



Business Management Reference on AI Product Marketing Strategies

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Abstract. From the perspective of AI product interaction with users, this study provides scientific guidance for enterprise managers to understand user psychology and formulate effective marketing strategies. This study establishes a research conceptual model to explain the user's willingness to use AI products, as well as the factors that explain this process. By collecting user data, using AMOS software, we employ path-analysis methods to test how the characteristics of AI products (accuracy, autonomy, anthropomorphism, and affinity) affect consumers' perception of task attractiveness and interpersonal attraction, and explore how their willingness to AI products is influenced by interpersonal attraction perception.

Keywords: AI · Interpersonal attraction · Usage intention

1 Introduction

The age of artificial intelligence has arrived. In the context of the era of artificial intelligence, all countries are promoting the integration of the Internet, big data, artificial intelligence and the real economy. The report released by the McKinsey Research Institute also predicts that artificial intelligence can drive about 1.2% of global GDP growth every year for at least the next ten years, and by 2030, artificial intelligence will bring about 1.3 billion US dollars of growth to the global economy. This means that artificial intelligence will become a new engine for improving enterprise efficiency, promoting industrial upgrading, and contributing to economic growth. Data show that domestic and foreign technology giants, such as Google, Amazon, and Alibaba, have listed the development of artificial intelligence as the company's core strategy [34]. Artificial intelligence products derived from the application of artificial intelligence technology, such as intelligent robots, voice intelligent assistants, smart speakers, etc., provide individuals with opportunities to contact artificial intelligence in daily life. The characteristics of artificial intelligence products, such as the ability to communicate with users and control capabilities, have become the basis for users to consider using artificial intelligence products.

Compared with traditional products, AI products are able to collect and recognize various types of sensory data (such as speech, vision, and location) from IoT devices, self-learn according to user preferences and habits to support decision-making, and use it in other applications and Various actions are activated on the device [25]. These

autonomous characteristics enable IPA to naturally socially interact with users and perform desired tasks well according to their preferences [2]. Not only that, AI products can also provide users with reliable and accurate information in a timely manner, such as providing users with weather forecasts [3]. In addition to the natural advantages of AI products at the technical level, they are also augmented by technology developers with anthropomorphic factors, such as anthropomorphic appearance or natural language communication capabilities. And the fun of intelligent communication makes it easier for users to perceive the close relationship with AI products, making users feel close and connected [29]. AI products interact with users in a human-like way that is both gracious and polite. This type of communication reduces the sense of distance associated with traditional mechanical looks, injects a friendly atmosphere into the user experience, and enhances the fun of the user experience.

In the field of human-computer interaction, the relationship established between humans and intelligent robots has received considerable research interest. The emergence of intelligent robots with anthropomorphic cues further motivates users to apply social rules to them to build relationships [5][16]. Shum et al. (2018) took the chatbot XiaoIce as the research object and found that chatbots induce a sense of relationship among users. As with face-to-face relationships, a possible premise for an AI product to establish a relationship with a user is due to the interpersonal attraction that the AI product has for the user. Han and Yang (2018) have found that the interpersonal attraction of intelligent personal assistants to users is an antecedent for users to establish quasi-social relationships with intelligent personal assistants, which in turn affects user satisfaction and ultimately user behavior. However, few studies have further focused on the antecedents of users' interpersonal attraction to AI products. The user's perception is due to certain properties of the AI product. For example, Hu et al. showed that the autonomy of AI elicited user perceptions of enthusiasm and competence. Therefore, it is necessary to explore the relationship between the characteristics of AI products and interpersonal attraction, and then how to influence users' willingness to use.

In summary, our research explores the drivers of user-perceived interpersonal attraction and its impact on users' willingness to accept AI products. Based on previous research, we employ a measure to explore how autonomy, accuracy, anthropomorphism, and affinity affect users' perceptions of interpersonal attraction. In view of this, this study made the following contributions: First, this study established a user intention model. Based on the theory of interpersonal attraction, we focus on analyzing the theoretical framework of the characteristics of AI products, perception of interpersonal attraction, and user willingness to use. Our research found that we have an in-depth understanding of which characteristics of AI products are more interpersonal attractive to users, and then understand the possible prerequisites for users to establish social relationships with AI products, which can enhance the stickiness between users and AI products for enterprises in the future, and promote users to continue to use AI products provides guidance.

