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Unlock Happy Interactions: Voice Assistants Enable Autonomy and Timeliness

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Abstract: This study examines the effects of three interactive voice assistant (VA) features (responsiveness, ubiquitous connectivity, and personalization) on consumer happiness. An online survey was administered to 316 VA consumers, and the data were analyzed using structural equation modeling with SmartPLS 4 software. The results indicate that VA responsiveness, ubiquitous connectivity, and personalization have significant effects on consumer happiness. This study also provides evidence that consumer happiness is influenced by VA features through the mediating roles of autonomy and timeliness. Notably, perceived privacy risk has a dual effect, negatively affecting happiness but positively moderating the relationship between autonomy and happiness, suggesting a complex interplay between benefits and concerns in user interactions with VAs. This study highlights the need for VA businesses to consider both the enhancing and mitigating factors of technology for user experiences. Furthermore, our findings have significant implications for VA businesses and executives, suggesting that improved interactions through these VA features can better serve consumers and enhance their experiences.

Keywords: voice assistant; happiness; responsiveness; ubiquitous connectivity; personalization

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1. Introduction

A voice assistant (VA) is a type of artificial intelligence (AI) with voice interaction as its core function, which has been applied to many aspects of consumers' lives, such as through Apple Siri, Amazon Alexa, and Google Assistant. VAs are becoming integral to daily life. The market for smart VAs is developing rapidly because of their interactive features, which delicately engage consumers with technology [1]. According to "The Smart Audio Report" [2] by National Public Media, 35% of American adults had used VA by spring 2022, and this number keeps increasing each year. The frequency of VA use is also increasing, with 52% of VA adopters using a VA device at least once per day, which is an increase of 46% since the beginning of 2020.

In the practical use of VAs, because natural language processing (NLP) technology enables humans to wake up a smart machine with little effort, consumers can easily enjoy two-way communication with VAs. Using a basic smart device (e.g., smartphones, carplay Bluetooth, or in-house smart radios) and connected networks, consumers can readily activate their VAs. Immediately after a wake-up keyword is spoken, VAs will respond to users with proper answers based on their strong calculation ability. Moreover, during rounds of interaction, intelligent VAs become more accustomed to users' preferences, including their appetite, daily routines, tones, and speech punctuation, which leads to better personalized suggestions for consumers.

Research has generated rich findings on VA adoption and applications [3–5]; however, little is known regarding how VAs contribute to consumer happiness, especially during their interactions. As happiness is an important factor that motivates consumers to adopt digital technology, academics have categorized technology—and digital entertainment-sourced happiness as a research topic [6]. In this era of new technology, AI can provide customers with happy experiences based on their personalized preferences [7]. Consumers may interact with or even purchase a product simply to experience happiness. Henkens et al. [8] argued that VA smartness can affect consumer happiness, both positively and negatively, through personalization and intrusiveness mechanisms. In tourism-related research, experiences with smart tourism technology indirectly affect tourists' happiness and willingness to revisit a location through tourism experience satisfaction [9]. Alalwan et al. [1] found that dimensions such as ubiquitous connectivity and personalization of mobile interactivity significantly affect consumer engagement, which has been shown to positively affect consumer happiness [10]. Since the use of VA in consumers' daily lives is relatively new, research focusing on the implications for consumer happiness of using VA, especially the mechanism of VA's effect on happiness from an interactive perspective, is scarce. Thus, the present study aims to fill this gap.

By proposing and empirically validating a model with mediating effects, the present study aims to answer the following question: "From the perspective of interaction, how do the VA features affect consumer happiness?" This issue is crucial to address. First, given the ongoing impact of AI technology on daily life, the mechanism of growing consumer happiness with smart products such as VAs is important to understand, and this has great potential to extend the conceptual development of human–machine interaction research. Second, this study's findings may provide practical guidelines on customer experience for the design and operational management of VAs.

In related research on VAs, Lee [11] identified the components of interactivity as responsiveness, ubiquitous connectivity, consumer control, connectedness, and contextual offers. Alalwan et al. [1] and Baabdullah et al. [12] classified the interaction features of VA from similar perspectives, including responsiveness, ubiquitous connectivity, and personalization. Based on the practical use process of VAs and related academic research fundamentals, this study examines how three important VA features (responsiveness, ubiquitous connectivity, and personalization) affect consumer happiness from the perspective of consumer–VA interactions. The dual path explores the mediating mechanisms through which VA interaction features affect consumer happiness and verifies the negative and positive effects of perceived privacy risks on consumer happiness. Our research enhances the current understanding of how AI technology, especially VAs, influences people's happiness while extending previous consumer behavior research on VAs.

The remainder of this paper is organized as follows. First, related literature and theory are reviewed. Second, hypotheses and a conceptual model are proposed. Third, the methodology used to collect data and test the research hypotheses is described. Fourth, the results and discussion are presented. Finally, the theoretical and practical implications of the study, as well as its limitations and suggestions for future research, are discussed.

2. Literature Review

As the VA market has continued to flourish, practitioners' interest in VA implementation and also researchers' attention to VA-related issues have increased [13–15]. An elaborate literature review on VAs is useful for putting forward existing research and uncovering more academic findings. Thus, in the literature review, the first section elaborates on the interactive features of VAs and proposes three related dimensions of interactivity. The next section presents the dual effects of VAs, accounting for both their positive and negative mechanisms. The final section proposes that interactive VAs enable happiness based on a review of the literature on the connection between VA technology and happiness.

