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The Use of AI in the Design of Personalized UIsMain

El uso de IA en el diseño de interfaces de usuario personalizadas

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Abstract:

The advancement of Artificial Intelligence has redefined User Interface design, driving proactive personalization to optimize User Experience and Digital Marketing strategies. This research aimed to evaluate user perceptions of the functional utility of AI-assisted personalization and contrast it with ethical barriers related to privacy.

Through a descriptive analysis based on a survey of advanced technology users, the results validate the existence of a personalization paradox. 92% of respondents consider instant interface adaptation "essential", and 98% perceive a positive functional value in AI that saves time. However, this high demand for efficiency clashes with distrust: 75% express concern about the use of their personal data, and 60% consider the use of environmental or biometric data "intrusive".

The main conclusion is that the gain in usability does not compensate for the loss of control, establishing a functional and ethical boundary that directly impacts marketing strategies and brand loyalty. The research suggests that the future success of AI-powered personalized UIs depends on algorithmic transparency and the implementation of privacy by design mechanisms, further capitalizing on the 94% consensus on AI's potential as a tool for accessibility and inclusion.

Keywords:

Digital Marketing, Digital User, Artificial Intelligence (AI), User Experience (UX), User Interface (UI), Data Privacy, Accessibility Design.

Resumen:

El avance de la Inteligencia Artificial ha redefinido el diseño de la interfaz de usuario, impulsando la personalización proactiva para optimizar la experiencia del usuario y las estrategias de marketing digital. Esta investigación tuvo como objetivo evaluar la percepción de los usuarios sobre la utilidad funcional de la personalización asistida por IA y contrastarla con las barreras éticas relacionadas con la privacidad.

Mediante un análisis descriptivo basado en una encuesta a usuarios de tecnología avanzada, los resultados validan la existencia de una paradoja de la personalización. El 92 % de los encuestados consideró esencial la adaptación instantánea de la interfaz, y el 98 % percibió un valor funcional positivo en la IA que ahorra tiempo. Sin embargo, esta alta exigencia de eficiencia choca con la desconfianza: el 75 % expresa preocupación por el uso de sus datos personales y el 60 % considera intrusivo el uso de datos ambientales o biométricos.

La principal conclusión es que la mejora en la usabilidad no compensa la pérdida de control, estableciendo un límite funcional y ético que impacta directamente en las estrategias de marketing y la fidelización de marca. La investigación sugiere que el éxito futuro de las interfaces de usuario personalizadas impulsadas por IA depende de la transparencia algorítmica y de la implementación de mecanismos de privacidad por diseño, aprovechando aún más el consenso del 94 % sobre el potencial de la IA como herramienta de accesibilidad e inclusión.Lorem ipsum dolor sit amet consectetur adipiscing elit volutpat, ultricies in primis mollis enim lobortis morbi sodales, praesent nisi nec cubilia integer congue feugiat. Quis at blandit erat nisl lacus turpis vehicula penatibus integer tristique felis taciti, natoque praesent congue morbi vel convallis posuere augue conubia primis fusce. Diam fringilla mi malesuada sagittis nisl metus pharetra justo habitant a dictum mollis, potenti proin nisi viverra ultrices libero congue dignissim laoreet nostra neque.

***Palabras Clave**:*

Marketing Digital, Usuario Digital, Inteligencia Artificial (IA), Experiencia de Usuario (UX), Interfaz de Usuario (UI), Privacidad de datos, Diseño para la accesibilidad.

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Introduction

In the digital era, digital marketing has become fundamental in business strategies. Kotler & Keller, defines digital marketing as “the use of digital technologies to market products or services to consumers. It involves the integration of traditional marketing principles with online marketing tools and channels to create effective campaigns”, while this definition gives a general framework, other perspectives enrich the understanding of the concept. Cheffey focuses on the application of digital technologies in the marketing process, leveraging tools like the internet, social media, mobile apps, search engines, and other tools to reach and engage consumers. Desai and Pride & Ferrell take a similar view, conceiving it as the marketing of products or services using digital technologies, mainly on the internet, but also centering in the mobile and interactive channels, the last two, highlight the communicative dimension. Finally, Kingsnorth, describes it as “the application of all marketing techniques to digital channels, different sources can be used to promote services and products like SMS, search engines, email, websites, social media and mobile devices”. This contrast in definitions highlights the multifaceted nature of digital marketing, where the meeting point of traditional strategies and the dynamic capabilities of digital media creates a constantly evolving field of study and implementation. 1-4