2 Literature Review

2.1 Characteristics of AI Products

AI products are a series of products that rely on artificial intelligence technology and can respond similar to humans. At present, common AI products in the market include intelligent service robots, intelligent voice assistants, and intelligent voice speakers. Fernandes and Oliveira (2021) [9] built a service robot acceptance model and then validated the model on data collected from 238 young consumers. Findings found that functional (perceived usefulness, perceived ease of use, subjective social norms), social (perceived anthropomorphism, perceived social interactivity, perceived social presence) and relational factors (trust and intimacy) drove user adoption of AI the reason for the product. Lee et al. (2020) [17] combined the theoretical foundation of U> with technical theory to conduct a research survey of 724 home voice assistant users by using structural equation modeling. The study found that individuals are mainly attracted by the functional benefits, symbolic benefits and social benefits provided by the voice intelligent assistant, which in turn increases the user's enthusiasm for using the voice intelligent assistant. Based on love theory, Song et al. (2022) [28] explored the influence of AI product factors on users' willingness to use. The results show that, influenced by AI factors (performance efficacy and emotional competence), users can develop intimacy and passion for AI products similar to human experience, which in turn promotes the use of intelligent assistants. Combined with the related research on users' use of AI products, we believe that AI products attract users from two aspects, that is, functional aspects and social aspects.

Functional factors are often the main consideration for users when purchasing technology products. Compared with general services, artificial intelligence has played an important role in solving complex and personalized problems through algorithms and data processing capabilities [1]. DeLone and McLean (2003) [6] proposed a standard model for user evaluation of technical information systems from the functional aspects of AI products. The research model shows that the higher performance of AI products in terms of accuracy meets the user's requirements for the correctness of service provision. According to Chung et al. (2020), providing users with credible and accurate information evokes their dependence on AI products and a positive attitude in user perception, so when they face problems again, they may use AI product to search. In addition, thanks to the embedding of artificial intelligence technologies such as machine learning, AI products can understand user voice commands, perform tasks assigned by users autonomously, with a significantly improved degree of autonomy, and can verbally respond to user questions [10]. Hu et al. (2021) proposed that the autonomy of AI products represents behaviors that can see, hear, and feel what is happening in the environment; can automatically control the sensing process when interacting with the user; be able to make a plan with little human effort Responds appropriately to the environment in the event of an intervention; is able to perform actions in the environment and independently control the process when a specific action or series of actions is performed.

For users, it is no longer necessary to be proactive when using smart products powered by AI technology, as they now have human-like communication methods and ways

to establish emotional boundaries. A study has proven that anthropomorphic AI products have an important impact on user experience [21]. Humans tend to anthropomorphize objects; while some AI devices actually have humanoid images of their own, users themselves attribute Characteristics, emotions, or behaviors to objects, leading to subsequent interactions [24]. The joy of intelligent communication makes it easier for users to perceive a close relationship with an AI assistant, making users feel close and connected [29]. The AI assistant interacts with the user in an anthropomorphic way that is both gracious and polite. This way of communication reduces the sense of distance associated with traditional mechanical appearance, injects a friendly atmosphere into the user experience, and enhances the fun of the user experience [32]. Ki et al. (2020) explored the emotional, relational, and social experiences of users with AI products. The study found that the intimacy, understanding, pleasure, and sense of participation that users experience during the use of AI products have enabled users to establish a quasi-social relationship with AI products.

To sum up, we believe that the functional characteristics of AI products include accuracy and autonomy; while the social characteristics mainly include anthropomorphism and affinity, which have an impact on user perception and thus user behavior.

2.2 Interpersonal Attraction

Interpersonal attraction belongs to the field of social psychology and is defined as: “the tendency of an individual to value others or symbols of others in a positive (or negative) way”. According to a study by Montoya and Horton (2014) [20], the term “attraction” originated from a medical term referring to the body’s tendency to absorb fluids or nutrients. In subsequent times, “attraction” evolved into the ability of an object to be attracted to itself by another object, and then extended to humans, the ability of a person to attract another person to itself. In research on attraction, some researchers focus on behavioral factors, such as mutual attraction (Schachter, 1959); others emphasize affect [33] or cognition [27]. However, these definitions are consistent in that they are all descriptions of a positive evaluation of another person.

