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Optimizing AI user experience: Analyzing the impact of trust, engagement, and emotional satisfaction using multiple linear regression

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Abstract: This study examines the effects of trust in AI, happiness from AI interactions, user engagement, AI-influenced purchase intention, and reliance on AI on overall AI user experience. Using a multiple linear regression model and survey data from 200 AI users in Vietnam, the results show that all five factors significantly influence AI user experience ($p < 0.001$). Among them, happiness from AI interactions emerges as the strongest predictor ($\beta = 0.336$), highlighting the critical role of positive emotional responses. Engagement ($\beta = 0.266$) and reliance on AI ($\beta = 0.253$) also show substantial effects, indicating that frequent interaction and reliance on AI enhance the user experience. Trust in AI ($\beta = 0.230$) contributes significantly, emphasizing the importance of transparency and reliability in AI systems. In contrast, AI-driven purchase intention ($\beta = 0.189$) shows a weaker influence. The findings underscore the importance of human-centered and ethical AI design. Future research should explore cross-cultural variations and the ethical implications of AI reliance.

Keywords: *AI engagement, AI reliance, AI user experience, Multiple linear regression, Trust in AI.*

1. Introduction

Artificial intelligence (AI) is progressively integrated into practical life, thus modifying human interaction to provide user experience benefits across several domains, from customer service to entertainment and decision-making. AI initiatives, notably chatbots and recommendation systems, have benefited efficiency and also developed strong emotional responses and behavioral patterns [1]. By offering personalized experiences, reducing cognitive loads, and promoting engagement, AI can foster emotions of trust, happiness, and satisfaction. Even though AI is receiving more and more relevance for the betterment of well-being and behavior, the mediating factors have yet to be understood properly regarding how AI generates essentially positive emotional states and information processing on decision-making.

One of the fundamentally good offerings AI brings forth is the capacity to build trust with users through personalized and intelligent interactions. AI recommendations, assistants, and automated systems can boost user confidence by providing relevant, timely, and precise information. It is suggested that trust in AI correlates with perceived accuracy, transparency, and reliability, which leads to ample engagement and acceptance from users [2]. AI-powered well-being chatbots establish psychological support and companionship, giving users a sense of security and reassurance [3]. AI recognition of and responsiveness to emotional cues have led to increased user satisfaction in digital mental health interventions.

Also, emotional outcomes, such as happiness and engagement, are important and fundamental to AI-human interaction. Using AI-based interaction, a user obtains experiences from content curation on social media, personalized recommendations in shopping, and smart assistants that help improve user satisfaction through personalization and less fatigue in decision-making [4]. Users report increased

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happiness and enjoyment in interacting with AI systems that forecast their needs and create seamless, natural experiences. The role of AI in engagement is particularly highlighted on digital platforms through recommendation engines and adaptive learning systems, where longer and more meaningful engagements open the door for more content consumption and behavioral changes [5].

While AI has a positive effect on inducing emotions, it also substantially affects behavioral intent and decision-making. AI-powered recommendations positively influence purchase intent and user reliance, further enhancing consumer trust in the algorithmic suggestions [6]. AI's ability to provide a seamless decision-making process translates directly to user satisfaction and loyalty, particularly in e-commerce and digital marketing. Human-AI collaboration has been shown to enhance motivation, team efficiency, and task performance in the workplace, boosting the positive behavioral effects of adopting AI [4].

In spite of these advantages, ethical issues associated with AI's influence on emotions and behavior are worth noticing. AI may enhance the user experience; however, its ability to modify emotions and behaviors must be sympathetically implemented. Researchers highlight the need for ethical principles in AI design, maintaining transparency, fairness, and user autonomy, to ensure that AI, rather than merely fostering dependence, constructs genuine emotional well-being [7].

With these dynamics in mind, this study conducts a multiple linear regression analysis to gauge the influence of AI on users' emotions and behavior. In analyzing key predictors like trust, happiness, engagement, purchase intention, and reliance on AI, the study tries to understand and quantify AI's contribution to positive user experiences. The results of the current study will add to the elaboration on the very topical issues of AI ethics, human-computer interaction, and responsible AI design by providing insights into optimizing AI to enhance well-being and engagement in digital spaces.

2. Literature Review

2.1. Artificial Intelligence and User Experience

Artificial intelligence (AI) is entwined with user experience (UX) to such a degree that it drives user interaction with digital platforms, products, and services. AI and UX collide in the spheres of human-computer interaction (HCI), explainable AI (XAI), AI-driven emotion recognition, and AI-assisted decision-making. Recent studies have highlighted AI's potential advantages over UX, though they have also raised ethical issues and challenges behind its adoption. Its forte, that is, improving the way people work, increasing personalization, and increasing engagement, provides the basis for the use of AI in UX design. In their systematic literature review on AI-driven UX, Stige et al. [8] noted the role of machine learning, natural language processing, and predictive analytics in developing user interactions. They observed that AI enhances user engagement through interfaces that are aligned with individual preferences. Lu et al. [9] elaborated on the notion of human-centered AI in UX, suggesting that this new breed of AI ought to be designed to meet human needs, be in line with expectations, and be capable of managing cognitive load.