2.1. Interactive Features of Voice Assistants

VAs are AI agents that can communicate with humans through NLP abilities [16]. These smart speakers can be embodied as an identity (e.g., Xiao'ai in a music box) or disembodied as software but embedded in smartphones, computers, and speakers (e.g., Apple Siri, Google Assistant, Microsoft Cortana, and Amazon Alexa). Research topics on VAs can be divided into the general research agenda and future directions [17], antecedents of VA acceptance and adoption [5,18–20], voice shopping and uses of voice channels to augment traditional online shopping behavior [21–23], various influences of VAs (i.e., consumers' daily lives, brand management, advertising, etc.) and their continuous use [4,24], and failure during voice services [25,26]. Since VAs are activated by specific voices and keywords and then respond to consumers' questions, they have two roles: the asker and the other is the answerer. Consumers and VAs take turns in these roles. No matter what angles are chosen, the "ask and answer" mode is unavoidable in VAs. Thus, an intrinsic nature of interaction exists throughout customers' journeys with VAs, and the most essential aspect of VAs to research is interactivity [1]. However, the mechanism of interactivity between humans and VAs and its effects have rarely been identified by academics [16]. The interactive scope of VAs is operationalized by key components needed in human–intelligent agent interactions, which has been conceptualized as a unidimensional construct by some research streams [27–29] and considered a multidimensional construct by others [11,28,30]. To understand the influence of interactivity in technology fully, Lee [11] identified the components of interactivity as responsiveness, ubiquitous connectivity, consumer control, connectedness, and contextual offers, which have significant effects on consumer trust. Another construct of interactivity, consisting of six elements (active control, personalization, ubiquitous connectivity, responsiveness, and synchronicity), was discussed by Alalwan et al. [1]. Later, the "dimensionality" of the interactivity construct was applied to the AI chatbot context and specifically named chatbots-as-systems factors, including responsiveness, personalization, and ubiquitous connectivity [12].

Reciprocal back-and-forth communication is necessary when consumers interact with VAs [16]. This requires VAs to be able to first recognize the consumer's input and then respond quickly and accurately for mutual interaction before finally providing customized suggestions. For example, a consumer named Tom would like to reserve a table for dinner using his VA, Siri. He first asks Siri about restaurants nearby, and Siri is activated by Tom's specific voice (ubiquitous connectivity). Simultaneously, Siri responds to Tom after a quick search for a list of restaurants (responsiveness) and suggests one that would be a good choice based on the distance and the user's appetite (personalization). However, to take better advantage of VAs in the realm of human–computer interactions, more attention must be paid to the interactivity aspect of VAs. Existing research mainly discusses the general interaction between humans and technology and its direct effects on products or brands in the consumption market [31,32]. Interactive digital marketing has been changing the landscape of the traditional consumption market [33]. For example, traditional selling depends on person-to-person interactions to introduce and understand a product. However, in digital interactive marketing, smart VAs help consumers while they shop through two-way conversations about products and brand information [34]. From an individual perspective, the interaction process between consumers and smart VAs can be personalized, contributing to a better consumer experience [35]. For example, when consumers experience adequate interaction with smart VAs, they become more engaged [36]. However, the aim of technological development should focus more on how technology can contribute to human happiness, which echoes the ultimate ideal life augmented by AI. Thus, the correlation between interactive VA technology and human happiness requires further emphasis.

2.2. Dual-Path Effect of Voice Assistants

VAs help people to handle more types and quantities of tasks than before the digital era [37,38]. This enables consumers to have better control and freedom in their tasks and accomplish them in a timely manner. Over time, it can be predicted that VAs will enhance human happiness. However, at the infancy stage of intelligent technology, where relevant laws and regulations are still immature, it is worth noting that vast amounts of personal information are unconsciously collected and analyzed. VAs have a dual-path effect that illustrates the potential influence of VAs on consumer happiness from both positive and negative perspectives. The existing literature usually focuses on either the advantages or disadvantages of adopting VAs [13,39–41]; however, they seldom provide comprehensive overviews of how interactive VAs influence consumer happiness. Because VAs are technology-fueled applications, they can benefit consumers through technological advancements in voice interactions [41]. However, VAs must collect consumer data to provide the targeted information, which may lead to privacy concerns. Although some researchers have analyzed the "personalization–privacy paradox" [42–44], finding that some consumers are skeptical about the benefits of using technology and have concerns regarding privacy issues, these remain a narrow aspect. Thus, a two-sided view is proposed to call attention to not only the bright aspects but also the potential dark ones to enhance the sense of happiness by VAs.