In previous studies on interpersonal attraction, most scholars believe that interpersonal attraction is a one-dimensional variable, therefore, “like” is often used as an equivalent substitute for interpersonal attraction. However, researchers have gradually noticed that interpersonal attraction is made up of several different components. For example, Coleman distinguishes between two social choices, one based on status and one based on the nature of “liking” [19]. Walster et al. (1966) [30] pointed out, based on a large number of field studies, that physical attraction is the most important determinant of people’s likeability in dating. Based on this, McCroskey (1974) formally defined interpersonal attraction as a three-dimensional structure, including: appearance attraction, social attraction, and task attraction. Physical attraction refers to the degree to which a person’s appearance is liked; task attraction is generally considered to be easy or valuable to work with someone; social attraction refers to the degree to which an individual is socially or personally liked.

Nass & Brave (2005) [23], based on the Computer as Social Actor (CASA) paradigm and Social Presence Theory (SPT), point out that because humans cannot suppress their natural responses to language, social scripts that interact with them are applied

to humans and automation agent interaction. Humans will respond to anthropomorphic voices based on certain technologies and will use the same social rules and methods to respond appropriately when interacting as they would when speaking to other people in real life, activating the social interaction in the brain. All parts related to interaction. For example, when an AI product communicates with a user by using different intonations and tones, it will make the user sound more realistic. In the research in the field of consumer behavior and artificial intelligence, there are also very few results that associate AI products with interpersonal attraction, but mainly focus on the influence of appearance on interpersonal attraction, and the characteristics of AI products using non-visual description are The question of how to influence interpersonal attraction has not been studied. In the interpersonal attraction literature on intelligent speech, Edwards et al. (2019) [8] explored the positive effects of age identity on its task attraction and social attraction. In order to expand this emerging research line, this study attempts to introduce the task attraction and social attraction of interpersonal attraction into the influence of AI products characteristics on user behavior, and examine the different effects of different dimensions of interpersonal attraction on users' willingness to use.

3 Research Hypotheses

3.1 Characteristics of AI Products and Task Attraction/social Attraction of AI Products

Interpersonal attraction reflects the user's satisfaction with the product or service from the side. AI products related to accuracy and autonomy provide efficient services and can facilitate user experience by reducing the complexity of the user operating the application. Furthermore, anthropomorphism and affinity provide a lively interactive process that contributes to the enjoyment of the experience. Therefore, the present study argues that accuracy and autonomy are expected to have an impact on task attractiveness, while anthropomorphism and affinity may have an impact on social attractiveness.

3.1.1 Accuracy of AI Products and Task Attraction

Accuracy means that an AI product provides users with correct, ideal and precise services. Accuracy is one of the foundations for users to use products and services through intelligent conversations. Accurate services make users feel that their needs deserve attention, and problems associated with new technology solutions are an aid to genuine attempts to solve their problems [4]. This perception helps improve the degree to which technical tasks are accomplished, thereby improving the user's actual perception. For example, users can ask the AI product to perform various tasks, such as playing music, making phone calls, sending and receiving messages, or setting reminders. When the AI understands the user's commands and returns accurate results, his/her trust and reliance on the AI product may increase. Therefore, we hypothesizes:

H1a: AI product accuracy positively affects task attraction

3.1.2 Autonomy of AI Products and Task Attraction

AI products powered by artificial intelligence technology can autonomously collect data from the surrounding environment, even from users, and recognize information from these data, such as text, sounds, images, locations, and objects. The AI product is also able to evaluate important things, such as actively recommending plans based on user preferences, and recommending plans and self-learning based on previous interactions. This autonomy enables businesses to further analyze the information collected and develop the best plan to better meet the needs and preferences of users. In addition, AI products can control devices or applications, search for information, alerts, and even provide sounds. The autonomy of AI products can effectively reduce information redundancy or overload for users, save users' unnecessary efforts, and improve overall efficiency and effectiveness [7]. Hu et al. (2019) found that the autonomy of intelligent personal assistants can positively affect users' perception of capabilities. Therefore, we hypothesizes:

H1b: Autonomy of AI product positively affects task attraction

3.1.3 Anthropomorphism of AI Products and Social Attraction

AI assistants master skills such as singing and dancing, and use these abilities to support lively and flexible conversations with users, which can induce feelings in users, similar to the pleasure of talking to a real person (minus some users' social anxiety issues), which improves the user's hedonic experience [32]. In addition, the anthropomorphic AI product interacts with the user in a similar way to the interaction between humans. Schweitzer et al. (2019) [26], based on the theory of anthropomorphism, studied the relationship between users and the possible development of AI products. The study found that users and anthropomorphic AI products may establish friendship and master-servant relationships. The anthropomorphic element of artificial intelligence changes the way users traditionally interact with technology products. Voice-based emotional interaction will enhance users' attachment to AI products, thereby enhancing users' perception of interaction [15]. Therefore, we assume:

H1c: Anthropomorphism of AI products positively affects social attraction

3.1.4 Affinity of AI Products and Social Attraction

The affinity of the AI products (with the user) enables the user to interact with a minimal sense of distance. AI assistants often respond to users in a human tone, creating a relaxed and pleasant atmosphere of communication. Affinity-induced entertainment can increase value perception and willingness to accept digital products [22]. Taking Siri as an example, Siri not only has powerful listening and speaking functions, but also helps users complete a series of tasks through voice interaction. What is even more commendable is that when users search for some information and express their needs, Siri can accurately perceive the user's emotions, and give corresponding feedback. Many Apple users will show happy or unhappy emotions in the process of chatting with Siri. At this time, Siri will judge the user's emotions according to the user's voice input and

give corresponding responses, such as saying “I’m sad” to Siri, Siri will reply with a similar answer such as “If I had a shoulder, I would borrow you to cry.” Such search results, which seem to be extremely irrelevant to artificial intelligence, have formed an emotional attachment between users and artificial intelligence.

H1d: Affinity of AI products positively affects social attractiveness

3.2 Task Attraction/social Attraction and Users’ Willingness to Use

In this study, task attractiveness refers to the user’s perception of the AI product’s ability to complete a given task and its reliability as a work partner. Task attractiveness affects user satisfaction with AI products. According to the Delone and McLean (2003) model, user satisfaction with information systems is affected by quality assessments: information quality (eg, adaptability, usability, reliability), system quality (completeness, understandability, personalization), and service quality (eg, assurance, empathy, responsiveness). The research of Hu et al. (2021) shows that the autonomy of AI products will promote the user’s ability perception, similar to the task attractiveness, and then improve the user’s willingness to use the AI product. Not only that, but also studies have shown that the utilitarian value provided by AI products positively affects users’ willingness to accept AI products [32]. Fernandes and Oliveira (2021) found that users’ perceptions of usefulness and ease of use of AI products positively affect users’ willingness to accept intelligent voice assistants. Lee and Kwon (2013) [18] provide empirical evidence that task attractiveness on mobile devices significantly affects user satisfaction. Therefore, we hypothesize:

H2: Task attractiveness positively affects users’ willingness to use AI products

In this study, social attractiveness was viewed as the user’s intention to communicate and make friends with the AI product. In the human-computer interaction environment, the “humanization” of the voice user interface is very important. AI products are socially attractive due to their human-friendly dialogue flow advantages. Some AI products have conversations with users and can even joke with users, which makes the conversation more enjoyable. Schweitzer et al. (2019) found that users may establish friendship with AI products, and this friendship has a positive impact on users’ willingness to use AI products in the future. In addition, the user’s warm perception, such as pleasure, intimacy, during the interaction with the IPA enhances the social attractiveness of the IPA, which in turn promotes the user to develop further relationships with it, treating it as a friend [14].

H3: Social attractiveness positively affects users’ willingness to use AI products

4 Research Methodology

4.1 Sample and Data Collection

The subjects of this study were young adults aged 18–35 years. The questionnaire is divided into two parts. At the beginning of the questionnaire (Part 1), participants were

asked to watch scenarios of the AI robot in their daily life, and were then asked to answer a “yes or no” screening question (i.e., were you in your previous daily life or shopping experience) Have you used or been exposed to an AI product?), ensuring that respondents have experience in using or purchasing an AI product. If respondents answered that they had not used an AI assistant before, they would be taken to the last page and will be automatically removed from the study. The second part collects demographic characteristics such as age, gender and income.

A total of 220 questionnaires were available for distribution, and 31 were deleted because they did not meet the screening conditions or the responses were incomplete. Finally, 189 valid questionnaires were collected (the effective response rate was 85.9%). The subjects included 85 males (44.97%) and 103 females (55.03%). The age group is generally concentrated between the ages of 18 and 25, accounting for 67.20%. Most of them are undergraduates with an annual income of around 2,000 yuan.

