication, repeated interactions, high-quality responses, mistakes, and reliability perception can be explored.

V. RESULTS AND DISCUSSION

A. AI Chatbot Usage

Out of the 26 respondents, 14 students reported using AI chatbots daily, 11 students reported using chatbots a few times a week, and 1 student reported rarely using chatbots. The results show that most respondents had regular experience with AI chatbots.

TABLE I. AI CHATBOT USAGE FREQUENCY

AI Chatbot Usage Frequency	Number of Respondents	Percentage
Daily	14	53.85%
A few times a week	11	42.31%
Rarely	1	3.85%
Total	26	100%

Table I presents the frequency of AI chatbot usage among the 26 respondents. More than half of the participants (53.85%) reported using AI chatbots daily, while 42.31% used them a few times a week and 3.85% reported rarely using them.

B. Pie Chart of AI Chatbot Usage Frequency

A pie chart was created to represent the frequency of AI chatbot usage among the 26 respondents. The results were approximately: Daily – 53.85% A few times a week – 42.31% Rarely – 3.85% The pie chart indicates that more than half of the respondents tend to use AI chatbots daily, while a significant portion of the sample uses chatbots a few times a week. Only a small percentage of the respondents use AI chatbots rarely, and only one participant reported rarely using AI chatbots.

Therefore, it can be concluded that most of the participants are frequently using AI chatbots.

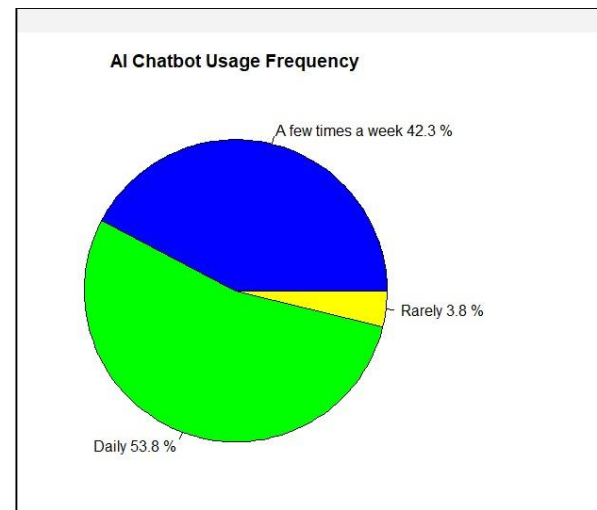


Fig. 2. AI chatbot usage frequency

C. Comparison of Annoyance Between Repetition Groups

To compare the levels of annoyance, participants were divided into two categories. Students who reported getting repeated answers "almost every time" were put in one group, and students who reported getting repeated answers "sometimes" or "rarely" were put in the second group.

The mean annoyance score in the first group was 4.625, while the mean annoyance score in the second group was 6.500.

A Welch two-sample t-test yielded:

- 1) $t = -1.3207$
- 2) $df = 13.439$
- 3) $p = 0.2087$
- 4) 95% confidence interval = -4.93 to 1.18

TABLE II. ANNOYANCE SCORES BY RESPONSE REPETITION GROUP

Repetition Group	Sample Size (n)	Mean Annoyance	Statistical Test
Almost every time	8	4.625	Welch t-test
Sometimes or rarely	16	6.500	Welch t-test

Table II shows that the mean annoyance score was 4.625 among respondents who experienced repeated answers almost every time, compared with 6.500 among those who experienced repetition sometimes or rarely.

The Welch independent samples t-test indicated that this difference was not statistically significant ($t = -1.3207$, $df = 13.439$, $p = 0.2087$).

TABLE III. WELCH TWO-SAMPLE T-TEST RESULTS

Statistic	Value
t-value	-1.3207
Degrees of freedom	13.439
p-value	0.2087
95% CI	-4.93 to 1.18

Since the p-value of 0.2087 is greater than 0.05, the difference in average annoyance between the repetition groups was not statistically significant. Hence, the null hypothesis was not rejected.

The study failed to find enough evidence to conclude that students who experience repetitions more often have a different average annoyance level than students who experience repetitions less often.

D. Relationship Between Annoyance and Trust

The mean annoyance score among the 26 respondents was 5.81 (SD = 3.35), while the mean trust score was 5.12 (SD = 3.05).