2.3. Interactive Voice Assistants as Enablers of Happiness

While the intelligence of smart devices is increasing exponentially, academics have gradually realized the significance and potential of happiness enhanced by technology, drawing attention to this research field [45–47]. As a subjective and emotional evaluation, happiness refers to one's optimal psychological condition [48–50]. For instance, through voice interactions with intelligent products in a smart building system, consumers' needs can be satisfied how they want, which enhances consumer satisfaction and subsequent happiness [51]. As an exploratory research agenda, Jeste et al. [52] stated that to establish a closer relationship between technology and human happiness, AI should advance to artificial wisdom to broaden the context. This leads to an essential call for AI to be sufficiently smart enough to enable a sense of happiness during human–robot interactions. Considering mental health, a smart mirror was introduced to improve people's happiness through three possible interactive responses [53]. Henkens et al. [8] examined the relationship between smartness and consumer happiness by proposing personalization and intrusiveness mechanisms to explain the role of consumer engagement in the process. An increasing number of managers consider it a good market strategy for promoting sales by satisfying customers' need for happiness [54]. Extant literature suggests that both possessing fascinating goods and having extraordinary experiences are potentially associated with happiness, although an interactive experience probably leads to a higher level of happiness [55–57]. Thus, VAs contribute to consumer happiness by not only satisfying the desire to possess digital applications but also enhancing happiness through vivid interactions.

3. Conceptual Model

3.1. Technology Affordance Theory

Affordance theory was first proposed in the field of ecology to illustrate the phenomenon of different individuals perceiving the same object differently [58]. Thus, the value of an object is determined by stakeholders' views and their ability to make good use of it. In this context, affordance refers to an object's utility or the use it affords [59]. In the information era, affordance theory is being applied to the technology industry [60] and has been used to explain why the effects of digital information and communication technologies vary across demographic groups and organizations [61]. According to technology affordance theory, technology is a facilitating condition that provides opportunities for action [60,62].

Technology, such as VAs, augments consumers' abilities to meet their schedules more efficiently and effectively, leading them to a greater sense of control and freedom. However, technology affordance theory suggests that constraints should also be studied as "twin notions" with affordance because of the balance concept, indicating that promotion and prevention should be given similar weights [63,64]. Therefore, technology affordance theory is also called "technology affordances and constraints theory" and is used to explain the paradox of contradictory findings in the field of technology [61,65]. In an attempt to move beyond the existing approach and enrich the current debate on the effects of VAs on consumer happiness, this study adopts an affordance perspective to analyze how consumers view the affordances and constraints VAs offer with respect to the three core functions of interaction: responsiveness, ubiquitous connectivity, and personalization. Figure 1 shows this study's conceptual model based on technology affordance theory.

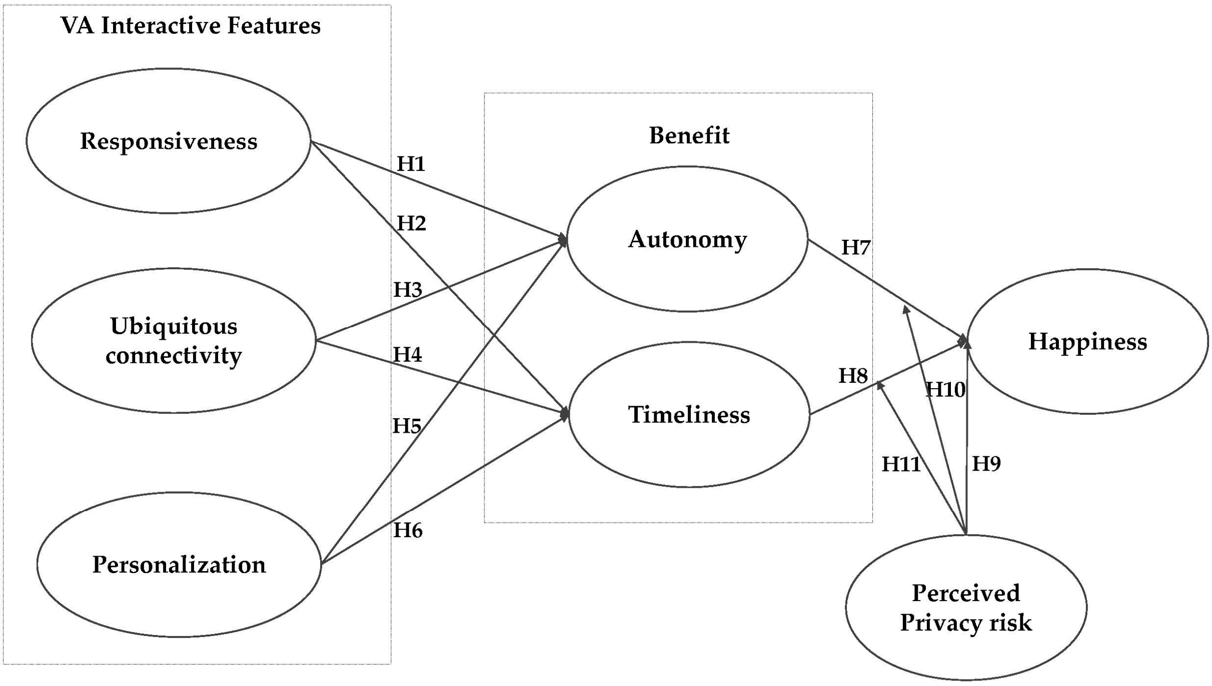


Figure 1. Proposed research model.