In the area of human-computer interaction, Xu [10] investigated how AI-based UX design determines usability and accessibility. Xu considers the advantages of AI in relieving friction in digital interactions, mainly through adaptive interfaces and real-time user feedback mechanisms. Additionally, the author raises and recognizes concerns about the manipulation of user behavior by AI and the imminent need for ethical considerations when designing AI. Trust is a significant factor in AI adoption and UX. Research claims that trust in AI systems can play a major role in determining user engagement, satisfaction, and long-term adoption [11]. In many ways, AI trust is governed by system transparency, reliability, and user perceptions when an AI recommends certain options. Haque et al. [12] studied XAI in the sense of the very possibility of building trust, arguing that interpretability and understandability of AI decisions work to enhance a user's confidence in AI-driven interactions. Furthermore, Mantello et al. [2] studied the behavioral determinants of trust in AI and its application in affect recognition technology. The results indicated a tendency for users to trust AI systems showing signs of human intelligence when it comes to emotions, strengthening the role of emotional engagement

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in AI acceptance. Yang et al. [3] provided empirical evidence that AI-supported well-being chatbots foster trust through empathetic responses and customized support.

Emotion engagement is the most important piece of the UX through which it creates user satisfaction and loyalty. AI can create pretend feelings and replace itself in expressions to express and reciprocate emotions for a better emotional experience. Mallick et al. [4] examined the AI-aided emotion on human-AI teams and its impact on user motivation and collaboration. They found AI's capability to express and respond to emotion enhances the bond and improves engagement with digital interfaces. Huang et al. [13] studied the role of AI in facilitating emotional well-being among adolescents and found that there was a direct correlation between AI dependency and user satisfaction. Though AI brings emotional support, this calls for a word of caution; the study provides insight into potential risks of becoming too reliant on AI for social interaction. Wu [1] addressed the phenomenon of so-called 'pseudo-intimacy' in interactions with AI. This raises ethical questions about users emotionally bonding with AI-based entities.

The impact of AI on user behavior extends beyond emotional engagement. Valenzuela et al. [6] have described how AI constrains or enhances the human experience with its capacity to shape user behavior and preferences. Credit goes to AI for persuasion, a dominant force in its influence over purchases, content consumption, and digital interactions. As mentioned, the role of AI in influencing user engagement and purchase intent has been widely studied. Wei et al. [5] indicated that AI-generated content (AIGC) had effects on public emotions and user behavior; in particular, AI recommendations increased user engagement and content retention. Algorithmic transference was discussed by Longoni et al. [14] it is essentially the process whereby users generalize AI failures across different contexts, affecting how much they can rely on AI in decision-making.

Notwithstanding AI's possibilities for improving UX, ethical issues remain perennial to AI research. Latif, et al. [7] raise ethical issues related to the use of automated emotion recognition. They cover privacy issues, data biases, and manipulation of emotions, advocating for regulatory frameworks to allow responsible and ethical use of AI technologies in UX design. Furthermore, Vicci [15] critically reviewed emotional intelligence in AI and developed guidelines on developing ethical AI that supports user autonomy, fairness, and transparency. Ethical AI design is highly relevant in contexts where AI influences users' choices, emotions, and behaviors.

AI has invaded and changed the way digital interactions take place; now the very nature of online interaction is a mix of personalized, engaging, and adaptive experiences. AI has been linked to user trust, emotional engagement, and behavioral influence in technology interactions. However, the ethical considerations of transparency, privacy, and dependence on AI continue to be a burden on AI-infused UX. Research on balancing the double effect of AI with responsible deployment will need to be done thoroughly so that users are better off or, at the very least, experience ethical AI interaction.

2.2. Emotional Reactions to AI

Artificial intelligence has been increasingly positioned as a critical component within user experience, shaping interaction, perceptions, and behavior across various digital environments. The most significant factor influencing AI's impact on user experience is the elicited emotional response, primarily trust and happiness. Trust in AI underpins user adoption and engagement; research indicates that perceived reliability and transparency of AI systems influence user acceptance [16]. AI-driven platforms are more likely to be used if users believe the system operates fairly and predictably. Additionally, studies suggest that higher user trust in AI correlates with increased usability and satisfaction in both utilitarian and hedonic contexts [17]. However, AI presents significant opportunities and variances in applications, with some users doubting its fairness, mainly due to concerns about data privacy, algorithmic bias, and the unpredictability of AI decision-making [18].

Besides trust, the other cardinal factor is user happiness or emotional engagement. AI-enabled interfaces, which range from affective chatbots and recommendation systems, improve the user experience through individualization and seamless interaction [19]. Emotional engagement should be

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seen primarily in the context of AI-mediated teamwork, in which influencing motivation and collaboration depend upon the capabilities of AI to imitate human emotions [4]. Research in affect recognition technology suggests that an AI system's ability to perceive and react to persons' emotional cues creates a connection between them and users and strengthens positive emotional experiences [2]. Still, there is an ethical dilemma if the usage of AI sullies real intimacy with human connections. In such a case, a user may infuse emotional attachment into AI, such that the user changes his or her social behaviors and relationships [1].