In this dynamic environment, Artificial Intelligence (AI) emerges as a disruptive technology with the potential to transform the way brands interact with their audiences. In 2019, Oxford defined it as “the theory and development of computer systems that can perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, translation and interpretation,” highlighting its capacity to autonomously learn and solve problems, while this definition captures key aspects of AI, other perspectives offer refined insights. 5

Nilsson broadly defines AI as the pursuit of "intelligence behavior in artifacts," further specifying that such behavior encompasses "perception, reasoning, learning, communicating, and acting in complex environments," with a long-term goal of achieving human-level or superior capabilities in these areas, but Goertzel provides a more practical perspective, defining AI as "the use of software to study or accomplish specific problem-solving or reasoning tasks”, complementing these views, Willick offers a legal definition, characterizing AI as "the capability of a device to perform functions that are normally associated with human intelligence, such as reasoning, learning and self-improvement”. The AI reveals a broad field with both theoretical depth and practical applications, where the core concept of replicating human cognitive abilities is approached from varying angles, ranging from behavior descriptions to specific software applications and legal considerations. 6-7

The concept of User Interface (UI) has evolved through the years, initially, Raskin explained it as “the way you accomplish tasks with a product – what you do and how it responds”, centering the UI in its efficiency to the user. LaViola et al conceived it as “the medium through which the communication between users and computers takes place”, highlighting its bidirectional interaction, on the other hand, Grudin proposed a broader vision, including not only the software, but the documentation, capacitation, and human support. While the first definitions focus on direct on-screen interaction, Grudin emphasizes the support ecosystem, this paper takes a holistic view of UI, considering both direct interaction and the support and learning context. 8-10

The notion of the digital user covers a broad spectrum of individuals who interact with the online environment, from those with limited tech abilities who occasionally look for online assistance, to the active social media users, those who conduct business transactions and those who manage most of their lives digitally (Meeker & Wu), all of them share the expectation of experience an intuitive, efficient, and increasingly personalized online interactions. 11

On a similar basis, Kagermann et al, defined the digital users as everybody who performs actions in the digital world, whether by generating data or by using the existing one. This perspective aligns with the IGI Global Scientific Publishing description, which identifies the digital users as the ones who actively participate in platforms and digital services, including social media, e-commerce and gaming. Together, these definitions highlight the diversity of profiles and activities within the concept of digital user, as well as the increasing importance of understanding their expectations and behaviors in designing effective digital experiences. 12

In the digital landscape, the User Experience (UX) emerges as a critical factor for the success of any marketing strategy. Hassenzahl & Tractinsky refer to it as a combination of factors that involve the user predispositions, expectations, needs, motivation, and mood, the designed system (complexity, purpose, usability, and functionality) and the context of the interaction. 13

This comprehensive view is complemented by the perspective of McCarthy & Wright who focus on sensory engagement and perception, highlighting how emotions are strongly influenced by the situation or event of human-technology interaction. In a similar way, Kuliga et al, conceive UX as a dynamic interaction of individual perception, emotion, cognition, motivation and action within a context of place, time, people and objects. Norman et al definition extends UX beyond interface and usability, encompassing the entire human-system experience. Together, these definitions highlight the multidimensional

nature of UX, which includes emotional, contextual, and perceptual aspects, making it crucial for designing effective, user-centered digital systems.14-16

In this context where digital marketing stands as a fundamental strategy to reach a diverse digital user with growing expectations of intuitive, efficient and personalized interactions, UX consolidates as a determining factor. Understood in its multidimensionality, which ranges from usability and functionality to the emotional and contextual aspects of human-system interaction, UX seeks to create significant and user centered experiences.

The study UX Designers Pushing AI in the Enterprise: A Case for Adaptive UIs, explores the growing influence of AI in the design of User Interfaces, in line with this trend, this paper delves into the use of AI in personalized UX design, the contribution of this study lies in analyzing the direct effect that AI-driven personalization has on the user experience, demonstrating how intelligent interface adaptation can generate more relevant and satisfying interactions and, ultimately, significantly improve the way users interact with digital systemsLorem ipsum dolor sit amet consectetur adipiscing elit volutpat, ultricies in primis mollis enim lobortis morbi sodales, praesent nisi nec cubilia integer congue feugiat. Quis at blandit erat nisl lacus turpis vehicula penatibus integer tristique felis taciti, natoque praesent congue morbi vel convallis posuere augue conubia primis fusce. Diam fringilla mi malesuada sagittis nisl metus pharetra justo habitant a dictum mollis, potenti proin nisi viverra ultrices libero congue dignissim laoreet nostra neque. 1,2

