

사용자 특성과 ChatGPT 신뢰의 관계 : 인구통계학적 변수와 AI 경험의 영향*

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User Factors and Trust in ChatGPT: Investigating the Relationship between Demographic Variables, Experience with AI Systems, and Trust in ChatGPT

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〈Abstract〉

This study explores the relationship between various user factors and the level of trust in ChatGPT, a sophisticated language model exhibiting human-like capabilities. Specifically, we considered demographic characteristics such as age, education, gender, and major, along with factors related to previous AI experience, including duration, frequency, proficiency, perception, and familiarity. Through a survey of 140 participants, comprising 71 females and 69 males, we collected and analyzed the data to see how these user factors have a relationship with trust in ChatGPT. Both descriptive and inferential statistical methods, encompassing multiple linear regression models, were employed in our analysis. Our findings reveal significant relationships between user factors such as gender, the perception of prior AI interactions, self-evaluated proficiency, and Trust in ChatGPT. This research not only enhances our understanding of trust in artificial intelligence but also offers valuable insights for AI developers and practitioners in the field.

Key Words : ChatGPT, User Factors, Trust in AI, Demographic Characteristics, AI Experience

1. Introduction

Artificial intelligence (AI), particularly chatbots and language models, has made significant inroads into various sectors. Among these technologies, ChatGPT-3.5 by OpenAI has carved a niche for itself, amassing over a million users shortly after its

release [1]. Yet, despite its capabilities, concerns have been raised about its reliability, and its potential for disseminating misinformation.

The growing prevalence of AI like ChatGPT-3.5 underscores the critical importance of understanding the trust users place in such systems. AI systems, such as ChatGPT, are purposefully designed to enhance human capabilities and workflows. The level of trust that users have in these collaborative endeavors directly influences

* 이 논문은 연세대학교의 연세미래선도연구사업 (2023-22-0085) 지원에 의하여 연구되었음

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their successful integration across various tasks and industries. To elaborate further, trust determines AI's societal impact, acceptance, and the effectiveness of human-machine interactions [2].

Prior research also supports the notion that trust is the cornerstone for establishing harmonious partnerships between humans and AI. It has delved into uncovering a connection between trust in AI and a range of factors, including system attributes like reliability and transparency, as well as user-specific factors such as demographic background and prior AI experiences [2-4].

Unlike many previous studies that have primarily focused on limited user factors, such as age or education, our research examines a broader range of user factors. We consider demographic characteristics like age, education, gender, and major, as well as more nuanced aspects of previous AI experiences, including duration, frequency, proficiency, perception, and familiarity. This comprehensive approach allows us to provide a more holistic understanding of the factors influencing trust in ChatGPT. In addition, we employ both descriptive and inferential statistical methods, including multiple linear regression models. This methodological diversity enables us to not only describe relationships but also assess the statistical significance of these relationships. As a result, our findings provide a more robust and nuanced understanding of how user factors relate to trust in ChatGPT. Specifically, this research aims to determine following two things:

- 1) How demographic factors, including age, gender, and education, influence trust users place in the system.

- 2) How a user's previous encounters with AI, considering aspects like duration, frequency, and proficiency, shape their trust in ChatGPT.

By delving into these aspects, we aim to not only enhance the theoretical comprehension of trust but also provide valuable practical insights for AI developers and practitioners. Through the identification of significant relationships between user factors and trust in ChatGPT, our research seeks to offer actionable guidance for enhancing AI system design, improving user experience, and fostering user trust in real-world applications, maximizing its utility.

II. Theoretical Backgrounds

2.1 Importance of Trust in AI systems

Trust, a multifaceted concept, holds varying meanings across diverse contexts [5]. Within AI, it pertains to a user's belief in a system's reliability, competence, and safety, centering on elements like predictability, dependability, and transparency [6]. It's pivotal to differentiate trust in the AI system from trust in its developers or affiliated organizations; the focus is on user perceptions of the system itself [7].

The role of trust is paramount for AI adoption and persistent usage [8]. Positive trust can bolster user interaction with AI, whereas its absence may deter its use, despite potential benefits [9]. This becomes even more pronounced for AI platforms such as ChatGPT, which rely on advanced natural language processing. Here, trust is tethered to

system understanding, appropriate response generation, and user privacy assurance [10,11]. Especially in decision-making scenarios, trust in AI's recommendations being accurate and unbiased is vital [12].

The significance of cultivating trust lies in three domains: it facilitates AI integration into daily life, ensuring maximum utility [13]; promotes user satisfaction, fostering continued use and positive referrals [14]; and it can mitigate concerns about AI-associated risks and ethical dilemmas [13].