The implications of AI's emotional impact are also relevant in the mental health dimension through digital well-being. Yes, several studies demonstrate that AI-enabled chatbots and digital assistants provide emotional support and decrease stress [3]; and yet, the excessive reliance on AI for emotional engagement raises anxiety surrounding its long-term psychological impacts. Findings indicate that dependence on AI comes with heightened anxiety and decreased self-efficacy, particularly among younger individuals relying on AI-powered platforms for social interactions [13]. This duality highlights the need for responsible AI development, prioritizing ethical designs integrated while amplifying AI's potency to enrich the user experience.

AI grows and becomes more powerful every moment, and understanding how emotionality impacts a user is crucial to designing systems that have the potential to foster positive interaction while averting risks. Research indicates that trust in AI and happiness from AI interaction are key determinants of user engagement, influencing how users interact with digital environments and AI-enabled technologies. "Trust in AI and satisfaction from interactions involving AI are key mediators of facilitating and enriching the user experience, suggesting AI systems endowed with emotional intelligence can thus incur more meaningful and fulfilling engagements." Supplementing this premise, the following two hypotheses are proposed:

Hypothesis 1**:** Trust in AI has a positive and meaningful impact on AI user experience.

Hypothesis 2**:** Happiness from AI interactions has a positive and meaningful impact on AI user experience.

2.3. Behavioral Changes Induced by AI

AI has greatly influenced user behavior regarding the manner in which people interact with digital systems and make purchasing decisions, with users relying on automated technologies to perform those tasks. AI-powered platforms have changed how humans interact with computers by creating seamless, adaptive experiences that respond to user preferences in real time. Interaction with AI is a central component in determining user satisfaction and experience. Research shows users who engage through conversational agents, recommendation algorithms, or co-creative AI tools develop deeper interaction moments and become caring for their experiences [20]. The efficacy of AI in boosting engagement lies in its ability to predict user needs, foster efficient interaction, and offer personalization with respect to user needs, leading to retention and loyalty [21]. Yet, the level to which AI can facilitate engagement is also dependent on user expectations and past experiences: some studies speculate that skepticism towards AI can impede the potential good it can do [11].

In addition to engagement, AI is altering consumer behavior by influencing purchase intent. AI-based recommendations, targeted ads, and automated decision-making tools can sway consumer choices and make them more prone to buy a product or service [22]. The predictive capability of AI allows firms to personalize offerings to individual users, creating a seamless decision-making process and higher satisfaction ratings. There are complexities regarding AI's influence in the purchasing decision-making process, as the presence alone in product descriptions has sometimes deterred users due to reliability or perceived risk concerns [14]. Finally, algorithm-driven trust is also a significant factor in consumer acceptance, where it has been postulated that perceiving AI-based recommendations as trustworthy promotes acceptance of corresponding behaviors, whereas perceiving AI as biased or intrusive may lead to resistance [14].

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The concern regarding AI reliance is growing in discussions about its behavioral implications. Many people depend on AI for information retrieval, decision-making, and other daily digital interactions, leading to some augmentation in human cognition [12]. While AI's potential to simplify complex tasks and improve efficiency is accepted, it raises alarms about over-reliance, especially in contexts where human judgment is non-negotiable [7]. The implications of AI reliance extend beyond mere convenience to perceptions of autonomy and agency in decision-making. AI-enabled virtual assistants and smart recommendation engines can enhance user experience by reducing cognitive load; however, over-reliance can diminish users' ability to critically evaluate information or consider divergent viewpoints [6]. This issue is prevalent in digital commerce, where AI systems influence consumer choices, prioritizing algorithmic efficiency over independent decision-making capabilities [13].

As artificial intelligence becomes increasingly instrumental in shaping user behavior, it is important to understand how it affects engagement, purchase intent, and dependence in order to build ethical, user-centric AI systems. Research indicates that there are deeply intertwined patterns linking trust, transparency, and personalization to AI's ability to achieve meaningful interactions, influence consumer behavior, and facilitate activities with greater ease. "AI-enabled engagement, purchase intention, and dependence represent foundational elements of the user experience impacting how one interacts and responds to AI-powered technologies." Supplementing this premise, the following hypotheses are proposed:

Hypothesis 3**:** Engagement with AI has a positive and meaningful impact on AI user experience.

Hypothesis 4**:** Purchase intent influenced by AI has a positive and meaningful impact on AI user experience.

Hypothesis 5**:** Reliance on AI has a positive and meaningful impact on AI user experience.

3. Methodology

3.1. Instrument and Participant

Apart from informed consent given freely by all respondents participating in the survey, the ethical principles behind scientific research guaranteed integrity, validity, and reliability in the survey study process. The questionnaire was developed based on an in-depth literature review and piloted with 40 respondents to identify areas for improved clarity and coherence. To further allow for validity and minimize inherent bias, three respected psychology researchers reviewed and made revision suggestions to the instrument. A random sampling method in 2024 enabled the acquisition of a diverse and representative sample of AI users across the length and breadth of Vietnam.

