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AI-DRIVEN PERSONALIZATION AND USER ENGAGEMENT: THE ROLES OF TRUST, PERCEIVED VALUE, AND PRIVACY TRANSPARENCY

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Abstract: Artificial intelligence (AI) has fundamentally transformed digital personalization by enabling organizations to analyze user data, predict preferences, and dynamically adapt content, recommendations, and services. However, personalization does not necessarily generate stronger user engagement. Its effectiveness depends on how users evaluate the relevance, reliability, value, and privacy implications of AI-mediated interactions. This study develops a conceptual framework explaining the mechanisms through which AI-driven personalization influences user engagement. Drawing on the Stimulus–Organism–Response perspective, Privacy Calculus Theory, and Commitment–Trust Theory, the study conceptualizes trust and perceived value as mediating mechanisms and privacy transparency as a boundary condition. Recent empirical evidence demonstrates that AI-driven personalization can enhance trust and perceived usefulness, while privacy concerns may reduce its effectiveness. At the same time, transparency and user control can strengthen trust and mitigate the personalization–privacy paradox. The proposed framework integrates these relationships into a unified model and develops nine hypotheses for subsequent empirical testing in educational and business contexts. The study contributes to AI-driven marketing research by positioning personalization not simply as a technological targeting mechanism but as a relational value-creation process in which trust, perceived value, and transparent data governance jointly determine sustainable user engagement.

Keywords: artificial intelligence, AI-driven personalization, user engagement, trust, perceived value, privacy transparency, digital marketing, personalization–privacy paradox.

1. INTRODUCTION

Artificial intelligence has become one of the principal technological drivers of contemporary digital transformation. In marketing and digital services, AI enables organizations to process large volumes of behavioral data, identify individual preferences, predict future actions, and dynamically adapt communication to particular users. Recommendation systems, conversational agents, predictive analytics, and algorithmically generated content have consequently transformed personalization from a relatively static segmentation practice into a dynamic and continuously adaptive process.

The strategic significance of AI-driven personalization derives primarily from its ability to increase the relevance of digital interactions. When users receive recommendations or content that correspond closely to their preferences, the amount of information-search effort may decline while perceived convenience and usefulness increase. Nevertheless, personalization also requires access to personal and behavioral data. Consequently, the same technological mechanisms that

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increase relevance may simultaneously generate concerns regarding privacy, surveillance, algorithmic opacity, and loss of individual control.

Recent empirical evidence confirms that this relationship cannot be reduced to a simple assumption that greater personalization automatically produces greater engagement. Teepapal's study of AI-driven personalization in social media marketing develops an S-O-R framework connecting AI personalization with trust, privacy concerns, perceived usefulness, and consumer engagement. The study reports that AI-enabled personalization enhances perceptions of trust and usefulness, while trust and usefulness function as important mechanisms associated with consumer engagement.[1, Article 108549]

The importance of privacy and transparency becomes even clearer in recent research. Qadri, Ahmed Moustafa and Waqas demonstrate that the influence of AI personalization on behavioral outcomes operates through perceived message relevance and that privacy concerns weaken this pathway, whereas AI transparency strengthens it.[2, Article 104592] Their two-study design, incorporating a scenario-based experiment and a time-lagged field survey, provides evidence that the effectiveness of personalization depends on the ethical and informational conditions surrounding its implementation.

The personalization–privacy relationship has also been conceptualized as a paradox. Vu et al. identify a tension between consumers' desire for individualized recommendations and their reluctance to accept the data practices required to produce such personalization. Their UCCG framework—utility, control, communication, and governance—shows that trust in AI-enabled commerce is not a static psychological state but an experience-based process that is continuously recalibrated.[3, Article 104938]

Similarly, Srivastava and Gurme find that perceived personalization and consumer trust positively contribute to favorable consumer outcomes, whereas privacy concerns exert a negative influence. Their findings reinforce the importance of transparent AI design and responsible data practices in contemporary digital environments.[4, Article 100021]

Despite these advances, the existing literature remains fragmented. Some studies focus primarily on personalization and trust, others on privacy and transparency, while still others examine purchase intention, loyalty, or engagement as separate outcomes. A theoretically integrated model explaining **how** personalization generates engagement and **under what conditions** this effect becomes stronger or weaker remains necessary.