In essence, trust is indispensable for AI systems like ChatGPT. Grasping how various user factors impact trust is fundamental for crafting user-centric AI systems, leading to elevated trust and technology adoption [15].

2.2 Impact of demographic factors and prior AI experience on Trust in AI systems

Trust in AI systems is multifaceted and shaped by various individual backgrounds and characteristics. The rationale for examining disparities in the trustworthiness of technologies like ChatGPT from a demographic standpoint can be summarized as follows: Acceptance of ChatGPT is significantly influenced by an individual's level of digital literacy, as indicated by the findings of Kim Hyo-Jung [16]. Furthermore, numerous prior research underscores the substantial roles that age, gender and educational background play in shaping this digital literacy [17-20,22].

Age is a significant determinant, with younger individuals often displaying a more profound trust in AI compared to older age groups [19]. This

difference can be traced back to older adults' limited technological exposure, which hampers their ability to embrace and understand novel technologies [20]. However, as older adults become more familiar with AI's potential, their trust may see an uptick [21].

Education further nuances trust dynamics. Those with higher educational backgrounds tend to possess a deeper understanding of AI, which can foster increased trust [18,22-23]. Importantly, the specific domain of AI application plays a role in moderating this relationship, as Kizilcec [24] highlighted.

Gender disparities further complicate the landscape. Men have consistently demonstrated higher trust levels in AI systems compared to women [18]. Such discrepancies could be rooted in differences in technical knowledge or varying degrees of AI familiarity. Furthermore, women's pronounced concerns related to security and privacy provide additional depth to this gendered trust divergence [20].

The interface between users and AI isn't merely shaped by demographic variables; prior experiences play a critical role in molding trust perceptions. A user's history with AI, encompassing aspects like familiarity, frequency of use, and emotional associations, can make or break their trust in these systems [7,25].

Familiarity emerges as a salient factor. As users accrue experience with AI systems, their burgeoning familiarity typically correlates with enhanced trust [6,26]. This deepened understanding enables users to recognize a system's potential and its limitations, bolstering trust [7]. Emotional residues from past AI

interactions also inform current trust levels. Positive prior interactions foster trust, whereas negative experiences can create barriers [27].

Furthermore, prior AI interactions set the stage for user expectations. When AI systems align with or surpass these expectations, trust flourishes [28,29]. On the other hand, falling short can erode trust and deter subsequent AI engagements [30]. Task-specific experiences further shape trust perceptions. Mastery in one AI domain can heighten trust when faced with analogous tasks, owing to clearer insights into system capabilities [30].

Lastly, the frequency of AI interactions plays a part. Regular engagements with AI foster a more profound understanding, comfort, and, consequently, trust [6,13]. This frequent exposure can also dispel concerns about the enigmatic "black box" nature of some AI systems, promoting a more robust trust foundation [31].

While the influence of demographic factors and previous experiences on user trust in AI systems is evident, there exists a research gap in discerning and measuring these variables' specific effects in trust formation concerning emergent AI technologies. For instance, the burgeoning field of Generative AI systems, owing to its nascent stage, has seen limited exploration regarding how demographic and experiential factors shape trust. This highlights a pertinent area for future research endeavors.

III. Methods and Study Design

3.1 Research Design

The aims of this research is to examine the relationship between user factors including demographic information and past AI experiences and how it can affect users' trust in ChatGPT. To achieve this, quantitative research design was employed. The methodology involves descriptive analysis using box plots to visualize the distributions of variables of interest and Spearman correlation test to quantify relationships of Predictor and primary outcome. To further investigate the research questions, inferential statistics such as t-test and ANOVA were employed to compare means across different groups. Moreover, multiple regression analyses were conducted to assess the impact of independent variables on user's trust in ChatGPT.

3.2 Sample

To ensure the robustness and representativeness of our sample in investigating the relationship between user factors and trust in ChatGPT, we began by establishing specific criteria for participant inclusion. Prospective participants were required to be at least 18 years old and possess prior experience with AI systems. This criterion was essential to ensure that our participants had a foundational understanding of AI technologies, aligning with our research objectives.

Our recruitment strategy involved engaging participants through a survey-oriented platform

renowned for its diverse user demographics. This approach aimed to encompass a wide spectrum of users with varying demographic backgrounds and levels of AI experience. To ensure gender balance within our sample, we thoughtfully recruited 69 males and 71 females. Furthermore, our recruitment strategy deliberately included participants with a broad range of educational achievements, spanning from high school degrees to bachelor's degrees, master's degrees, and advanced academic qualifications. This deliberate diversity allowed us to scrutinize the potential influence of educational attainment on trust in ChatGPT. A power analysis was conducted using G Power version 3.1.9.7 to determine minimum sample size and to achieve 80% power for detecting medium effect size at a significance level of $\alpha = .05$.