All participants signed written informed consent before taking the survey. Participation was entirely voluntary, with respondents having the right to withdraw their consent at any time without penalty. Participants received detailed information about the research purpose, the confidentiality of responses, and the anonymity of the data. No personally identifiable information was collected, complying with international research ethics guidelines and privacy requirements [23].

The sample will include regular users of AI-powered services in both their professional and personal activities, such as AI chatbot services, recommendation algorithms, and automated systems for decision-making. The total sample size was 200, comprising 85 females (42.5%) and 115 males (57.5%). It will represent a cross-section of age groups, levels of education, and occupational backgrounds. The largest respondent age group is 25-34 years (38.5%), indicating that AI adoption is largely among early-career professionals and digitally native users.

Education varied; most were undergraduates (55.0%), and the second-largest group was postgraduates (22.0%), which adds further weight to the connection between higher education and AI adoption. Most respondents were students, representing 41.5%, reflecting continual exposure to AI-integrated learning platforms.

Two sections composed the survey: one to collect demographic information and another to collect AI-related user experience questions. The first section gathered age, gender, level of education, and

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occupation for subgroup analysis. The second measured six latent constructs of interest: AI user experience, trust in AI, happiness with AI interaction, engagement with AI, purchase intent stimulated by AI, and reliance on AI. Each construct used a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree), drawing on established survey methodologies for AI and user behavior research [12]. With ethical oversight, random sampling, and expert review, the study fulfills scientific research standards and offers credible, unbiased general observations on AI user behavior in Vietnam.

Table 1.
Demographic characteristics of survey participants.

		Gender			
		Female		Male	
		Count	Row N %	Count	Row N %
Age	Over 45 years old	8	33.3%	16	66.7%
	25 34 years old	33	37.1%	56	62.9%
	35 44 years old	16	29.6%	38	70.4%
	Under 25 years old	17	51.5%	16	48.5%
Education	Bachelor's degree	45	36.9%	77	63.1%
	Other	13	44.8%	16	55.2%
	Postgraduate	16	32.7%	33	67.3%
Occupation	Entrepreneur	8	33.3%	16	66.7%
	Researcher	13	48.1%	14	51.9%
	Student	32	32.7%	66	67.3%
	Working professional	21	41.2%	30	58.8%

3.2. Reliability Analysis

For the assessment of the internal consistency of the constructs in the survey, reliability analysis was conducted using Cronbach's alpha. This statistical measure evaluates the extent to which items within each construct produce consistent and reliable responses. According to the applicability of exploratory factor analysis in social sciences, a Cronbach's alpha of 0.6 is generally sufficient, while values between 0.7 and 1.0 indicate strong internal consistency reliability [24].

It should be noted that reliability analysis for the six latent constructs—AI User Experience, Trust in AI, Happiness from AI Interactions, Engagement with AI, Purchase Intent Influenced by AI, and Reliance on AI—established that all scales met the minimum threshold for reliability. As shown in Table 2, the scores in Cronbach's alpha ranged from 0.664 to 0.688, indicating a measure of internal consistency between moderate and good among the constructs. The lowest correlation coefficient observed for each scale was over 0.40. This indicates that all items in the scale meaningfully contributed to their respective constructs.

Table 2.
Summary of Reliability.

Scales	Number of variables observed	Reliability coefficients (Cronbach Alpha)	The correlation coefficient of the smallest total variable
AI user experience (AI_Experience)	3	0.664	0.406
Trust in AI (Trust_AI)	3	0.671	0.433
Happiness from AI Interactions (HA_Interactions)	3	0.680	0.472
Engagement with AI (AI_Engagement)	3	0.667	0.471
Purchase Intent Influenced by AI (PI_by_AI)	3	0.674	0.451
Reliance on AI (AI_Reliance)	3	0.688	0.467

The most reliable scale was the Reliance on AI (Cronbach's alpha = 0.688), indicating that the items measuring user reliance on AI-based decision-support systems showed internal consistency. The lowest

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Cronbach's alpha was for AI User Experience ($\alpha = 0.664$), which remains above the acceptable threshold for an exploratory study. The lowest item-total correlation was 0.406, well above the minimum acceptable value of 0.30, demonstrating that all individual items were positively correlated with their respective constructs [25].

These results indicate that each of the tests on the questionnaire exhibits good internal consistency across all latent variables. Though some scales may benefit from further refinement in future research, reliability as a whole supports these constructs' employment for hypothesis testing and subsequent statistical analyses. Scale reliability is an important step in any quantitative research that strengthens the validity of drawing conclusions from AI user experiences [26].

3.3. Factor Analysis

For this survey, a factor analysis was undertaken using Principal Component Analysis (PCA) with a Varimax rotation to establish the survey constructs' underlying framework. The analysis was hypothesized to substantiate and assess the dimensionality of the following six latent variables: AI User Experience, Trust in AI, Happiness derived from AI interactions, Engagement with AI, Purchase Intent influenced by AI, and Reliance on AI. Factor loadings were examined to determine if all items loaded adequately onto their constructs, thereby fulfilling the requirement of construct validity [24].