Therefore, the purpose of this study is to develop an integrated conceptual framework explaining the effect of AI-driven personalization on user engagement through **trust and perceived value**, while positioning **privacy transparency** as a boundary condition. The proposed framework is designed for subsequent empirical testing in two strategically important environments: education and business.

2. THEORETICAL BACKGROUND

2.1. AI-driven personalization as a marketing stimulus

AI-driven personalization can be defined as the use of artificial intelligence to process individual-level information and adapt digital content, recommendations, communication, or services according to users' characteristics and behavioral patterns.

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Unlike conventional segmentation, AI-based personalization can dynamically process behavioral signals and continuously update predictions. This characteristic enables organizations to provide individualized experiences without relying exclusively on predefined demographic categories.

From a marketing perspective, personalization creates value primarily by increasing relevance. When information corresponds to an individual's interests, preferences, or current needs, the interaction may become more useful and less cognitively demanding. Teepapal's empirical model supports this perspective by demonstrating the importance of AI personalization, trust, usefulness, and engagement as interconnected components of digital marketing effectiveness.[1, Article 108549]

However, personalization is not exclusively a value-generating mechanism. It is also a data-intensive process. The greater the level of personalization, the more information may be required to infer user preferences. Consequently, personalization can simultaneously create perceived benefits and perceived risks.

This duality establishes the central theoretical problem of the present study: **AI personalization can generate engagement only when users perceive sufficient value and trust to justify the technological and informational exchange.**

2.2. Trust as a mediating mechanism

Trust is particularly important in AI-mediated environments because users generally cannot directly observe the internal processes through which algorithms collect, process, and interpret information.

The opacity of algorithmic systems may produce uncertainty concerning the accuracy of recommendations, reliability of automated decisions, and appropriate use of personal data. Consequently, users' willingness to continue interacting with AI-enabled systems depends partly on whether they consider those systems competent, reliable, and trustworthy.

Teepapal's findings demonstrate that trust is an important psychological mechanism connecting AI-driven personalization with consumer engagement.[1, Article 108549]

The findings of Vu et al. further strengthen this argument. Their UCCG framework demonstrates that trust in AI-enabled e-commerce develops through interconnected mechanisms involving utility, control, communication, and governance. Importantly, transparency and user control emerge as significant conditions for trust calibration.[3, Article 104938]

Accordingly, trust should not be regarded merely as an outcome of successful personalization. It represents an explanatory mechanism through which personalization can influence subsequent engagement.

2.3. Perceived value as a mediating mechanism

Perceived value reflects a user's overall evaluation of the benefits obtained from an interaction relative to the effort, cost, uncertainty, or perceived risk associated with that interaction.

In an AI-personalized environment, value can emerge through several dimensions, including:

- greater relevance of information;
- reduced search effort;

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- time savings;
- convenience;
- improved decision quality;
- better alignment with individual preferences;
- more efficient access to products, services, or learning resources.

Perceived value is conceptually broader than perceived usefulness. Usefulness concerns whether a technological system assists the user in accomplishing a specific task, whereas perceived value represents a more comprehensive evaluation of the benefits and costs of the overall experience.

This distinction is particularly important because technically useful personalization may still fail to generate continued engagement if users consider its benefits insufficient relative to privacy risks or perceived intrusion.

Qadri et al. provide evidence supporting the importance of perceived relevance as an intermediate mechanism. Their findings demonstrate that AI personalization increases behavioral effectiveness through relevance and that this mechanism is sensitive to privacy concerns and transparency.[2, Article 104592]

2.4. Privacy transparency and the personalization–privacy paradox

The dependence of AI personalization on personal data creates a fundamental tension. Users may expect highly relevant recommendations while simultaneously becoming concerned about the amount and type of information required to produce those recommendations.