Conceptual framework

1. Reactive vs. Proactive

A starting point for the analysis is to understand the difference between reactive interfaces and proactive ones, in order to have a better comprehension of the reaction each one creates in the users, according to their interests and generations. Developing interface assistants is a multifaceted process that requires the knowledge convergence of artificial intelligence, computer animation, interface design, sociology and psychology. In addition, the way the interfaces and assistants are received can be conditioned by a wide variety of elements (Catrambone et al). 18

1.1 Reactive UX

The reactive UX is defined by Gaytán as a paradigm of graphical interface design where the representation of interactive elements – buttons, text fields, images, among others – is articulated through objects that respond directly to user actions. Unlike predictive approaches, reactive UX centers on giving immediate and proper feedback in response to user interactions. 19

Reactive experiences are characterized for having a direct response interface, where the immediate response is visualized by a visible confirmation of the action, all of this under a fully controlled user navigation, who decides which and when the actions will be made, in this kind of experiences a strong emphasis is placed on usability to ensure that the interface is clear, intuitive, and that actions taken produce the expected results.

Reactive UX manifestations are evident in everyday interactions: the visual change of a button when pressed before executing its function; receiving a confirmation message or a redirect after submitting a form; animations and placement guides when dragging and dropping elements; opening and closing menus with the immediate display or hiding of requested content; and real-time form validation, instantly reporting errors or omissions.

To achieve an effective Reactive UX, it is essential to ensure clear and consistent feedback throughout the entire interface, it's also crucial to ensure a rapid system response to maintain a fluid interaction. The design should focus on error prevention, guiding the user and offering clear correction mechanisms, as well as providing relevant information about the results of each action taken by the user.

1.2 Proactive UX

Proactive UX is based on anticipating user needs to offer a fluid and simple experience. Its main objective, according to Pérez is to design products or services capable of understanding user intentions and reacting appropriately and timely, even before the user explicitly expresses their requirements. 20

The foundation of this kind of interface lies in predictive analytics, which examines user data such as browsing history, purchasing behaviors, location data, and even physiological signals to anticipate their needs and preferences. This analysis translates into the creation of personalized experiences, adapting interactions through proactive recommendations, interfaces, and notifications, thereby offering truly relevant help. The interface requires contextual awareness, understanding the user's current situation, their environment, and the tasks they are performing. This awareness allows the platform to provide timely suggestions and targeted support. Finally, intelligent automation further optimizes the experience by automating repetitive tasks. The ideal of a Proactive UX is invisible assistance, subtly and seamlessly integrated, enriching the experience without interrupting the user's natural flow.

Proactive design manifests itself when a platform seeks to offer an intuitive and efficient experience through personalized suggestions based on the user's activities and preferences, providing contextual help directly related to the task at hand. Proactive UX anticipates needs through predictive actions such as auto-completion of information or suggesting relevant options, complemented by smart notifications that appear in a timely manner without causing interruptions. An example of a brand that prioritizes proactive user interfaces and experiences is Spotify. Its proactive approach is evident in its personalized music and podcast recommendations, the platform analyzes its CRM system and the user's listening history to offer curated playlists of new music the user might enjoy, based on their most frequently listened to songs or podcasts. These playlists can appear daily, weekly, monthly, seasonally, or even based on the user's mood.

However, implementing this UX presents important challenges and considerations, especially regarding ethical implications for data privacy, user control, and potential algorithmic biases. Avoiding over-reliance on these features is critical to limiting user autonomy and creativity. Therefore, it is crucial to provide clear control over proactive features, by allowing the user's

personalization, exclusion options, and the clear and easy adjustments of preference settings.

2. Balance between User Control and User Personalization

For the purposes of this paper, “user control” refers to an interactive system, “where the customer controls the content of the interaction, requesting or giving information… The hallmark of these new media is their interactivity - the consumer and the manufacturer enter the dialogue in a way not previously possible” (Bezjian-Avery). 21

The user control manifest in interfaces through diverse elements and design principles, which includes a clear and predictable navigation allowing the users to orient themselves easily; mistake free undo and redo actions that provide security to explore without fear; personalization and configuration that increase the feeling of mastery by adapting the interface; clear and timely feedback about the outcome of their actions; direct control through interactive elements that empower the user; and a consistency in behavior and design that fosters predictability and confidence.