3.2. Responsiveness

Responsiveness is one of the most essential features of smart assistants, especially during human–robot interactions [12]. According to the literature on interactions, the responsiveness of an AI application refers to its ability to appropriately recognize, understand, and address consumers' requirements with a short reaction time [1,11,29,66]. In practice, customers will likely become upset unless a VA's responsiveness is quick and appropriate. Responsiveness is so necessary and prevalent that consumers cannot imagine a scenario without it. For example, responsiveness allows VAs to reply to information search requests with an immediate answer and a list of results, as well as set schedules if ordered to do so. This augments human abilities by arming them with intelligent assistance. More freedom is achieved because humans can do things as they like with the help of VAs. In view of technology affordance theory, this means that human autonomy is enhanced because of VA responsiveness [67]. In addition, the ability of VAs to react enables consumers to handle things in a timely manner. Thus, the following hypotheses are proposed.

H1. *Responsiveness is positively associated with consumer autonomy.*

H2. *Responsiveness is positively associated with task timeliness.*

3.3. Ubiquitous Connectivity

Ubiquitous connectivity is another vital interactive feature of VAs [12]. This refers to the ability of VAs to connect anytime and anywhere for as long as their users want. To some extent, VAs are servants or close friends who stand by 24/7 at your request. Ubiquitous connectivity is significant in the context of interactive VAs because it is an essential enabler of convenience and efficiency in consumer experiences [1,68]. Because VAs are activated by consumers' voices, it will be more helpful if they can be connected without the limitations of the physical environment and time. VAs' ubiquitous connectivity perfectly matches the features of people's speech; it can be elicited anytime and anywhere according to consumers' wants. Thus, consumer autonomy improves because consumers can obtain support from VAs with physical restrictions when they want to engage in something they love. Similarly, their tasks can be completed promptly with the ubiquitous help of VAs. Thus, the following hypotheses are proposed.

H3. *Ubiquitous connectivity is positively associated with consumer autonomy.*

H4. *Ubiquitous connectivity is positively associated with task timeliness.*

3.4. Personalization

In the big data era, personalization appears to be a necessary feature for smart applications. Defined as the "ability to proactively tailor products to tastes of individual consumers based upon their personal and preference information" [69], this function is realized through deep learning of natural language to learn consumers' appetites and behavioral modes. VAs process consumer requests and analyze common places during a great deal of interactions to provide personalized recommendations [70,71]. This is an important method of use that profoundly encourages consumers to participate in activities with VAs, thereby leading to interaction and engagement [72]. Personalization enhances consumer autonomy by satisfying their sense of control because it meets people's need for uniqueness [56,73]. Personalization also ensures task timeliness for consumers by providing filtered choices based on their preferences. This is a critical way to lower consumers' cognitive load regarding overwhelming choices, which improves their efficiency and effectiveness [74]. Through iterative interaction, consumers' requests can be promptly processed and solved, thus potentially enabling them to endeavor toward something so exhilarating that they did not dare imagine before. Thus, consumers feel more capable of deciding what to choose and a great right of speech. Therefore, we hypothesize the following.

H5. *Personalization is positively associated with consumer autonomy.*

H6. *Personalization is positively associated with timeliness.*

3.5. Autonomy

Autonomy is a vital influencing factor for happiness [56]. As one of the three psychological needs in self-determination theory, autonomy highlights the importance of control and initiative in the pursuit of happiness [75]. Studies based on the self-determination theory have shown that autonomy can have a positive effect on happiness [76–78]. Furthermore, previous research has suggested that individuals are more likely to experience higher or increased satisfaction if they are more assured of autonomy when making choices [79,80]. Inglehart et al. [80] found that autonomy has a mediating effect on the relationship between individuals' daily experiences and happiness. Thus, we hypothesized the following.

H7. *Consumer autonomy is positively associated with consumer happiness.*

3.6. Timeliness

As the processing abilities of VAs enable consumers to handle tasks with more power, thereby enhancing their sense of autonomy, another attractive ability is that of arranging schedules to help consumers carry out their agendas in a timely manner. Setting a to-do list by voice is such a convenient method that many people are encouraged to try it. After their first attempt, most people will gradually adopt it as their daily routine. Thus, VAs help consumers form a timely sense [81]. Previous studies have stated that the timeliness of technological applications enables users to handle several tasks in a relatively short time [82]. This improves consumer efficiency by saving redundant time, which helps generate positive feelings and thus leads to overall happiness [83]. Hence, we hypothesize the following.

H8. *Task timeliness is positively associated with consumer happiness.*

3.7. Perceived Risk of Personal Privacy

Perceived privacy risk can be defined as concerns regarding the misuse of personal information by third parties when using digital devices or applications [84]. Such privacy risks range from data collectors and processors to data consumers and analysts [85]. As information is considered valuable in the digital era, the risk of personal data leaks has become a critical factor to consider. Existing research shows that doubts about privacy information safety significantly hinder people's positive perceptions of AI assistants and thus lower the VA adoption rate [86,87]. Because VAs can "hear" more intimate personal information during interactions with users than other smart applications, the potential privacy risk calls for more attention [88]. Moreover, the positive effects of VAs can be affected by this negative tendency. When a perceived personal privacy risk exists, the desirable effects of autonomy and timeliness on consumer happiness may be weakened. Thus, concerns about appropriate information use can harm consumers' overall happiness with using VAs. Consequently, we propose the following hypotheses.