3.3 Measures

Data on user factors such as demographic background, prior experience with AI systems, and trust level in ChatGPT, were collected using an online survey. For Primary outcome, Trust was measured using an online survey in three dimensions: trust in system, trust in information and relative trust compared to other information sources. 'Trust in system' was assessed based on questions 6.1 to 6.10, following the "Checklist for Trust between People and Automation" [32]. 'Trust in information' was evaluated using questions 7.1 to 7.3, adapted from Thielshch and Hirschfeld's Credibility questionnaire [33]. We also included three custom questions to assess participants' perception of the credibility and confidence in

information provided by ChatGPT. The final aspect of the primary outcome involved participants rating their trust in ChatGPT compared to human experts, online forums, and traditional search engines ('Relative Trust').

<Table 1> Variables

Variable Type	Category	Variables
Primary outcome	Trust in ChatGPT	Trust in System
		Trust in Information
		Relative Trust
Predictor	Demographic Factor	Age
		Gender
		Education level
		Major
	Prior AI experience Factor	Duration of Prior AI usage
		Frequency of Prior AI usage
		Proficiency on Prior AI
		Overall Experience on Prior AI
		Familiarity with AI Knowledge
Controlling Variables	User Experience on ChatGPT	Duration of ChatGPT usage
		Frequency of ChatGPT usage
		Familiarity on ChatGPT
		Proficiency on ChatGPT
		Recently used ChatGPT Version

The survey also included questions about participants' ChatGPT experience, which were used as control variables to account for their potential influence on the relationship between the independent and dependent variables.

Construct validity was assessed by examining correlations among the three trust dimensions. We found strong correlations: 0.83 ($p < 0.001$) between trust in the system and trust in the provided information, 0.78 ($p < 0.001$) between trust in the system and relative trust, and 0.78 ($p < 0.001$)

between trust in the provided information and relative trust. This shows that we have satisfactory construct validity survey questions.

3.4 Data Analysis

To compute the scalar score variable for each of the three trust outcomes, we performed Principal

Component Analysis (PCA) on the relevant questions associated with each outcome. The first PCA score, which explained most of the data's variability, was adopted as the primary trust score variable for subsequent analysis.

We calculated descriptive statistics for the variables of interest, including trust in ChatGPT. This included measures of central tendency (mean,

<Table 2> Descriptive statistics of sample

Demographic Factor	Dataset (N=140)	Prior AI Experience Factor	Dataset (N=140)
Age(%)		Duration(%)	
18-24	35(25%)	new	10(7%)
25-34	48(34%)	<1week	22(16%)
35-44	26(19%)	<1month	25(18%)
45 or above	31(22%)	<6months	35(25%)
Gender(%)		<1year	23(16%)
Male	62(44%)	<2years	25(18%)
Female	78(56%)	Frequency of AI usage (%)	
Education level (%)		1 (Almost never use)	10(7%)
High school graduate	33(24%)	2	24(17%)
Associate degree	24(17%)	3	58(41%)
Bachelor's degree	72(51%)	4	34(24%)
Master's degree	11(8%)	5 (Almost use every day)	14(10%)
Major or Field of Study(%)		Proficiency (%)	
Engineering	34(24%)	1 (Not comfortable at all)	10(7%)
Business	11(8%)	2	21(15%)
Humanities	30(21%)	3	50(36%)
Social Sciences	14(10%)	4	42(30%)
Arts	14(10%)	5 (Very Comfortable)	17(12%)
Natural Sciences	11(8%)	General Experience (%)	
Medicine	3(2%)	1 (Very Positive)	3(2%)
Law	3(2%)	2	19(14%)
Other	20(14%)	3	49(35%)
		4	49(35%)
		5 (Very Negative)	20(14%)
		Familiarity with AI Concepts(%)	
		1 (Not familiar at all)	11(8%)
		2	33(24%)
		3	55(39%)
		4	31(22%)
		5 (Very familiar)	10(7%)

median) and dispersion (standard deviation, range). Box plots were used to visualize the characteristics and distribution of these variables, providing a comprehensive overview of the sample's demographics, AI system experiences, and trust levels in ChatGPT.

To investigate differences in trust in ChatGPT across demographic groups and levels of AI system experience, we conducted inferential statistical tests. Specifically, we used two-sample independent t-tests and one-way ANOVA to compare trust score means among different demographic and prior AI

experience groups. We employed t-tests for factors with two levels and ANOVA for factors with more than two levels.