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy was 0.817, indicating the suitability of the sample for factor analysis. Bartlett's Test of Sphericity was statistically significant ($\chi^2 = 895.613$, $df = 153$, $p < 0.001$), confirming the factorability of the correlation matrix. Six factors explained 62.813% of the total variance in the parameters, although initial eigenvalues were greater than 1.0, which further supported the data's factorability. The rotated component matrix is presented in Table 3, supporting the fact that the items appropriately fell into their particular factors, with factor loadings averaging greater than .533, indicating a considerable level of construct differentiation.

This result indicates that all items loaded well onto their respective constructs, thus supporting convergent validity. The Reliance on AI scale had the largest loading (AI_Reliance3 = 0.770), suggesting that respondents view artificial intelligence as a valid and trustworthy decision-making assistant. Similarly, the AI Engagement and AI User Experience constructs also showed strong loadings, adding to their structural integrity.

The Purchase Intent scale had the lowest factor loading (PI_by_AI2 = 0.533), but it remained above the acceptable threshold (0.50), indicating that AI-based purchase intent is distinguishable but requires further improvements and validation in future research. Overall, the factor structure was clear, with minimal cross-loadings, supporting the construct validity of the survey instrument.

These findings indicate that the factor structure aligns with theoretical expectations and that the measurement model effectively captures AI user experiences. These results validate the constructs for future hypothesis testing and structural equation modeling for further analysis [26].

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Table 3.
Result of factor analysis.

Rotated Component Matrix						
	Component					
	1	2	3	4	5	6
AI_Reliance3	0.770					
AI_Reliance2	0.730					
AI_Reliance1	0.615					
HA_Interactions1		0.736				
HA_Interactions3		0.713				
HA_Interactions2		0.681				
AI_Experience1			0.778			
AI_Experience3			0.715			
AI_Experience2			0.663			
Trust_AI3				0.762		
Trust_AI2				0.757		
Trust_AI1				0.679		
PI_by_AI3					0.783	
PI_by_AI1					0.762	
PI_by_AI2					0.533	
AI_Engagement2						0.779
AI_Engagement1						0.737
AI_Engagement3						.686
Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization.						
Rotation converged in 6 iterations. Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) = 0.817 Bartlett's Test of Sphericity (Chi-Square =895.613; df=153; sig.=0.000) Extraction Sums of Squared Loadings = 62.813; Initial Eigenvalues = 1.077						

3.4. Correlation Analysis

The relationships between AI User Experience, Trust in AI, Happiness from AI Interactions, Engagement with AI, Purchase Intent Influenced by AI, and AI Reliance were analyzed using Pearson correlation. Pearson's r measures the strength and direction of the linear relationship between variables, with values close to +1 indicating a strong positive correlation, values close to 0 indicating no correlation, and values close to -1 indicating a strong negative correlation [27]. The results of the correlation analysis are illustrated in Table 4.

The outcomes show that all variables were positively correlated, significant at the 0.01 level. That is, all the factors related to AI are interdependent. Of these, the strength of correlation was with AI User Experience and Happiness from AI Interactions, $r = .668$, $p < .01$. These results show that from the user's perspective, higher self-reported levels of happiness when interacting with AI-driven systems correlate with their perception of AI being helpful in the overall user experience. Also, Trust in AI positively correlated with AI User Experience, $r = .593$, $p < .01$. This means that with ever-increasing trust in AI, the opportunity of experiencing a pleasant user experience also increases on a decreasing trend.

Engagement with AI has been moderately correlated with most others, specifically AI User Experience $r = .581$, $p < .01$; and Happiness from AI Interactions $r = .351$, $p < .01$. Meaning that generally, enriching user experiences occur whenever users interact with AI frequently. The correlation between general use of AI in purchasing decisions, Purchase Intent Influenced by AI, and AI Reliance was moderate: $r = .450$, $p < .01$. This indicates that users relying on AI tools are more likely to use AI recommendations in their purchasing decisions.

Moderately strong correlations appeared between AI engagement and purchase intention, and trust in AI and reliance on AI ($r = .264$, $p < .01$; $r = .310$, $p < .01$). While these associations were statistically

noteworthy, they suggest that engagement does not necessarily lead to buying behavior, and trust in AI does not necessarily require increased reliance on AI-driven decision-making.

These results confirm the proposed hypotheses, providing clear encouragement to consider user experience, trust, and engagement with AI, as well as reliance on it as significant constructs in understanding how user emotions and behavior will be influenced. The correlation analysis thus confirms the structure of the constructs, which is followed by regression and SEM analyses to investigate causality and predictive relationships [24].

Table 4.
Correlation analysis results.