H9. *Perceived risk of personal privacy is negatively associated with consumer happiness.*

H10. *Perceived risk of personal privacy negatively moderates the relationship between autonomy and consumer happiness.*

H11. *Perceived risk of personal privacy negatively moderates the relationship between timeliness and consumer happiness.*

4. Research Method

4.1. Data Collection

The data used in this study were collected online from Credamo (https://www.credamo.com, accessed on 20 March 2024), a popular online survey platform in China. Previous research has proven the authenticity and effectiveness of data from this platform [89–91]. The questionnaire survey used in this study is highly representative of all industries and age groups owing to the versatile samples available on the platform. The respondents were selected based on their frequency of VA use. Only those who used VA devices at least monthly in the past six months were eligible to participate. This criterion has been discussed in previous studies [34,92]. To ensure that the quality of the survey results and the relationships discovered from them would not be contaminated by other variables, we applied two principles for respondent selection. First, respondents should have interacted with VAs more than once to exclude the effect of novelty, which is a common antecedent of happiness [93]. Second, respondents should be able to recall their experience of interacting with VAs so that their answers are reliable. Six months is a reasonable timeframe for respondents to recall their experiences with VAs and sufficiently long to include more potential experiences [94]. Based on the two aspects mentioned above, qualified respondents were required to have used VA devices at least monthly in the past six months.

For the data collection procedure, respondents were first asked whether they had ever used VA applications and the names of any applications used; only participants who used VA devices were allowed to answer the questions relevant to this analysis. Respondents were then required to answer questions about VA features (i.e., responsiveness, ubiquitous connectivity, and personalization) and their sense of happiness. Demographic information, such as age, gender, education level, occupation, and income, was also collected from the respondents.

Data were collected over four days in September 2022. In total, 350 responses were received. To ensure the authenticity and effectiveness of the data, a threshold answer time was set based on the number of questions and estimated necessary time. Thus, some careless questionnaires with answer times of less than 180 s or those that failed the attention checks were discarded. After screening the surveys based on the quality criteria noted above, 316 valid responses were obtained. Of the valid respondents, 39.557% were male, and 60.443% were female. Participants' ages ranged between 18 and 59 years, with a mean age of 31.9 years. Most respondents had a bachelor's degree (73.734%), were employed as staff (75.949%), and had a monthly income between RMB 6001 and 9000 (30.063%). Additionally, the results showed that the respondents' VA use was mainly concentrated on four brands: Xiaoai (46.835%), DuerOS (23.734%), TmallGenie (13.608%), and Apple's Siri (11.709%). Table 1 summarizes the sample used in this study.

Table 1. Respondents' demographic details (N = 316).

Variables		Frequency Counts	Percentage (%)
Gender	Male	125	39.557
	Female	191	60.443
Education	High school and below	8	2.532
	College degree	36	11.392
	Bachelor's degree	233	73.734
	Postgraduate or above	39	12.342
Occupation	Government departments and institutions	47	14.873
	Staff	240	75.949
	Individual Household or Freelancer	16	5.063
	Other	13	4.114
Income (RMB)	<3000	11	3.481
	3001–6000	60	18.987
	6001–9000	95	30.063
	9001–12,000	79	25.000
	>12,001	71	22.468
Which VA do you use the most?	Siri	37	11.709
	DuerOS	75	23.734
	Xiaoai	148	46.835
	Celia	8	2.532
	TmallGenie	43	13.608
	Other	5	1.582

4.2. Measurement

The questionnaire was developed using previously validated scale items to measure the constructs proposed in this study. All items were measured on a 7-point Likert scale, ranging from 1 = "strongly disagree" to 7 = "strongly agree". Responsiveness was measured using three items, and ubiquitous connectivity and personalization were both measured using four items each, all adapted from Baabdullah et al. [12]. Autonomy was measured using four items adapted from Sankaran et al. [95], and timeliness was measured using four items adapted from Yin et al. [82]. The five-item scale of Rauschnabel et al. [96] was used to measure perceived privacy risk. Finally, three items were adapted from Lyubomirsky and Lepper (1997) to measure subjective happiness (Appendix A). All descriptions of the scale questions were adapted according to reasonability in the VA context. Because the data were collected in China, translation of the original English measurements into Chinese was necessary. To ensure the accuracy and fluency of the statements, a back-and-forth translation method was adopted [97,98]. After three rounds of translation and content-checking by one professor and three PhD students, the Chinese versions of the scale items were finalized. Three marketing experts and scholars were invited to verify the clarity of the scale items. To further clarify the effectiveness of the questionnaire, we conducted two rounds of pilot tests with two different focus groups, each including five consumers who had used VA devices. Based on respondents' feedback on these tests, minor changes were made to the content and format of the questionnaire.

4.3. Data Analysis

A feasible analysis tool should be applicable to abnormally distributed data because of the characteristics of data from a Likert scale [99]. Based on the guidance of Hair et al. [100], partial least squares (PLS) regression is an appropriate choice because no normality assumptions are required, and it handles non-normal distributions well. Its reliability and popularity in data analyses have been widely demonstrated [101]. Thus, we used Smart PLS software (version 3.0) as an analysis tool to evaluate the structural equation model (SEM) and test the hypotheses with 316 respondents [102]. Considering that a reflective model was used for testing, multiple indicators in the model were calculated to display the measurement properties. Following these directions, bootstrapping was performed with 5000 subsamples to estimate the SEM, including t values, path significance, and formulated hypotheses.