Multiple linear regression analyses were performed to simultaneously examine the impact of demographic factors (age, gender, education level) on trust in ChatGPT. For each of the three trust outcomes (Trust in System, Trust in Information, Relative Trust), we regressed them on the demographic factors, while considering ChatGPT user experience variables as potential additional independent variables to control for their effects.

<Table 3> Multiple Linear Regression on Trust and Demographic Variables

Predictors	Primary Outcome					
	System Trust		Information Trust		Relative Trust	
	Estimate ¹ (SE ²)	p-value ³	Estimate (SE)	p-value	Estimate (SE)	p-value
Intercept	-1.31 (0.59)	0.029*	-1.34 (0.58)	0.021*	-1.09 (0.42)	0.010*
Demographic Variables						
Age > 34 (vs. Age <35)	-0.45 (0.44)	0.306	-0.18 (0.39)	0.645	-0.29 (0.28)	0.306
Male (vs. Female)	0.89 (0.43)	0.038*	0.42 (0.38)	0.270	0.59 (0.28)	0.036*
High School Degree or less (vs. High School Degree or more)	-0.31 (0.57)	0.591	-0.45 (0.50)	0.375	-0.27 (0.37)	0.461
Major STEM vs. Majors other than STEM	-0.39 (0.44)	0.366	0.10 (0.38)	0.788	-0.23 (0.28)	0.408
Controlling Variables						
Frequency of ChatGPT usage	0.48 (0.18)	0.009*	-	-	-	-
Proficiency of ChatGPT usage	-	-	0.42 (0.16)	0.009	0.35 (0.12)	0.003**

significant codes: ** < 0.05

- 1) estimated regression coefficient (Beta) for a predictor variable
- 2) Standard error of the regression coefficient estimate
- 3) p-value for testing the null hypothesis that the regression coefficient is equal to zero

For each model, a stepwise regression approach was employed to select the ChatGPT user experience variables that were highly associated with the outcome and achieve parsimony in modeling. Note that all of the demographic factors were forced in each model. Similar multiple linear regression analyses were conducted to simultaneously examine the impact of AI experience factors (duration of prior AI usage, frequency of prior AI usage, proficiency on prior AI, overall experience on prior AI, familiarity with AI knowledge) on each of the trust in ChatGPT outcomes. We used R version 4.2.2 for these analyses, with all tests being two-sided and a significance level of 0.05.

IV. Results

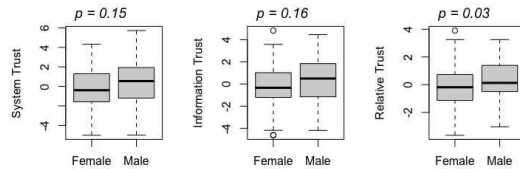
Boxplots were shown to illustrate the distribution of trust scores in ChatGPT users, categorized by several demographic and experience-related dimensions. These dimensions include Gender Groups, Frequency of AI usage, Proficiency of AI usage, Perception of AI usage, and Familiarity with AI Knowledge.

The primary objective of these boxplots is to visually represent the variations in trust levels among different demographic groups and levels of experience with AI systems. To assess the statistical significance of these differences, independent t-test were employed to compare the means of trust scores between different gender groups. Correlation tests were used to assess the relationship between trust in ChatGPT and the various factors related to

prior AI experience including Frequency of AI usage, Proficiency of AI usage, Perception of AI usage, and Familiarity with AI knowledge.

4.1 Demographic Predictors

The results indicated that, on average, male participants had higher mean trust scores across all three sub-categories compared to female participants. Especially, the t-test result revealed that the difference, male having higher trust scores in ChatGPT than females in terms of relative trust, was significant with a p-value of 0.03. This indicates that there is a statistically significant difference in relative trust scores between males and females.



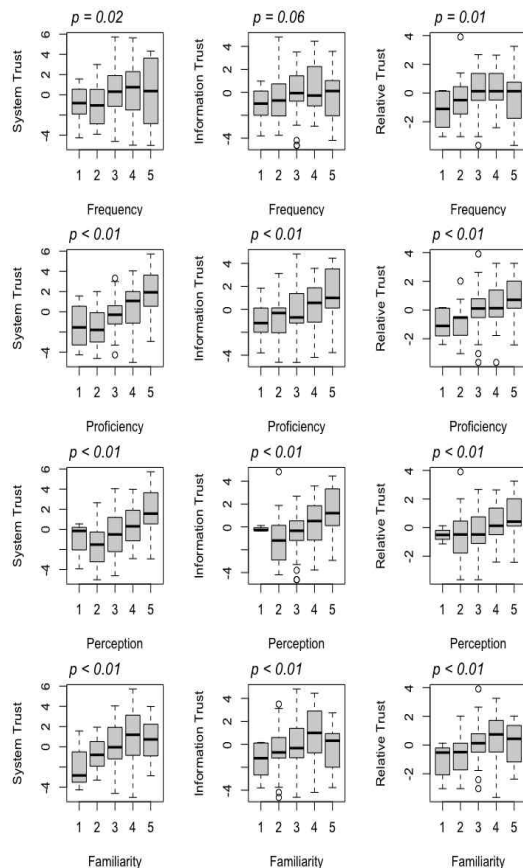
<Figure 1> Boxplot of Gender vs. Trust in ChatGPT