On the other hand, an User Personalization UI, refers to "The adaptation of the interface to individual users based on their unique characteristics, preferences, behaviors, and contexts" (Challa). With the primary objective of creating a relevant, efficient, satisfactory, and tailored UX, in a digital diverse environment, where the users present a wide range of skills, objectives and use situations, the personalization becomes essential by offering multiple benefits such as an improve of the usability by the task simplification, the increase efficiency in presenting relevant information, a bigger satisfaction by making the user feel understood, an engagement increase by adapting their interests, and the discovering of relevant content in different platforms. 22

To discover the optimal point between allowing the users to make decisions and automatically adapting the interface to their needs can mark a significant difference between an empowering or a frustrating experience. The challenge lies in finding the right balance between these two concepts. Too much control with zero personalization may lead to a generic interface that requires the user to make too many manual adjustments, too many personalization without enough control, may cause an unpredictable, intrusive or even restrictive interface.

To achieve an effective balance between control and personalization, it is crucial to consider multiple interrelated factors: the type of application, where utility efficiency could favor proactive customization and creative freedom in total design control; the user experience and the level of awareness about tech,

1. Contextualized Personalization

Contextualization and personalization are key concepts in modern marketing, and although they are often used interchangeably, experts in the field point out important differences. While personalization is based on record and user profile, contextualization focuses on the current situation.

Authors like Kotler et al have emphasized the importance of considering the client and its needs as the foundation of strategies, in his book “Marketing 4.0”, discusses how technology has allowed a deeper relationship with the client, and how personalization is a key factor of it. 23

The key difference between contextualized and simple personalization lies in the time and place. The contextualization focuses on the consumer environment at the moment of the interaction, adapting messages and experiences to the current situation, such as location, time at day, user's device or immediate needs. Contextual personalization relies on systems that collect and analyze signals and information while the user interacts with the app, website or digital service. Some of the signals are explicit, for example, when a user selects the language or preferred location, but some others are implicit and deducted directly from the behavior, device details, or the environmental data.

When a user interacts with a digital touchpoint, advanced personalization engines often use machine learning process information to predict what would be more relevant for the user at the time. Real-time analytics are crucial to this process, as the AI platform tracks every user action (clicks, scrolls, time spent, etc.), and uses these data to adapt the experience instantly. AI and machine learning are fundamental, they process large volumes of data, AI-driven systems can anticipate needs, personalize recommendations and dynamically optimize the content. Over time, these systems learn from user feedback and become more accurate and effective.

The biggest challenge for companies is to make the customer feel understood, but without becoming over-personalized, leading the user feeling uncomfortable by thinking the brand knows way too much or is making overly specific suggestions and experiencing a backlash. Achieving the right balance between usefulness and respecting the user´s boundaries is crucial.

The contextualized personalization is not only about knowing who the client is, it is about offering the information or the right product at the right time and place. Studies made by companies like McKinsey & Company, Deloitte and Epsilon, points that personalization in customer experience management platforms creates customer journeys that resonate on a deeper, emotional level, fostering long-term loyalty. McKinsey revealed in “The value of getting personalization right-or wrong- is multiplying”, that enterprises that implement contextualized personalization in their interactions with clients, can increase their incomes between 10% and 30%. 24

2. Personalization for Accessibility

Personalization for accessibility is a crucial approach that recognizes that a one-size-fits-all solution does not fit everyone’s needs. Instead of “one-size-fits-all”, the goal is to adapt products, services, and environments, so that each individual can interact with them effectively. The concept of Universal Design, coined by the architect, Ronald Mace underlines much modern thinking on accessibility. It is defined as the design of products and environments that are usable by all people, to the greatest extent possible, without the need for adaptation or specialized design. However, authors such as Steinfeld & Danford point out that, although theoretical and practical

knowledge demonstrates that what is good for one person, is not necessarily best for another, forgetting that accessibility also depends on individual functionality can lead to detrimental results. 25, 26

Accessibility is a fundamental pillar of interface design, a website, app or digital service that is accessible to all users, regardless of their abilities, is a legal and ethical obligation. Overcoming accessibility challenges can be complex, but customization emerges as an effective strategy. By implementing interfaces and features that adapt to each user's preferences, it is possible to significantly improve accessibility and optimize the user experience.