5. Results

5.1. Measurement Model Evaluation

To ensure data quality, samples were screened and eliminated before analysis, including outliers, missing values, and logically inconsistent samples. Then, Harman's one-factor test was used to test for common method variance (CMV). The results of the principal component, including the analysis of all five constructs, showed that the first factor explained 36.18% of the variance. Because the standard for this data requirement is below 40%, the outcomes met this criterion, and no problems related to CMV were observed. The reliability and validity of all the variables also met the required criteria.

The indicators met the requirements because they were all above 0.70 and had significant loadings at the 0.01 level. The outer loadings of all items were higher than 0.70. Cronbach's α for each structure was superior to the critical value of 0.70, ranging from 0.703 to 0.954. In addition to internal consistency reliability, we followed the guidelines of Hair et al. [100] to test convergent validity. As the average variance extracted (AVE) is a useful measurement of convergent validity, this index was adopted. The criterion for this is that it should be greater than 0.5 [99]. Because the AVE for all constructs in the tested model was higher than 0.5, the convergent validity was satisfactory for all seven constructs. These findings are summarized in Table 2.

We then verified the discriminant validity of the model. Discriminant validity is the "extent to which a construct is truly distinct from other constructs by empirical standards" [103]. We followed the criteria of Fornell and Larcker's model [104] to examine the discriminant validity of the constructs. Table 3 shows that the square roots of all AVEs in the matrix diagonal were above all correlation coefficients, indicating sufficient discriminant validity.

We conducted a full collinearity test for the latent constructs to evaluate common method bias. We tested for collinearity by checking the variance inflation factor (VIF) values. As suggested by Kock [105], the value of the VIFs should be less than 5. The largest and lowest VIF values were 4.991 and 1.287, respectively. Thus, common method bias made almost no difference in this study.

Table 2. Measures and reliabilities (N = 316).

	Constructs	Factor Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Responsiveness	1. RSPV1 2. RSPV2 3. RSPV3	0.779 0.792 0.805	0.703	0.835	0.627
Ubiquitous Connectivity	1. UBQS1 2. UBQS2 3. UBQS3 4. UBQS4	0.761 0.758 0.743 0.708	0.729	0.831	0.552
Personalization	1. PRS1 2. PRS2 3. PRS3 4. PRS4	0.744 0.726 0.724 0.829	0.751	0.843	0.573
Autonomy	1. AUTO1 2. AUTO2 3. AUTO4 4. AUTO5	0.756 0.746 0.759 0.706	0.727	0.830	0.550
Timeliness	1. TIME1 2. TIME2 3. TIME3 4. TIME4	0.770 0.722 0.709 0.719	0.707	0.820	0.533
Perceived Privacy Risk	1. PRI1 2. PRI2 3. PRI3 4. PRI4 5. PRI5	0.925 0.923 0.875 0.935 0.932	0.954	0.964	0.843
Happiness	1. HPY1 2. HPY2 3. HPY3	0.811 0.762 0.809	0.708	0.837	0.631

Table 3. Discriminant validity (Fornell-Larcker).

	PRS	AUTO	PPR	RSPV	HPY	TIME	UBQS
PRS	**0.757**						
AUTO	0.746	**0.742**					
PPR	−0.247	−0.299	**0.918**				
RSPV	0.703	0.690	−0.335	**0.792**			
HPY	0.605	0.693	−0.431	0.624	**0.794**		
TIME	0.617	0.732	−0.285	0.641	0.667	**0.730**	
UBQS	0.624	0.689	−0.186	0.552	0.528	0.627	**0.743**

Note: Numbers in bold on the diagonal are the square roots of the average variance extracted for the constructs.

5.2. Structural Equation Model Analysis

We assessed the predictive accuracy of the model by checking the values of R^2. The R^2 values of 0.67 (autonomy), 0.58 (happiness), and 0.53 (timeliness) for the endogenous variables in our model can be considered moderate [105]. Following Henseler et al. (2016), we checked the standardized root mean square residual (SRMR) to assess model fit. As they suggested, the SRMR value should not exceed 0.08. The SRMR value in this study was 0.068, indicating that the model fit criterion was sufficiently satisfied. The Q^2 values of 0.362 (autonomy), 0.361 (happiness), and 0.275 (timeliness) were higher than 0.

We used Smart PLS 3.0 statistical software to examine the mediating effect. Table 4 shows the study's main and mediating effects. Responsiveness has a positive effect on autonomy ($\beta = 0.256$, $t = 5.537$, $p < 0.001$), thus supporting H1. Responsiveness has a positive effect on timeliness ($\beta = 0.335$, $t = 4.502$, $p < 0.001$), thus supporting H2.

Table 4. The results of the structural model.