4.2 Prior AI Experience Predictors

While the majority of participants reported a moderate frequency of AI usage, participants who indicated somewhat frequent AI usage had the highest mean trust scores across all dimensions, surpassing those who reported using AI almost every day. Moreover, the Spearman correlation analysis revealed that the variations in trust scores across the different frequency groups were statistically significant, particularly for the aspects of system trust and relative trust. Information trust

was also observed to be somewhat significant, as indicated by a p-value less than 0.1.

Higher proficiency in AI usage positively associated with increased mean trust scores. The box plots consistently showed that higher levels of AI proficiency were linked to increased trust in ChatGPT across all trust categories. Furthermore, a correlation analysis revealed the relationship between the frequency of AI usage and the level of trust in ChatGPT was significant by p-values less than 0.01.



<Figure2> Boxplot of AI experience vs. Trust in ChatGPT

Participants who reported more positive experiences with AI tended to have higher trust scores across all three dimensions. Box plots further bolstered this positive linear trend, demonstrating that increased positive AI experiences corresponded with higher levels of trust in ChatGPT. Moreover, the results from the Spearman correlation analysis provided strong statistical evidence confirming the significant relationship between AI experiences and trust scores, as indicated by p-values less than 0.01.

Interestingly, a distinctive trend appeared when participants reported being "very familiar" with AI concepts. Such participants showed slightly lower trust scores across all three dimensions in comparison to participants who reported being less familiar by one unit. The box plots further confirmed this observed pattern, showcasing visible correlations between levels of familiarity with AI and the corresponding trust scores. In addition, the Spearman correlation analysis showed that these differences in trust scores were statistically significant, as indicated by p-values less than 0.01.

4.3 Regression of Trust on Demographic Predictors

In relation to the demographic independent variables in the models, we found gender difference significantly associate with trust outcome. To illustrate, the male gender showed 0.89 higher expected system trust scores ($p = 0.038$) and 0.59 higher relative trust scores ($p=0.036$) than females respectively. This suggests that males tend to have higher levels of System Trust and relative trust compared to females.

<Table 4> Multiple Linear Regression on Trust and AI Experience Variables

Predictors	Primary Outcome					
	System Trust		Information Trust		Relative Trust	
	Estimate ¹ (SE ²)	p-value ³	Estimate (SE)	p-value	Estimate (SE)	p-value
Intercept	-4.28 (1.03)	< 0.001*	-2.47 (0.83)	0.004 **	-1.92 (0.75)	0.011*
Prior AI Experience Factor						
AI usage Duration (vs. never)						
< 1 week	-0.27 (0.80)	0.739	0.00 (0.74)	0.997	-0.29 (0.63)	0.643
< 1 month	-0.72 (0.79)	0.365	-1.17 (0.73)	0.111	-0.22 (0.62)	0.726
< 6 month	-0.48 (0.75)	0.526	-0.46 (0.69)	0.508	0.12 (0.61)	0.84
< 1 year	0.43 (0.78)	0.587	0.09 (0.72)	0.899	0.98 (0.63)	0.122
< 2 year	-1.15 (0.83)	0.167	-1.00 (0.77)	0.193	-0.10 (0.65)	0.880
Frequency	-0.35 (0.22)	0.115	-0.20 (0.20)	0.325	-0.10 (0.15)	0.504
Proficiency	0.63 (0.24)	0.009*	0.49 (0.22)	0.027*	0.38 (0.16)	0.020*
Perception	0.67 (0.22)	0.003*	0.41 (0.21)	0.046*	0.15 (0.15)	0.327
Familiarity	0.28 (0.21)	0.193	0.07 (0.20)	0.722	0.11 (0.15)	0.471
Controlling Variables						
Chat GPT version 3.5	0.80 (0.42)	0.060	0.76 (0.39)	0.050	0.70 (0.30)	0.023*
Chat GPT version 4	0.52 (0.49)	0.291	0.08 (0.45)	0.853	0.25 (0.35)	0.481
ChatGPT usage Duration						
new	-	-	-	-	-0.12 (0.44)	0.782
< 1 week	-	-	-	-	-0.28 (0.36)	0.435
< 6 month	-	-	-	-	-0.71 (0.33)	0.031*
< 1 year	-	-	-	-	-0.58 (0.58)	0.324
< 2 year	-	-	-	-	0.46 (0.62)	0.454

significant codes: ** < 0.05

1) estimated regression coefficient (Beta) for a predictor variable

2) Standard error of the regression coefficient estimate

3) p-value for testing the null hypothesis that the regression coefficient is equal to zero