Understanding the importance of accessibility is crucial, it is about ensuring that everyone, regardless of their abilities or disabilities, can use your interface. This benefits users with visual, hearing, motor or cognitive disabilities, and those who rely on tools like screen readers. By prioritizing accessibility, you not only build a fairer digital space, but you also expand your audience and ensure everyone has an equal opportunity to interact with you.

By offering personalization, you improve the usability and accessibility, you can simplify the navigation and interface so that users can more easily find what they are looking for. By allowing them to tailor the experience to their needs, the site becomes accessible to people with diverse abilities. Additionally, personalization makes the experience more engaging and enjoyable for everyone, it also ensures that assistive technologies, such as screen readers, can access and interpret content more effectively.

Techniques for personalizing UIs consist of various methods that can be employed to tailor the content to each digital user. The goal is to improve the site's accessibility and usability, making it easier for all users to access and interact with the content. Common default techniques include dynamic text resizing, the inclusion of alternative text descriptions for multimedia elements, and customizable color schemes, but some others UIs allows the customization of menu structures, personalized shortcuts, adaptive navigation and tailoring elements such as buttons, links and forms. Additionally, personalized content recommendations based on user interest and responsive content delivery can be used, optimizing the UIs for different devices, ensuring a consistent experience for everyone.

Balancing personalization and universal design is a key challenge when designing an interface. While personalization can improve accessibility for many users, it can also, in some cases, create barriers for people with disabilities. Therefore, it is crucial to find balance that ensures the site is usable and accessible to everyone. To achieve this balance, it is essential to start with accessibility in mind from the beginning of design and development, this involves ensuring that the interface complies with accessibility guidelines and standards provided by the Web Content Accessibility Guidelines (WCAG), which is built on four core principles, it must be perceivable, operable, understandable and robust.

The future of web personalization in accessibility powered by AI, is moving toward a more adaptive and intuitive UX. It is no longer just about offering basic contrast or text size options, but about technology that automatically understands and adjusts to the unique needs of each user in real time. Traditionally, personalization relied on the user activating specific settings, with AI, this process becomes predictive and proactive. A well-trained AI with machine learning, can analyze user behavior, could, overtime, learn that a user with low vision prefers high contrast and a large font size, and then automatically apply these settings each time the user visits the site or app.

AI is transforming not only consumption, but also content creation. It can automatically generate accurate subtitles, transcripts and audio descriptions, making multimedia content accessible from the moment it is published. Furthermore, McKinsey & Company one of the most promising frontiers is the development of neuroadaptive interfaces. As defined in the field "is a set of computer-based displays and controls whose functional characteristics change in response to significant variations in the user's cognitive and/or emotional states". This means that, using sensors or interaction data, AI could detect a user's cognitive load to simplify the interface, thus avoiding information overload, which is extremely useful for people with cognitive or learning disabilities. 27

Despite the promises, the future of AI in accessibility, is not about challenges. Data collection for training AI's must be ethical, and future regulations, such as WCAG 3.0, will likely require that AI systems not perpetuate bias or discriminate against people with disabilities. The goal is for AI to be a tool for genuine inclusion, not the one that creates new barriers.

Having analyzed the evolution from Reactive to Proactive UX, and considering the theoretical tension between User Control and User Personalization, it becomes necessary to establish a model that allows for the empirical evaluation of these interactions.

The proposed model seeks to determine how the functional utility of Artificial Intelligence impacts design acceptability, based on the premise that the balance between automation and user autonomy is the determining factor for effective digital inclusion. To this end, the following research hypotheses are proposed:

• H1: There is a significant difference in user acceptance depending on whether personalization is based on explicit or implicit cues.

• H2: Interface designs that incorporate personalization principles for accessibility increase task efficiency compared to static universal design models.

Methodology

a. Research methodology

The present study focuses on a non-experimental quantitative research approach, with the objective of analyzing the user's perception on user interfaces and their accessibility. For data collection, a cross-sectional research design was chosen in which a survey was administered to a sample of 105 participants the choice was made using the snowball sampling technique; at a

single point in time between the months of October and November of 2025.

The data collection instrument was a digital survey, designed from scratch on a website specializing in design (Canva). This was chosen because the goal was to provide a non-invasive example of user interface design, allowing participants to interact with an environment specifically designed for this study. The survey consists of 14 questions, divided into three key sections: "Demographics and General Questions" to contextualize the participants; "User Interfaces" to explore usability and design; and "Accessibility" to assess ease of use for people with diverse abilities.