This tension is commonly described as the **personalization–privacy paradox**.

Vu et al. demonstrate that this paradox is particularly important in AI-enabled e-commerce. Their findings indicate that users continuously evaluate the balance between technological utility and privacy-related risks, with transparency, communication, control, and governance shaping the development of trust.[3, Article 104938]

Privacy transparency must therefore be distinguished from privacy concern. Privacy concern represents an individual's perception of potential privacy-related risk, whereas privacy transparency refers to the extent to which an organization clearly communicates:

1. what data are collected;
2. why the data are collected;
3. how the data are processed;
4. whether data are shared with third parties;
5. how personalization decisions are generated;
6. what choices and controls are available to users.

Qadri et al. provide direct evidence that AI transparency can strengthen the effectiveness of personalization, whereas privacy concerns weaken the personalization–relevance relationship.[2, Article 104592]

Therefore, privacy transparency is conceptualized in this study not as a simple ethical requirement but as a strategic organizational condition that can influence whether users interpret personalization as beneficial or intrusive.

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3. METHODOLOGY

The present study adopts a **quantitative, cross-sectional, explanatory research design** for subsequent empirical validation of the proposed conceptual framework.

The target population consists of users who have experience with AI-personalized digital services. To reflect the scope of the research problem, respondents may be divided into two contextual groups: users of AI-enabled educational platforms and users of AI-personalized business and digital marketing services.

Primary data should be collected through a structured questionnaire using multi-item Likert-type scales. The questionnaire should measure five principal constructs: AI-driven personalization, trust, perceived value, privacy transparency, and user engagement.

Construct	Operational dimensions
AI-driven personalization	relevance, individualization, recommendation accuracy
Trust	reliability, competence, integrity
Perceived value	usefulness, convenience, benefits, relevance
Privacy transparency	clarity, disclosure, data-use explanation, user control
User engagement	interaction, participation, continued use, behavioral involvement

The measurement model should initially be assessed through internal consistency and construct validity. Cronbach's alpha and composite reliability should be used to evaluate reliability, while average variance extracted should be used to assess convergent validity. Discriminant validity should be examined through established measurement criteria.

The structural relationships should subsequently be tested using Partial Least Squares Structural Equation Modeling (PLS-SEM). The analysis should include direct effects, mediation effects, and moderation effects. A multi-group analysis should additionally compare the proposed relationships across educational and business contexts.

This methodology is appropriate because the objective is not merely to determine whether AI personalization is associated with engagement but to explain the psychological mechanisms and boundary conditions through which the relationship operates.

4. RESULTS AND HYPOTHESES DEVELOPMENT

Because the present paper is conceptual and does not yet report an original empirical dataset, this section formulates theoretically grounded hypotheses for subsequent quantitative testing.

H1. AI-driven personalization positively influences user trust.

When users perceive AI-generated recommendations as relevant, accurate, and beneficial, their confidence in the technological system is expected to increase. Recent empirical evidence supports a positive association between AI personalization and trust.[1, Article 108549]

H2. AI-driven personalization positively influences perceived value.

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Personalized information can reduce search effort, increase relevance, and improve convenience. Accordingly, higher perceived personalization should increase the overall value users attribute to the interaction.

H3. Trust positively influences perceived value.

Trust reduces uncertainty concerning the reliability and appropriateness of AI-generated recommendations. Users who trust an AI system are therefore expected to evaluate its personalized outputs more favorably.

H4. Perceived value positively influences user engagement.

When users perceive meaningful benefits from personalized interaction, they are more likely to participate, interact repeatedly, and continue using the relevant digital service.

H5. Trust positively influences user engagement.