To be more specific about findings, being male and having a higher frequency of ChatGPT usage are factors linked with higher levels of System Trust. Simultaneously, being male and exhibiting higher proficiency in using ChatGPT are associated with higher levels of relative trust.

4.4 Regression of Trust on AI Experience Predictors

Upon examining the AI Experience Predictors, the Proficiency and Perception of AI experience showed statistically significant associations with System Trust. Individuals who depicted a unit score higher in proficiency resulted in 0.63 higher system trust ($p = 0.009$), 0.49 higher information trust ($p=0.027$) and 0.38 relative trust ($p=0.020$). Positive Perception of past AI experience were also positively associated with System Trust ($p=0.003$) and information trust ($p = 0.046$).

In terms of control variables, using ChatGPT version 3.5 was observed to be significant in the models for information trust and relative trust. Furthermore, in the relative trust model, the 'less than 6 months of ChatGPT usage' variable was identified as a notable confounding factor.

In conclusion, the findings indicate that factors related to AI experience, such as higher proficiency and better experience with prior ai services has positive association with both system and information trust. Furthermore, higher proficiency with previous AI systems was also discovered to have a significant effect on relative trust.

V . Discussion and Conclusion

5.1 Discussion

The purpose of this study was to investigate the relationship between user variables, including demographic attributes and AI experience, and their corresponding levels of trust. We employed descriptive statistics and inferential statistics to compare whether the differences in the groups were significant. Then we applied multiple linear regression model to examine the extent to which these user factors contribute to changes in trust levels.

After a detailed examination of the demographic variables, it was found that the level of trust in ChatGPT's system is influenced by gender and the frequency of ChatGPT usage, while other demographic variables such as age, level of education, and major did not show substantial correlations with trust factors in this specific study.

In a closer scrutiny of gender as a variable, it became evident that men who used ChatGPT more often exhibited higher levels of system and relative trust compared to women. This suggests potential gender-specific disparities in trust in AI systems like ChatGPT, aligning with previous research. Initial qualitative studies into these gender gaps revealed a higher level of caution amongst female users towards technology, stemming from privacy-related concerns (Shao et al, 2020). These results underscore the need for AI practitioners and developers to develop strategies aimed at addressing these trust differentials across genders. It is also imperative that future research continues to

delve deeper into this area to gain additional understanding of how to reduce these disparities in trust.

Furthermore, it is important to highlight that the other demographic variables included in the multiple linear regression analysis did not show significant results, and the predictive power of the model was limited when only demographic factors were taken into account. Although the age variable didn't reach significance at the 0.05 level and couldn't be confirmed in this study, a trend was evident: younger users were seemingly more likely to express higher trust in ChatGPT. This observation could potentially be confirmed in future studies with larger sample sizes.

In terms of independent variables related to AI experience, the results suggest that factors including proficiency in previous AI usage, perception of that experience, and specific versions of ChatGPT are associated with trust levels across various dimensions. Higher proficiency in prior AI services, coupled with a positive perception of AI in general, tend to align with greater levels of trust in the ChatGPT system and the information it produces.

Notably, proficiency in using AI systems and individuals' perceptions of their AI experiences were significant contributing factors. This aligns with past research, which proposed that an individual's confidence in their AI proficiency, along with their perceived past AI experiences, help shape their trust in AI systems like ChatGPT. Previous studies about AI system proficiency suggested that understanding the system's strengths and limitations can cultivate higher levels of trust [7]. While one could assume that user proficiency

might increase with prolonged use, the findings of this study urge AI practitioners to ensure sufficient user education about specific AI applications to boost their system's trustworthiness.

Moreover, the version of ChatGPT used was recognized as a confounding factor in the relationship between AI experience and trust in ChatGPT. Specifically, ChatGPT3.5 showed a positive correlation with increased levels of information trust, despite ChatGPT4 being the latest and most sophisticated version. This outcome might be attributed to the majority of users currently having access to ChatGPT3.5, while version 4 is only accessible to monthly subscribers. Thus, these findings could potentially shift as more advanced versions of ChatGPT become widely available to the general public.