Before its public release, the form was pilot-tested and reviewed by experts in the field, who validated the clarity and relevance of the questions. Non-probability snowball sampling was used, a technique in which initial participants helped recruit new respondents. This method was deemed appropriate for reaching a broad and diverse audience. A goal of obtaining a minimum of 100 responses for analysis was established, aiming for a finite sample that would allow for the collection of relevant data.

The data collection process began with informed consent, which detailed the academic purpose and the voluntary nature of participation. To ensure privacy and compliance with ethical protocols, absolute anonymity was guaranteed by omitting personally identifiable information. The data was processed under strict security standards, limiting access exclusively to the research team for analysis, adhering to ethical protocols for digital research, and ensuring that the information was treated with the utmost professional confidentiality.

Result

Users profile and attitude towards personalization

The analysis of demographic data and initial questions provides the fundamental context for the evaluation of personalized UIs (see Fig.2). While most participants reported being frequent users and familiar with recommendations services, demonstrating a high rate of tech adoption, a significant tension was identified in their attitude toward personalization. Specifically, the analysis revealed a strong desire for interfaces that anticipate their needs, contrasted with a notable reluctance to share the more sensitive data necessary to achieve such proactivity. The following sections detail the sample characteristics and break down this duality in user perception.

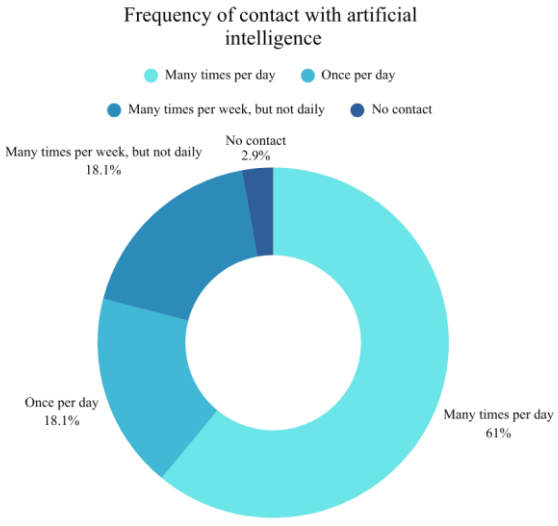

Fig. 1. Description of the frequency of use of purely or AI-supported tools and platforms

Demographic profile and level of tech adoption

The initial descriptive analysis established the profile of the respondents. The sample was dominated by individuals between the ages of 18 to 34 (90%), with a high level of education, which correlates with their self-identification as “advanced” technology users (60%).

But despite self-reporting themselves as advanced users, only a small percentage of the participants reported understanding the working of AI beyond general terms. However, 61% reported regularly using AI-based services for personalization per day and 18% per week (see Fig.1), such platforms including streaming services, e-commerce, bank apps, lifestyle and management apps. This finding suggests a utilitarian acceptance of AI, where practical benefits are embraced even without a deep technical understanding.

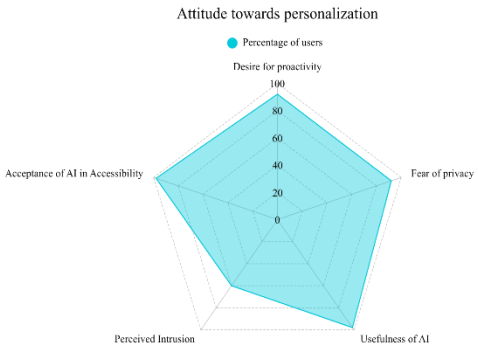

Fig. 2 Description of the degree of impact of the main variables on users' attitudes towards AI

The duality of attitude: Acceptance of personalization vs Concern for privacy

Analyzing user perceptions of adaptive interaction reveals a critical paradox for AI-assisted UI design. On one hand, there is a high demand for predictive functionality, with 92% of respondents considering it “important” or “very important” for an interface to instantly adapt to their direct actions. This desire extends to proactive efficiency, where AI’s ability to save time by predicting repetitive software activities is perceived as a primary utility. In this context of demand for tailored experiences, superficial customization, such as appearance adjustments (themes, colors, typography and icons), is also highly valued, generating convenience for 77% of users.