4.2 Questionnaire Design and Measurement

We selected a total of 23 measurement items, and the specific items are shown in Table 1. All scales were answered using a Likert type 7 scale (from 1 = strongly disagree to 7 = strongly agree). The characteristics of AI products are mainly measured from four aspects: four accuracy indicators, three autonomic response indicators, four anthropomorphic indicators, and three affinity indicators, using scales derived from previous studies [13][32]. Three task attractiveness and three social attractiveness were measured [12]. According to Yang et al. (2017) [31], willingness to use was measured by three items.

4.3 Data Analysis

4.3.1 Measurement Model Checking

The reliability and validity analysis of the measurement model are shown in Table 2. The Cronbach’s alpha and combined reliability values of the measurement structures were both greater than 0.751, which were greater than the minimum standard value of 0.70, indicating that the internal consistency and reliability of each structure were relatively high. The validity tests of this study included convergent validity and discriminant validity. The factor loadings of all measurement items are greater than 0.5, and the fitting index results of the measurement model are: Chi-square = 612.434, DF = 222, P = 0.000, CMIN/DF = 2.759, RMR = 0.549, CFI = 0.807, IFI = 0.854, RMSEA = 0.097, indicating good convergence.

Table 2 shows the correlation matrix and the square root of AVE for these structures to establish the discriminative validity. Specifically, the diagonal elements correspond to the square root of the mean of each structure, which are all larger than the value of their corresponding correlation coefficients with other structures. This indicates that the variable has good discriminant validity. In conclusion, the data of this study have good reliability and validity, and are suitable for further testing and analysis.

Table 1. Results of Confirmatory Factor Analysis

Construct	Items	Loading	Alpha	AVE	CR
Accuracy	AC1	0.752	0.827	0.534	0.821
	AC2	0.705			
	AC3	0.709			
	AC4	0.756			
Autonomy	AU1	0.666	0.776	0.541	0.778
	AU2	0.830			
	AU3	0.701			
Anthropomorphism	AN1	0.810	0.870	0.627	0.871
	AN2	0.781			
	AN3	0.793			
	AN4	0.783			
Affinity	AF1	0.727	0.824	0.518	0.763
	AF2	0.731			
	AF3	0.701			
Task Attraction	TA1	0.724	0.752	0.500	0.751
	TA2	0.705			
	TA3	0.694			
Social Attraction	SA1	0.711	0.763	0.508	0.756
	SA2	0.731			
	SA3	0.697			
Usage Intention	UI1	0.728	0.752	0.527	0.767
	UI2	0.712			
	UI3	0.735			

Table 2. Correlation coefficient matrix and square roots of the AVEs

	AC	AU	AN	AF	TA	SA	UI
AC	0.731						
AU	0.704	0.736					
AN	0	0	0.792				
AF	0.677	0	0	0.720			
TA	0.717	0.529	0	0.718	0.707		
SA	0.591	0	0.503	0.673	0.679	0.713	
UI	0.706	0.2	0.354	0.708	0.856	0.696	0.726

4.3.2 Structural Model Verification

We evaluated the conceptual model relationship using structural equation modeling (SEM) (Fig. 1). As shown in Table 3, the data analysis results show that AI product

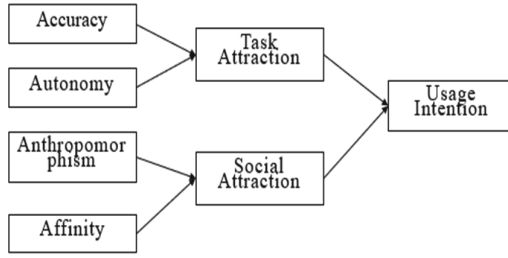


Fig. 1. Research model

Table 3. Hypotheses test results

Structural paths	Standardised coefficient	t-values	Hypothesis Support(Y/N)
Accuracy → Task Attraction	0.873***	8.342	H1a: Y
Autonomy → Task Attraction	0.503***	5.908	H1b: Y
Anthropomorphism → Task Attraction	-0.280*	-2.511	H1c:N
Affinity → Social Attraction	1.149***	7.895	H1d: Y
Task Attraction → Usage Intention	0.704***	5.541	H2: Y
Social Attraction → Usage Intention	0.379***	3.593	H3: Y

*p < 0.05, **p < 0.01, ***p < 0.001.