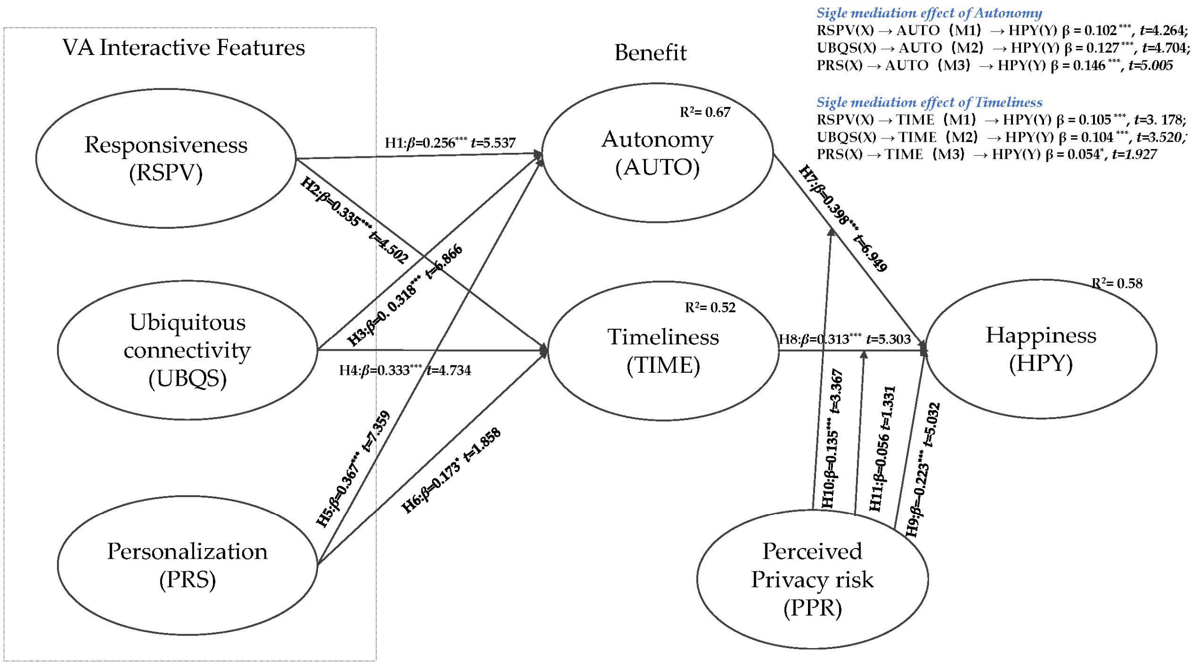
	Hypothesis	Original Sample (O)	Sample Mean (M)	Standard Deviation	T Statistics (|O/STDEV|)	*p*-Values	Results
H1	RSPV → AUTO	0.256	0.255	0.046	5.537	0.000	Supported
H2	RSPV → TIME	0.335	0.326	0.074	4.502	0.000	Supported
H3	UBQS → AUTO	0.318	0.320	0.046	6.866	0.000	Supported
H4	UBQS → TIME	0.333	0.339	0.070	4.734	0.000	Supported
H5	PRS → AUTO	0.367	0.365	0.050	7.359	0.000	Supported
H6	PRS → TIME	0.173	0.178	0.093	1.858	0.032	Supported
H7	AUTO → HPY	0.398	0.400	0.057	6.949	0.000	Supported
H8	TIME → HPY	0.313	0.310	0.057	5.303	0.000	Supported
H9	PPR → HPY	−0.223	−0.224	0.044	5.032	0.000	Supported
ABO	PRS → TIME→ HPY	0.054	0.054	0.028	1.927	0.027	
	RSPV→ AUTO → HPY	0.102	0.102	0.024	4.264	0.000	
	UBQS→AUTO → HPY	0.127	0.128	0.027	4.704	0.000	
	RSPV → TIME → HPY	0.105	0.102	0.033	3.178	0.001	
	UBQS→ TIME → HPY	0.104	0.105	0.030	3.520	0.000	
	PRS → AUTO → HPY	0.146	0.146	0.029	5.005	0.000	

Ubiquitous connectivity is positively correlated with autonomy (β = 0.318, t = 6.866, $p < 0.001$) and timeliness (β = 0.333, t = 4.734, $p < 0.001$), thus supporting H3 and H4, respectively. Personalization is positively correlated with autonomy (β = 0.367, t = 7.359, $p < 0.001$) and timeliness (β = 0.173, t = 1.858, $p < 0.05$), thus supporting H5 and H6, respectively. Regarding subjective happiness, autonomy (β = 0.398, t = 6.949, $p < 0.001$) and timeliness (β = 0.313, t = 5.303, $p < 0.001$) have positive effects, whereas privacy invasion has a negative effect (β = −0.223, t = 5.032, $p < 0.001$); thus, H7, H8, and H9 are supported, respectively. The specific indirect effects are presented in Table 4 and Figure 2.

We tested the moderating effects using hierarchical regression analysis. Here, we used SPSS for two reasons. First, to test for multiple moderating effects, hierarchical regression analysis has been proven to be a better methodology for model fitness [106]. Second, the centered sums of the indicators are adopted in hierarchical regression analysis, which is regarded as more suitable than PLS. This is because PLS tends to overestimate the strength of relationships while underestimating their significance [107]. Therefore, to avoid unnecessary multicollinearity, the independent variables and moderators were calculated as mean-centered [108,109]. First, we processed the data on perceived privacy risk, autonomy, and happiness. Then, we added perceived privacy risk and autonomy into Model 1 and introduced the interaction item of perceived privacy risk and autonomy into Model 2. As Table 5 shows, perceived privacy risk positively moderated the relationship between autonomy and happiness (ΔR^2 = 0.17, β = 0.135, t = 3.367, $p < 0.01$). As shown in Figure 3, the slope of the high level of perceived privacy risk was higher than that of the low level, rejecting H10. Similarly, we tested the moderating effect of perceived privacy risk on the relationship between timeliness and happiness, which is insignificant (ΔR^2 = 0.003, β = 0.056, t = 1.331, $p > 0.1$), rejecting H11.