Correlations							
		AI_ Experience	**Trust_ AI**	**HA_ Interactions**	**AI_ Engagement**	**PI_by_ AI**	**AI_ Reliance**
AI_ Experience	Pearson Correlation	1	0.593**	0.668**	0.581**	0.547**	0.602**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200
Trust_AI	Pearson Correlation	0.593**	1	0.403**	0.335**	0.320**	0.310**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.000
	N	200	200	200	200	200	200
HA_ Interactions	Pearson Correlation	0.668**	0.403**	1	0.351**	0.299**	0.354**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000
	N	200	200	200	200	200	200
AI_ Engagement	Pearson Correlation	0.581**	0.335**	0.351**	1	0.264**	0.278**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000
	N	200	200	200	200	200	200
PI_by_AI	Pearson Correlation	0.547**	0.320**	0.299**	0.264**	1	0.450**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.000
	N	200	200	200	200	200	200
AI_ Reliance	Pearson Correlation	0.602**	0.310**	0.354**	0.278**	0.450**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	
	N	200	200	200	200	200	200

Note: **. Correlation is significant at the 0.01 level (2-tailed).

3.5. Multivariate Linear Regression Analysis

A multiple linear regression analysis was performed to identify the impact of five variables: Trust in AI, Happiness from AI Interactions, AI Engagement, Purchase Intent Influenced by AI, and Reliance on AI on the AI User Experience. By applying regression techniques, controlling for multicollinearity, and other statistical assumptions, one can determine the extent to which dependent variables are predicted collectively by multiple independent variables [24].

Table 5.
Model Summary.

Model Summary				
Model	**R**	**R Square**	**Adjusted R-Square**	**Std. Error of the Estimate**
1	0.878[a]	0.771	0.765	0.2691851

Note: a. Predictors: (Constant), AI_Reliance, AI_Engagement, Trust_AI, PI_by_AI, HA_Interactions

The summary model presented in Table 5 indicates that the regression model explains 77.1% of the variance in AI User Experience ($R^2 = 0.771$), with a modified R^2 of .765, which shows a strong fit to the

model. The standard error of estimate describes a reasonable fit of the predicted AI User Experience observed (0.269). The very high R^2 indicates that the independent variables add significantly to explaining variations in AI User Experience.

Table 6.
Anova analysis results.

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	47.398	5	9.480	130.824	0.000[b]
	Residual	14.057	194	.072		
	Total	61.455	199			

Note: a. Dependent Variable: AI_Experiencea
b. Predictors: (Constant), AI_Reliance, AI_Engagement, Trust_AI, PI_by_AI, HA_Interactions

The ANOVA results in Table 6 indicate that the regression model is statistically significant ($F = 130.824$, $p < .001$), confirming that the independent variables explain a significant proportion of the variance in AI User Experience. The small SSR (14.057) compared to the total sum of squares (61.455) shows that a good prediction of AI User Experience is possible.

Table 7.
Results of multiple linear regression analysis.

Coefficients[a]								
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**Collinearity Statistics**	
		B	**Std. Error**	**Beta**			**Tolerance**	**VIF**
1	(Constant)	0.362	0.108		3.367	0.001		
	Trust_AI	0.157	0.027	0.230	5.831	0.000	0.757	1.321
	HA_Interactions	0.227	0.027	0.336	8.410	0.000	0.739	1.352
	AI_Engagement	0.192	0.027	0.266	6.980	0.000	0.810	1.235
	PI_by_AI	0.135	0.028	0.189	4.750	0.000	0.747	1.339
	AI_Reliance	0.173	0.028	0.253	6.277	0.000	0.727	1.376

Note: a. Dependent Variable: AI_Experiencea.

The regression coefficients shown in Table 7 show that all of the five independent variables added significantly to the prediction of AI User Experience, with $p < .001$ in all cases. Happiness from AI Interactions ($\beta = .336$, $p < .001$) was found to have the most powerful standardized effect, indicating that the influence of emotional satisfaction from AI is the most powerful driver of user experience with AI. AI Engagement ($\beta = .266$, $p < .001$) and AI Reliance ($\beta = .253$, $p < .001$) were also strongly positively related; frequent interaction with AI applications and relying on AI for decision-making substantially improved user experience.

Trust in AI ($\beta = .230$, $p < .001$) and purchase intent influenced by AI ($\beta = .189$, $p < .001$) showed moderate but significant associations, implying that users who trust AI experience it better and that AI recommendations influence their purchase intent. The values of the Variance Inflation Factor for each independent variable ranged between 1.235 and 1.376, indicating no multicollinearity problem (VIF < 5), thus confirming the independence of predictor variables [24].

This multiple regression analysis confirms that AI-related factors have significant contributions to improving user experience, with the strongest predictors being Happiness from AI Interaction, AI Engagement, and AI Reliance. Accordingly, emotional satisfaction and involvement contribute highly positive influences toward the AI experience. The significance of Trust in AI and Purchase Intention Influenced by AI highlights the importance of users' trust in AI systems and acting on the recommendations rendered by AI.

These findings are consistent with previous research studies on emotional satisfaction, trust, and engagement with AI that are key determinants of user experience [12]. The regression model, by virtue

of its high explanatory power ($R^2 = 0.771$), quite simply validates the combined influences of AI-driven interactions, trust, and reliance on the perceptions of users and their respective engagement with AI technologies. Future studies should consider including additional factors, like AI ethics, transparency, and personalization, to further refine predictive models of user experience with AI.