accuracy ($\beta = 0.873, p < 0.001$) and autonomy ($\beta = 0.503, p < 0.001$) have positive and significant effects on task attractiveness, supporting H1a, respectively, H1b. The anthropomorphic features of AI products ($\beta = -0.280, p < 0.05$) have an effect on social attractiveness, but it is a negative effect, assuming that H1c is not supported. Affinity performance ($\beta = 1.149, p < 0.001$) had a statistically positive and significant effect on social attractiveness, supporting H1d. Furthermore, the effects of task attractiveness ($\beta = 0.704, p < 0.001$) and social attractiveness ($\beta = 0.379, p < 0.001$) on willingness to use AI products were significant and positive, supporting hypotheses H2 and H3.

5 Conclusions

This study reveals the influence of AI product characteristics (accuracy, autonomy, personification, and affinity) on consumers’ task attractiveness and social attractiveness through theoretical analysis and empirical methods, and explores their willingness to use AI products. The research results show that the accuracy, autonomy and affinity of AI products have a positive impact on users’ perceived interpersonal attractiveness, while the anthropomorphic features of AI products have a negative impact on users’

perception of social attractiveness. Research by Gray and Wegne (2012) [11] shows that when people attribute experientiality (the ability to feel and be conscious) rather than agency (the ability to act and execute) to machines, they become disturbing. When users see intelligent robots that can understand our human needs and act autonomously, they may think intelligent robots have minds. The mind perceived by the user in the intelligent robot may be a threat and fear to the user, which in turn leads to the user's rejection of the intelligent robot and unwillingness to get along with the intelligent robot. In addition, the research also shows that the user's perception of task attractiveness and interpersonal attractiveness has a positive impact on the willingness to use AI products.

5.1 Theoretical Contributions

First, our research shows that the accuracy and autonomy characteristics of AI products have a positive impact on users' perception of task attractiveness. Our findings on functionality add new insights to previous research on the impact of AI products on user experience. The results show that providing accurate information can reduce the user's uncertainty level and make the user feel that the AI product is efficient. In addition, AI products can autonomously analyze user preferences, recommend things that users like, and meet users' needs. Second, an AI product can express feelings and opinions in communication like a real person, and respond with an intimate voice like a child or a caring friend. Therefore, users perceive the AI product as friendly and pleasant. However, in the future, it is necessary to grasp the balance between the intelligence level of AI products and user cognition. In the future, if AI products not only have strong technical capabilities, but also have delicate emotional capabilities like people, then this may make users feel fear and threat. Furthermore, we introduce the concept of psychology, the theory of interpersonal attraction, into the study of human-computer interaction to explain the influence of the characteristics of AI products on user behavior, and further reveal that users perceive AI products before they perceive interpersonal attraction.

5.2 Management Implications

We hope to provide insights relevant to these areas and contribute to a more complete understanding of the factors influencing user acceptance of AI products by identifying the drivers that affect user perception. First, our findings on the benefits of AI provide some insights for companies' R&D and marketing departments, showing that manufacturers developing "smart interactions" and "professional capabilities" can increase the adoption rate of AI products and thus enhance user perception of such products positive attitude. Managers should focus on the accuracy and autonomy of AI product services to improve product performance. Furthermore, the solution to the problem proposed by the AI assistant should be based on the user's personal preferences and habits and be analyzed with the support of system data processing to generate adaptive and personalized aspects. Manufacturers can enrich the conversational styles of AI assistants to improve user enjoyment in interactions, such as setting the voice patterns of children and celebrities.

5.3 Research is Limited to Future Prospects

First, our research conditions are somewhat restrictive. This research mainly perceives AI products by letting users watch a video of an intelligent robot, which lacks a certain degree of authenticity and may not bring users a more realistic perception. Future research can choose to conduct research in a laboratory setting, so that the user experience may be more realistic. Second, this study examines the limited variables that influence users' willingness to use AI products. However, there may be other factors that influence users' willingness to use an AI product. We mainly study artificial intelligence assistants from the perspective of products, lacking the dimension of user perception. Future research should include these or other possible impact antecedents within the current framework to improve the model's utility and management effectiveness. Finally, this study found that the anthropomorphic features of AI products have a negative effect on users' perception of interpersonal attractiveness, but the impact of AI products' anthropomorphic features on users may be U-shaped. Future research can explore whether the influence of AI product anthropomorphic features on users is U-shaped, and where the inflection point of the effect is.

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