Trust reduces perceived uncertainty and facilitates continued interaction with AI-mediated systems. Therefore, higher trust should contribute positively to user engagement.

H6. Trust mediates the relationship between AI-driven personalization and user engagement.

AI personalization is expected to influence engagement partly by increasing users' confidence in the AI-enabled service. This proposition is consistent with evidence identifying trust as an important mechanism in AI-personalized social media engagement.[1, Article 108549]

H7. Perceived value mediates the relationship between AI-driven personalization and user engagement.

Personalization is expected to generate stronger engagement when users perceive the resulting experience as sufficiently beneficial, relevant, and convenient.

H8. Privacy transparency positively moderates the relationship between AI-driven personalization and trust.

Transparent communication concerning data collection, processing, and personalization practices should reduce uncertainty and strengthen the positive effect of personalization on trust. Recent research directly demonstrates the importance of transparency in strengthening personalization effectiveness.[2, Article 104592; 3, Article 104938]

H9. Privacy transparency positively moderates the relationship between perceived value and user engagement.

When users understand how their data contribute to personalized services and retain meaningful control over personal information, the perceived benefits of personalization are expected to translate more effectively into engagement.

5. DISCUSSION

The proposed framework contributes to the literature in four principal ways.

First, it challenges a technologically deterministic interpretation of personalization. AI personalization does not automatically generate engagement. Rather, the effect depends on users' psychological evaluations of the system. This interpretation is consistent with Teepapal's finding that AI personalization operates through perceptions such as trust and usefulness rather than functioning simply as a direct determinant of engagement.[1, Article 108549]

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Second, the framework distinguishes perceived value from technological usefulness. Personalization may be technically effective while failing to create sufficient overall value for users. By incorporating perceived value as a mediator, the proposed framework captures the broader benefit–risk evaluation underlying continued engagement.

Third, the framework incorporates privacy transparency as a boundary condition. Qadri et al. demonstrate that privacy concerns can weaken the personalization pathway, while transparency strengthens it.[2, Article 104592] This finding suggests that responsible personalization requires more than accurate algorithms; it requires communication practices that make data use understandable to users.

Fourth, the framework incorporates the personalization–privacy paradox into a broader engagement model. Vu et al. demonstrate that trust is dynamically calibrated through utility, control, communication, and governance.[3, Article 104938] This supports the argument that privacy transparency should be examined as an integral component of AI-enabled value creation rather than as an external compliance issue.

The educational and business comparison further extends the model. In business environments, personalization frequently seeks to increase commercial engagement, loyalty, or purchase-related behavior. In education, however, the desired outcome may involve sustained participation, interaction with learning content, and continued use of educational technologies. Thus, the same personalization mechanism may generate different forms of perceived value across contexts.

6. CONCLUSION

AI-driven personalization has become a central mechanism through which organizations attempt to increase the relevance and effectiveness of digital interactions. Nevertheless, technological personalization alone cannot guarantee sustained user engagement.

This study develops an integrated conceptual framework in which AI-driven personalization influences user engagement through trust and perceived value, while privacy transparency functions as a boundary condition. The framework synthesizes recent empirical evidence showing that AI personalization can strengthen trust and perceived usefulness, while privacy concerns can weaken personalization effectiveness and transparency can strengthen it.[1–4]

The theoretical contribution of the study lies in integrating technological, psychological, and governance dimensions into a single marketing framework. Instead of treating personalization as a purely technological capability, the proposed model conceptualizes it as a relational value-creation process in which users continuously assess benefits, trustworthiness, and privacy conditions.

The central theoretical proposition is therefore that sustainable engagement with AI-personalized services depends on three interconnected conditions: relevant personalization, meaningful perceived value, and transparent data practices.

Future empirical research should test the proposed hypotheses using PLS-SEM and compare the structural relationships across educational and business contexts. Such evidence would clarify whether trust and perceived value operate similarly across these environments and whether privacy transparency constitutes a stable boundary condition for AI-enabled engagement.

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