4. Results

To validate their proposed hypotheses, the results from the multiple linear regression analysis shown in Table 7 provide strong empirical support. Trust in AI, Happiness from AI Interactions, Engagement with AI, Purchase Intention Influenced by AI, and Reliance on AI were all established to positively and significantly influence the AI user experience ($p < .001$ for all predictors). The high adjusted R^2 value of 0.765 suggests that the model captures most of the variance in AI user experience, further supporting the relevance of their influences on user perceptions and interactions with AI-powered systems.

The findings confirm Hypothesis 1, with Trust in AI positively and significantly impacting the AI User Experience ($\beta = .230$, $p < .001$). Previous studies indicated that trust becomes a critical factor in influencing user engagement and acceptance in using AI-driven technologies [12]. Trust is especially pertinent regarding AI-based decision-making, where users prefer adopting AI services perceived as fair, unbiased, and transparently delivered [14]. The positive association between trust and AI user experience suggests that AI developers must focus on ethical AI design, explainability, and user confidence, as these factors lead to higher user engagement.

There was support for Hypothesis 2, as Happiness from AI Interactions had the highest impact on the AI user experience ($\beta = .336$, $p < .001$). This further provides credence to the existing literature centered around affect computing and user engagement, which highlights that AI's capacity to trigger a positive emotional experience significantly boosts user satisfaction and prolonged interaction [4]. The personalization of AI-driven interactions, emotionally responsive chatbots, and highly efficient recommendation algorithms increases user happiness, which may translate to a better overall user experience [1]. These findings point to AI's ability to create meaningful and enjoyable interactions as likely to enhance user satisfaction and AI adoption in the long term.

Hypothesis 3 was supported by the significant relationship of engagement with AI positively influencing AI user experience ($\beta = .266$, $p < .001$). The more interactions there are with AI-powered features, the more consumers tend to feel familiar with them, avoid technophobia, and contribute to a seamless user experience [20]. Their findings reflect that AI engagement leads to habitual AI usage and the habit of immersing oneself in digital action, turning AI systems into what a user becomes accustomed to and reliant on to perform daily tasks [21]. Hence, this sends a strong message to AI developers and service providers to focus on user-centric, interactive AI designs that advocate for engagement and continued use.

Hypothesis 4 is supported, indicating that Purchase Intent Influenced by AI has a positive impact on the AI User Experience ($\beta = .189$, $p < .001$). These findings support previous studies suggesting that AI-based recommendations influence consumer behavior in e-commerce and digital advertising, affecting purchase decisions [22]. AI-driven personalization offers relevant product recommendations seamlessly and simplifies transaction processes while reducing cognitive effort for decision-making [6]. Although purchase intent is important, the beta indicates it is the weakest predictor, with emotional engagement and trust potentially playing a stronger role in shaping AI user experience.

Hypothesis 5 was confirmed: Reliability on AI had a strong positive effect on AI user experience ($\beta=.253$, $p<.001$). This also affirms literature that users engaging with AI developed more reliance on AI-driven systems, especially in decision-making, automation, and enhancing productivity tasks [26]. Since users become more efficient in AI-related activities (decision-making, automation, and productivity) through reliance on AI for personalized content and automated suggestions of predictive analytics, AI experiences also improve, reinforcing AI as a necessary digital tool [3]. Too much reliance

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on AI might pose risks like becoming too dependent on AI-generated content, which calls for responsible AI design and awareness initiatives among users [12].

In general, these confirmatory results illustrate that the user experience of AI is highly shaped by trust, emotional satisfaction, engagement, purchase intent, and reliance on AI. Both positive emotions fostered by AI systems, user engagement, and reliability and transparency will thus intensively afford AI adoption and user satisfaction. There might also be room for research into some additional mediating factors like AI ethics, cognitive load, and personalization strategies, among others, that could reasonably improve predictive models of user experience with AI.

5. Discussion

Overall, the results of the study confirm that user experience with AI is firmly aligned with trust, happiness from AI interaction, engagement, purchase intent, and reliance on AI. Prior work on human-AI interaction, technology acceptance, and digital engagement supports these findings, reinforcing the importance of personalization, transparency, and trust in AI as factors influencing its adoption [12, 14].

Particularly important is the finding that happiness from AI interactions works to build user experience. This aligns with earlier findings emphasizing the affective side of AI engagement. The use of AI-driven personalization and responsive design helps induce feelings of satisfaction and potential loyalty to the channel [1, 4]. This suggests that AI systems focused on emotion and human-centered interaction are more likely to foster users' long-term trust and satisfaction.

The convergence of AI trust with user experience lends credibility to the presumed fact that perceived fairness, dependability, and transparency are the cardinal elements for AI acceptance [12, 26]. Users tend to interact more with AI-driven services if they feel convinced that AI offers accurate and unprejudiced recommendations. This underscores the necessity for explainable AI (XAI) frameworks that source user belief and help minimize skepticism regarding algorithms' decision-making.