A correlation analysis was performed to examine the relationship between annoyance and trust.

TABLE IV. DESCRIPTIVE STATISTICS OF ANNOYANCE AND TRUST

Variable	N	Mean	Standard Deviation
Annoyance	26	5.81	3.35
Trust	26	5.12	3.05

TABLE V. CORRELATION BETWEEN ANNOYANCE AND TRUST

Variables	Correlation (r)	p-value	Interpretation
Annoyance vs. Trust	0.12	0.55	Not statistically significant

The correlation analysis showed a weak positive relationship between annoyance and trust ($r = 0.12$); however, the relationship was not statistically significant ($p = 0.55$).

E. Box Plot of Annoyance by Repetition Group

A box plot was produced for the purpose of comparing the annoyance ratings of the two groups. The figure presents the annoyance levels of the two groups in graphical form.

While it appears to be quite clear that there is a difference between the two distributions, the t-test found no significance in the difference.

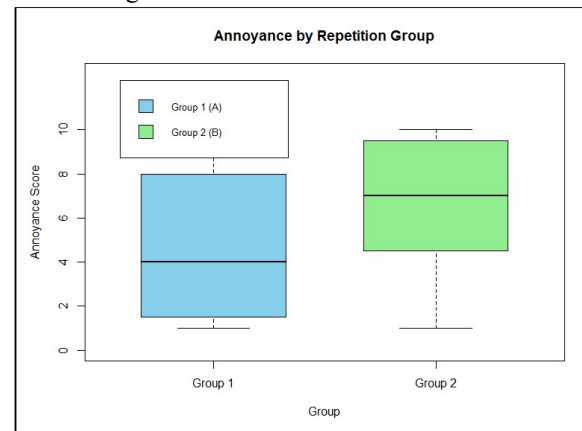


Fig. 4. Annoyance by repetition group

F. ANOVA: Annoyance According to Frequency of AI Chatbot Use

An Analysis of Variance (ANOVA) was conducted in order to see if there were any differences in terms of annoyance depending on the frequency of using AI chatbots.

ANOVA results were: $F(2, 23) = 0.497$, $p = 0.615$

As $p = 0.615 > 0.05$, there was no significant difference in annoyance for the daily use of AI chatbots, a few times per week, and rarely.

It can be said that the frequency of using chatbots in general was not associated with annoyance in this sample.

TABLE VI. ANOVA RESULTS FOR ANNOYANCE BY AI CHATBOT USAGE FREQUENCY

Source	df	F-value	p-value
AI chatbot usage frequency	2	0.497	0.615
Residuals	23	—	—

VI. CONCLUSION

The aim of this study is to explore the issue of response repetition in AI chatbots and how it correlates with the level of users' annoyance and trust among college students. In total, 26 students participated in the survey.

It has been revealed that the majority of participants use AI chatbots quite often. The mean annoyance level has turned out to be about 5.81, while the mean level of trust is about 5.12.

The Welch Two Sample t-test does not reveal any statistically significant differences in annoyance levels between frequent and infrequent respondents who experience response repetitions. At the same time, the ANOVA test also fails to reveal any statistically significant differences in annoyance levels in relation to chatbot frequency.

VII. LIMITATION

There are certain limitations of this study. Firstly, the sample size of 26 college students was rather small. Secondly, the data was obtained using convenience sampling, and thus, the findings cannot be generalized for the whole population of college students.

Furthermore, the data was obtained based on self-reports of the subjects about their chatbot usage, annoyance, and trust rather than observation of their interaction with the AI chatbot.

Moreover, the repetition groups were not equal in size: there were 8 respondents in the high repetition group and 16 respondents in the lower repetition group; two participants were removed from the latter group.

VIII. FUTURE SCOPE

In future research, a large number of students from various colleges and with different educational backgrounds can be included for gaining more accurate results.

The actual conversations between students and AI chatbots can be studied rather than using only survey data. In controlled experiments, students can be exposed to repeated and varied responses from chatbots, which would allow measuring directly the effects on their levels of annoyance and trust.

Future research can also compare AI chatbots of various platforms like ChatGPT and Google Gemini to see if repetition in their responses varies among the platforms. Interviews can also be used to gain insight into why some people get annoyed with repetitions in their responses and keep trusting AI chatbots.

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