Nonetheless, it's important to note that the duration or frequency of past AI usage did not substantially correlate with trust levels. The study suggests that variables related to self-assuredness and perception, rather than the frequency or length of AI usage, play a more decisive role in predicting trust levels. This may imply that users tend to judge a system's trustworthiness regardless of the duration or frequency of their past AI usage. What truly matters is the users' confidence in their AI abilities and how their past AI experiences influence their trust in the system. Based on this insight, AI practitioners should focus on strategies that improve user confidence. This can be achieved through the provision of AI-specific education, where users gain a comprehensive understanding of the capabilities and limitations of the AI service they are using. This recommendation aligns with

prior research findings that emphasize the need for artificial intelligence education in schools to cultivate AI competency [34]. Our study extends this notion and suggests providers of AI services to provide AI services should offer service-specific education to maximize usability and utility.

Overall, this discovery implies that relying solely on demographic factors does not effectively predict user trust in this specific AI language model, ChatGPT. Even though earlier research suggested demographic variables as influencing user trust, the increased familiarity with AI services due to their widespread use in recent years might have led to less significant disparities among these demographic variables. Since factors related to prior AI experience held greater explanatory power in predicting trust in the system compared to demographic factors in this study, it appears more rational for AI practitioners to focus on understanding a user's previous AI experiences as predictors of their trust levels, rather than relying solely on demographic information.

5.2 Limitations and Conclusion

This study offers valuable insights, but several inherent limitations warrant consideration. Firstly, reliance on self-reported surveys may introduce biases, especially regarding AI experience. Despite providing general guidance, variations in participants' standards for reporting AI proficiency and familiarity could lead to potential misreporting.

Furthermore, the presence of multicollinearity within the model may have compromised the reliability of coefficient estimates. While Principal

Component Analysis (PCA) aimed to alleviate multicollinearity effects, the study's small sample size and numerous independent variables made it challenging to ascertain which variables had stronger associations with trust levels.

Additionally, the study's focus on Korean users may introduce cultural and language biases. Korea's high rates of college entrance and prevalence of higher education may limit the diversity of participants' educational backgrounds, potentially biasing findings and limiting applicability in societies with differing educational systems.

Trust in AI systems can significantly vary across cultures and languages. It is important to note that AI effectiveness is language-dependent, and AI systems tailored for Korean may not perform as effectively in other languages. This study's findings may not generalize to diverse cultural and linguistic contexts, necessitating caution in interpretation. Further investigation is required to assess the impact of these variables on user trust in AI systems.

Another critical consideration when generalizing study results pertains to the specific AI model examined - the chat-based GPT model. This text-focused AI model fundamentally differs from other AI forms like image recognition, decision-making, or robotics AI, with distinct user interaction paradigms and trust dynamics. While trust factors identified in this study apply to chat-based GPT AI, their relevance and impact may differ for other AI forms.

Therefore, while this study provides valuable insights, it is prudent to exercise caution when applying these findings to other AI types.

Additional research is needed to explore trust factors across various AI models and contexts, contributing to a comprehensive understanding of trust in AI.

Nonetheless, these study findings offer significant value to AI and human-computer interaction researchers and practitioners.

The findings revealed that gender and the frequency of ChatGPT usage significantly influenced trust levels in the system, whereas other demographic variables like age, education level, and major showed no substantial correlations with trust. Specifically, men who used ChatGPT more frequently exhibited higher levels of trust, highlighting potential gender-specific disparities in trust in AI systems.

Proficiency in prior AI usage, positive perceptions of AI, and the specific version of ChatGPT used were associated with trust levels. Greater proficiency and positive perceptions of AI experiences correlated with higher trust in ChatGPT. The version of ChatGPT used also played a role, with ChatGPT3.5 showing a positive correlation with information trust, despite ChatGPT4 being the latest version. This was attributed to the wider availability of ChatGPT3.5.

Surprisingly, the duration and frequency of past AI usage did not significantly correlate with trust levels. Instead, self-assuredness and perception played a more decisive role in predicting trust. Users tended to judge a system's trustworthiness based on their confidence in their AI abilities and past AI experiences. Therefore, AI practitioners should focus on strategies to enhance user confidence, such as providing education on how to

efficiently use their AI services.

Understanding user factors shaping AI trust can inform the development of user-centric AI technologies, promote adoption, and guide trust-building strategies. Customizing AI systems for diverse demographics and launching educational initiatives addressing specific user concerns can enhance trust and enrich experiences. Moreover, these findings can inform the development of user personas in the user experience design process.