However, this high appreciation for predictive functionality is directly compromised by the perception of control. Despite desiring AI proactivity, the majority of users consider it “intrusive” or “very intrusive” for the system to use data from their environment, biometric data, or device data to personalize their experience. This finding underscores that perceived usability does not outweigh fears related to surveillance, creating an ethical-functional dilemma for developers. Research such as that by Acquisti, Taylor, and Loewenstein on the privacy paradox

has consistently documented that users value the engagement and benefits of personalization, but only if it respects a clear contextual privacy boundary. This reinforces the need for UI developers to implement transparent control mechanisms to mitigate the perception of intrusion. 28

The scientific basis for understanding this paradox is not irrational fear, but a cognitive process called Privacy Calculus. According to Dinev and Hart, users perform a cost-benefit analysis before handing over data. Perceived benefits (an adaptive interface) act as a positive driver, while perceived risk (data use by AI) acts as a brake. Studies such as Xu's demonstrate that, when personalization is very high, perceived risk tends to outweigh the benefit if there is no radical transparency. 29, 30

A critical factor explained by Aguirre et al., is that the paradox intensifies depending on how the information is obtained. If the user provides their data voluntarily, for example, when configuring a screen reader, this generates high satisfaction and low fear, whereas if AI "deduces" the user's needs by observing their behavior, the paradox arises, as the user feels "monitored," triggering their anxiety. 31

Willingness to share sensitive information

The aforementioned tension is intensified when considering user reluctance to share sensitive data that is crucial to the training and effectiveness of predictive AI. The main barrier to the full adoption of proactive UIs lies in institutional mistrust and algorithmic opacity.

An overwhelming majority (92%) of respondents expressed concern about how companies might use their personal data. This percentage not only indicates high individual sensitivity but also reflects the erosion of trust that has been analyzed by organizations such as the Pew Research Center, which confirms growing public alarm about data surveillance by corporations.

The strong sense of intrusion reported is directly linked to the perceived sensitivity of the data. Users make a clear distinction: while browsing or purchasing data is acceptable as “currency”, data that infers physical status, biometric data or data that monitors the environment in real time is rejected as too intimate.

The results indicate a correlation between the desire for instant adaptation (93%) and concern about the use of personal data by AI (92%). This statistical convergence demonstrates that interest in highly customizable interfaces does not diminish the perception of risk; on the contrary, both perceptions coexist.

To compare the acceptance of direct versus intrusive personalization, the Wilcoxon signed-rank test was used. The analysis yielded a significant Z-statistic, confirming that the rejection of the use of environmental data (60%) represents a statistical break compared to the high value placed on instant adaptation (93%). This allows us to conclude that user trust is drastically affected by the data collection method, regardless of the functional benefit.

This underlying fear is forcing platforms to implement privacy by design, for AI to overcome the 92% concern threshold, UI design must incorporate tools that allow the user to see ecstasy what data is being used, for what’s specific customization, and offer the option to revoke that consent without completely degrading the core interface experience.

In the Mexican context, the paradox of personalization is subject to scrutiny under the Federal Law on the Protection of Personal Data Held by Private Parties (LFPDPPP). Given that the majority of surveyed users expressed concern about the use of their data in AI interfaces, it is imperative that developers adopt the Recommendations on AI Ethics issued by UNESCO. Furthermore, the INAI (National Institute for Transparency, Access to Information and Personal Data Protection) emphasizes that transparency in data processing is essential to mitigate the perception of intrusiveness (60% in this study). Governance in Mexico is trending toward a model of informational self-determination, where web personalization for accessibility must ensure that users maintain control over their data, preventing automated collection practices that violate their privacy according to national digital security standards.

Impact of UI personalization on satisfaction, usability and accessibility

This section goes beyond attitudinal analysis to assess the functional impact of interface customization on key UX metrics: ultimate satisfaction, efficiency in the usability and inclusion potential. The survey results demonstrate that while customization significantly increases perceived usefulness, it still presents functional challenges, especially in the implementation of inclusive design features.

Usability increased by proactivity and functional satisfaction

The integration of AI into the UI proves to be a direct driver of usability and user satisfaction by optimizing interaction. When asked about the overall usefulness of AI in these tools and platforms, 61% of respondents rated it as “a significant and essential improvement in usability and customization”, and an additional 37% stated, “I notice a difference and appreciate it, but I don't consider it indescribable”. This adds up to 98% of the sample perceiving a positive value, validating the thesis that AI raises the bar for interaction.

Functional satisfaction is closely tied to efficiency. The data indicates that users particularly value the interface’s ability to save time by predicting repetitive activities. This finding aligns with the principle of “Intelligent Automation” where the system optimizes workflows, which reduces cognitive load and increases perceived usability.

A small percentage indicated that AI “doesn’t add much value; its features are limited or ineffective”. This finding, although a minority, is important to note that the success of personalization is uneven, and that poor or incomplete implementation can negate the benefits of proactivity.