The study also affirms engagement with AI as a crucial factor, substantiating earlier research suggesting that frequent interactions with AI lead to familiarity and lowered engagement barriers to AI technology [20, 21]. There is also potential for more user engagement through AI-powered platforms that promote a seamless, customized, and interactive experience that can stand the test of time. However, concerns exist regarding high levels of engagement with AI and risks of algorithmic dependency, which call for deeper investigation.

The study shows the influence of AI-driven purchase intent on user experience, consistent with prior evidence that AI recommendations shape consumer decisions and perceptions of value [6, 22]. Although it is easy to see the role of AI in shaping purchase decisions, external factors such as brand trust and social influence may moderate that effectiveness. Future research must explore the interplay of AI recommendations and other consumer-decision-making variables for the nuanced refinement of AI-driven marketing strategies.

Additionally, this research attributes the growing reliance on AI-driven decision-making and automation to the latest advancements in AI [3, 26]. While reliance on AI boosts efficiency, it may cause critical thinking to decline compared to algorithmic suggestions made by AI systems. Therefore, responsible AI design, which provides users more agency over AI-driven decisions and mechanization advantages, is increasingly important.

Despite these significant findings, the limitations of this study should be addressed in follow-up studies. First, the study was conducted in Vietnam, which may restrict its wider applicability to other cultural and technological contexts. Future research aims to reconfirm these findings in different geographical and socioeconomic settings to identify possible cross-cultural differences in AI adoption behavior.

Moreover, while the present study has received apparent importance through a quantitative study, a qualitative design looking into interviews and an in-depth study of user experience might help in gaining a deeper understanding of the dynamics in AI-user interaction. This study, therefore, indicates a new addition to the ever-growing corpus of research on AI user experience, underpinning the

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importance of emotive satisfaction, trust, engagement, and reliance on AI in shaping AI interactions. With the continual evolution of AI, establishing ethical AI development, transparency, and user empowerment will be mainly important to stimulate prolonged AI adoption and trust.

6. Conclusion

This study shows that trust, happiness with AI interaction, engagement, purchase intent, and reliance on AI are all significant contributors to AI user experience. These findings indicate the increasing importance of AI in determining users' emotions, actions, and decision-making, validating earlier work in human-AI interaction, trust, and technology acceptance research [12, 14]. As AI increasingly becomes ingrained in digital services, commerce, and daily decisions, a deeper understanding of these factors becomes crucial to enhance AI uptake and customer satisfaction.

The findings particularly suggest that the happiness-derived state from AI interaction is the most potent factor in enhancing user experience, hence suggesting that emotionally intelligent AI systems may help boost user engagement and retention. This study resonates with literature on affective computing, which illustrates how positively affective responses could bolster perception of human-computer interactions from AI [1, 4]. AI designers and policymakers must encourage the development of user-satisfaction technologies, personalization processes, and emotional well-being.

Trust in AI remains the most significant factor influencing user experience, emphasizing transparency, objectivity, and ethical design [12, 26]. As AI becomes more involved in automated decision-making, personalized suggestions, and the customer service ecosystem, ensuring compatibility between explainability and accountability will be crucial for maintaining public confidence in AI systems.

The balance between reliance on AI and user control, coupled with developing design strategies for ethical AI, must guide future research on how such reliance can provide meaningful supervision and utility for AI without relegating its role to only a tool for decision formulation.

While the intention to purchase AI had the least impact on the user experience, it is nevertheless significant since this illustrates the progress that AI recommendations have made toward influencing consumer behavior [6, 22]. Algorithms powered by AI increase product discovery, ease of doing business, and personalization. However, purchasing decisions remain susceptible to external social and psychological factors. Marketing strategies using AI ought to be conceived within a framework of user-centered personalization and ethical advertising to maximize effectiveness, with continued transparency and trust from users.

Implications for AI design, development, and regulation emerge from this study. AI developers should integrate emotionally engaged, user-centered, and ethically designed AI models in which the user experience is prioritized, along with accountability and responsible automation. There needs to be an effective, transparent mechanism of moral governance by policymakers to address bias and discrimination in AI-directed decision-making.

This research is, however, burdened with limitations. There was a research undertaking in Vietnam; hence, the cross-cultural generalizability may be limited. Future studies may validate these findings in differing cultural, technological, and economic settings to ascertain possible differences in AI adoption and user behavior. Additionally, a quantitative survey was used in this study, although it may not fully capture the qualitative aspects of user experience, emotions, and ethical issues. Future studies could employ qualitative methods such as interviews and ethnography to render a more sophisticated understanding of AI-human interaction.

Conclusively, this study shows that AI user experience can be powered by trust, emotional satisfaction, engagement, reliance, and AI-driven purchasing behavior. As AI technology advances, it becomes increasingly important to have transparency, ethical design, and user empowerment, achieving AI with a positive, responsible, and sustainable user engagement. With a human-centered approach to AI, much like AI would be implemented as a force to augment digital interactions, it can be leveraged for future decision-making and upgrading user experience.

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Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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