In conclusion, this study underscores the limitations of relying solely on demographic factors for predicting trust in AI language models like ChatGPT. As AI services have become more widespread and familiar, the significance of demographic differences in trust seems to have diminished. Instead, prior AI experience emerges as a more influential predictor of trust, though potential gender-specific disparities in trust in AI systems may still exist.

As a result, our research recommends that AI practitioners prioritize gaining insights into users' past AI experiences when assessing trust levels. Implementing AI-specific educational strategies to enhance user confidence in proficient AI use can significantly enhance the overall trustworthiness of AI systems. These strategies can also help address potential gender-specific disparities in trust in AI systems.

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- Engineering
- Business
- Humanities
- Social Sciences
- Arts
- Natural Sciences
- Medicine
- Law
- Other

(5.1~5.5) Experience with ChatGPT (Multiple Choice)

5.1 How long have you been using ChatGPT? (Duration)

- Less than 1 week
- Less than 1 month
- Less than 6 months
- Less than 1 year
- Less than 2 years
- I’m using ChatGPT for the first time.

5.2 How frequently do you use ChatGPT? (Frequency)

(Almost never use it = 1; Almost every day=5)

5.3 How familiar are you with using ChatGPT? (Familiarity)

(Not familiar at all = 1; Very familiar = 5)

5.4 How comfortable are you using ChatGPT? (Proficiency)

(Not comfortable at all = 1; Very comfortable = 5)

5.5 What is the most recent version of ChatGPT you have used?

- ChatGPT 3
- ChatGPT 3.5
- ChatGPT 4

Appendix

[Survey questions on User Factors and Trust in ChatGPT]

(1~4) Demographic Questions

1. Age
 - 18-24 years old
 - 25-34 years old
 - 35-44 years old
 - 45 years old or above
2. Gender
 - Male
 - Female
3. Highest Level of Education
 - High school graduate or below
 - Currently enrolled in or graduated from a vocational college
 - Currently enrolled in or graduated with a bachelor’s degree
 - Currently enrolled in or graduated with a master’s degree or higher
4. Please enter your major or field of study

(6.1~6.10) Trust in ChatGPT: Systematic Trust

(Not at all = 1; Very much so = 5)

*Note: Questions 6.6 to 6.10 have been reversed in coding.

- 6.1. I am confident in ChatGPT.
- 6.2. ChatGPT has integrity.
- 6.3. ChatGPT is reliable.
- 6.4. ChatGPT is dependable.
- 6.5. I can trust ChatGPT.
- 6.6. ChatGPT is not deceptive.
- 6.7. ChatGPT behaves in an honest manner.
- 6.8. I have no suspicions regarding ChatGPT's intent, actions, or outputs.
- 6.9. I am not wary of ChatGPT.
- 6.10. ChatGPT's actions will not have a harmful or injurious outcome.

(7.1~7.6) Trust in Information

- 7.1. I find the information provided by ChatGPT to be authentic.
- 7.2. I can trust the information given by ChatGPT.
- 7.3. The information provided by ChatGPT is reliable.
- 7.4. I can trust the general knowledge information provided by ChatGPT.
- 7.5. I can use the information provided by ChatGPT to write assignments, reports, news articles, etc., related to my scores or performance.
- 7.6. I trust the information provided by ChatGPT enough to widely share or disseminate it.

(8.1~8.3) Relative Trustworthiness

(Much less = 1; Much more = 5)

- 8.1. How much do you trust ChatGPT compared

to human experts?

- 8.2. How much do you trust ChatGPT compared to online forums (e.g., Reddit, community websites, Q&A platforms)?
- 8.3. How much do you trust ChatGPT compared to traditional search engines (e.g., Google, Naver, Daum)?

(9-13). Previous Experience with AI Systems

9. How long have you been using AI? (Duration)
 - Less than 1 week
 - Less than 1 month
 - Less than 6 months
 - Less than 1 year
 - Less than 2 years
 - I'm using AI for the first time.
10. How frequently do you use AI? (Frequency)
(Almost never use it = 1; Almost every day = 5)
11. How comfortable are you using AI? (Proficiency)
(Not comfortable at all = 1; Very comfortable = 5)
12. Overall, what was your previous AI experience like? (Perception)
(Very Negative = 1; Very Positive = 5)
13. How familiar are you with AI concepts such as machine learning, natural language processing, computer vision, and deep learning?
(Not at all familiar = 1; Very familiar = 5)

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논문접수일 : 2023년 12월 01일
수정접수일 : 2023년 12월 13일
게재확정일 : 2023년 12월 15일