AI as a tool for accessibility and inclusion

There is almost complete consensus that AI can be an effective tool for inclusion: 94% of participants stated that AI can make interfaces more accessible for people with visual or motor disabilities. Only 6% expressed uncertainty, and none of the respondents actively doubted this potential.

This finding suggests that users trust AI’s ability to solve complex adaptation problems, such as speech

recognition for motor commands or dynamic adjustment of contrast and font size for visual impairments. This expectation imposes a direct responsibility on design: if AI is seen as the most promising technology for accessibility, future implementations must focus on:

- Active Adaptation: Using AI to personalize the UI not just based on preference but also based on functional needs.
- Gap Identification: The 6% “not sure” gap may indicate that the perception of AI’s effectiveness in accessibility has not yet been convincingly tested by current tools.

AI-assisted UI personalization is perceived as having high functional value, significantly improving usability and satisfaction by making interactions more efficient. However, to consolidate its impact, AI implementation must pivot from being merely a convenience to an essential tool for inclusion, where the consensus of its potential for accessibility translates into robust and reliable design solutions.

Conclusions and discussion

The study aimed to evaluate the perception and attitude of digital software users toward personalized interfaces powered by Artificial Intelligence, focusing on the relationship between functional utility, satisfaction, and ethical barriers. The sample, comprising a highly technological and digitally savvy population, provides a clear view of the expectations and fears of the user segment that most embraces personalization.

The main finding of this paper is the validation of both hypotheses, demonstrating that user acceptance is sensitive to the nature of the interaction (personalization paradox). While 93% of respondents expressed a positive view of instant adaptation resulting from direct actions, acceptance drops drastically when the interface acts proactively using environmental data or biometrics. This validates the theoretical premise that personalization without explicit control results in a restrictive or unpredictable interface, establishing a functional limit based on user autonomy. At the same time, 98% of respondents recognized a positive functional value in using AI for time savings. This finding supports the evolution of Universal Design toward more dynamic systems that move beyond a "one-size-fits-all" approach. The transition to a proactive UX that learns from user preferences in real time allows for the optimization of assistive technologies, confirming that technical personalization is the most effective strategy for ensuring individualized accessibility.

The imbalance between personalization and privacy establishes a functional limit for deep personalization: the gain in usability is not enough to compensate for the loss of control and the feeling of surveillance. The study confirms that users establish a clear hierarchy of data sensitivity, jealously withholding high-risk information. This forces platforms to innovate with low-risk data or rethink their consent models, requiring contextual transparency that allows users to see exactly what data is being used to generate each recommendation, as required by ethical design principles and regulations.

The ethical-functional dilemma of personalization has a direct and critical impact on digital marketing and profitability. Advanced personalization is marketing’s primary tool for segmentation and optimizing conversion rates. However, the high level of privacy concerns means that if the perceived benefit of the UI doesn’t outweigh the feeling of intrusion, the user may choose to abandon the service or limit their interaction. As McKinsey & Co., points out, poorly executed personalization can generate significant losses rather than value. 24

Customer loyalty is being redefined. It’s no longer enough to offer a superior product; ethical data management has become a brand differentiator, and AI systems must be designed to build tru

st through transparency, giving users explicit control over their data. This investment in privacy by design is a marketing strategy in itself, as it fosters long-term loyalty and ensures the continuous flow of high-quality user data, essential for maintaining the competitive advantage of personalization.

The growing consensus on AI’s potential for accessibility expands the reach of marketing, transforming personalization into a tool for social inclusion. Integrating proactive inclusive features not only complies with regulations but also positions the brand as socially responsible and broadens its target market.

Ultimately, AI has raised the bar for what users expect from an interface in terms of efficiency. The challenge today is no longer technical, but rather ethical and trust-based, requiring the UI to focus on transparent privacy management to translate functional utility into full and lasting acceptance.

Limitations and Future Research

The present study, descriptive in nature and based on surveys administered to non-specific users with similar characteristics, presents certain methodological and contextual limitations that must be acknowledged for an appropriate interpretation of the results. This is particularly relevant because the analysis focused on self-reported perceptions rather than observable behaviors.

Additionally, the study did not examine moderating variables such as age, gender, cultural background, or specific types of interfaces, nor did it conduct correlational analyses. It is recognized that incorporating these elements in future research could provide more nuanced insights into the interpretation of the identified personalization paradox.

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