Table 5. Hierarchical regression results.

Variable	HPY				Variable	HPY			
	Model 1		Model 2			Model 1		Model 2	
AUTO	0.609	0.573	13.710	TIME		0.591	14.316	0.571	12.964
PPR	−0.244	−5.935	−0.241	−5.968	PPR	−0.265	−6.411	−0.267	−6.467
AUTO × PPR			0.135	3.367	TIME × PPR			0.056	1.331
R^2	0.522		0.538		R^2	0.508		0.511	
ΔR^2	0.522		0.017		ΔR^2	0.508		0.003	
F	170.642		121.297		F	161.646		108.620	



Notes: Standardized path coefficients are shown. *** $p < 0.001$, *$p < 0.05$.

Figure 2. The structural model.

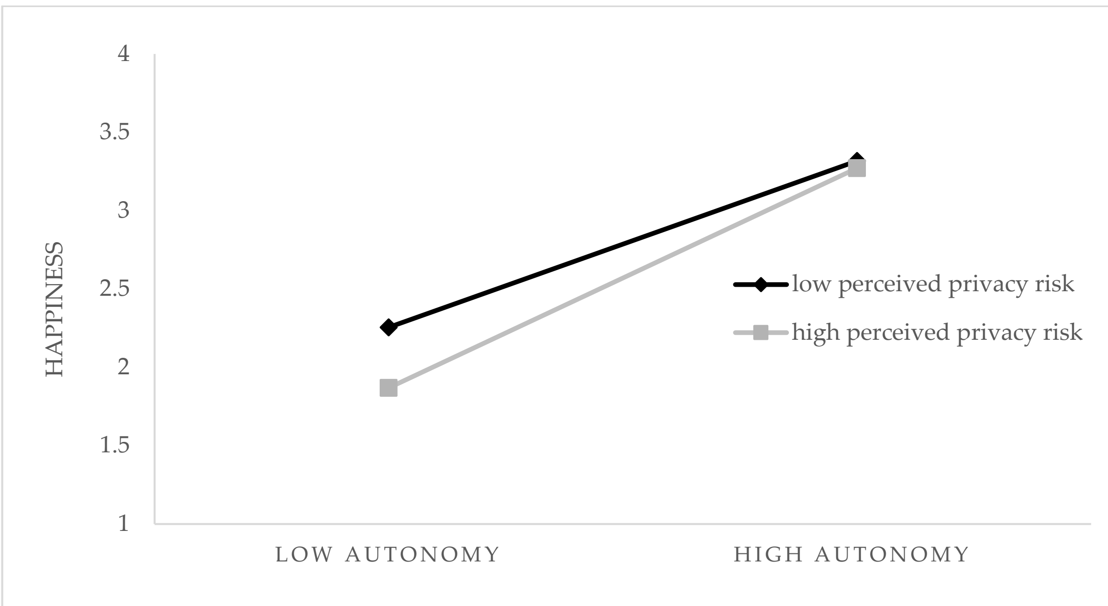


Figure 3. The moderating effect model.

6. Discussion and Conclusions

6.1. Discussion and Conclusion of the Results

Our results show that three interactive functional characteristics of VA can affect consumer happiness mainly through two benefits: autonomy and timeliness. Specifically, the findings demonstrate that VA responsiveness can improve consumer-perceived autonomy (H1) and timeliness (H2) and that autonomy and timeliness can improve consumer happiness (H7 and H8). Similarly, our findings show that the ubiquitous connectivity of VA has positive effects (H3 and H4) on consumer happiness through both autonomy and timeliness. In line with the findings of Henkens et al. [8], who highlighted the significant role of personalization in enhancing user engagement and satisfaction, our study further establishes the crucial effects of ubiquitous connectivity and personalization on user autonomy and timeliness, suggesting that personalization can also have a positive impact on consumer happiness through consumer-perceived autonomy and timeliness (H5 and H6). The results indicate that autonomy and timeliness are important psychological mechanisms for consumers to be happy when using VAs, thereby extending the research on autonomy and timeliness [82,95]. This aligns with Alalwan et al. [1], who found that mobile interactivity features such as ubiquitous connectivity and personalization can significantly enhance consumer engagement and subsequently boost consumer happiness. Furthermore, a multi-group analysis was conducted to measure the influence of different demographic characteristics (e.g., gender, education, and income). To examine the effects of education, the respondents were divided into two groups: below a bachelor's degree and above a postgraduate degree. As the level of education increases, the responsiveness and ubiquitous connectivity of VAs become increasingly important. Regarding the effect of income, the largest difference is between the group with an income below RMB 6000 and above 9000. A significant difference was observed in the effects of timeliness on subjective happiness. This means that when consumers' income increases, the effect of timeliness on subjective happiness is enhanced.

Additionally, perceived privacy risk, a negative characteristic associated with VA use, has been shown to negatively affect consumer happiness (H9). Notably, the presence of perceived privacy risk enhances the relationship between autonomy and happiness (H10) but does not affect the correlation between timeliness and happiness (H11). When perceived privacy risk exists, the effect coefficient of autonomy on happiness increases. This finding reinforces the relationship between consumer autonomy and happiness. One possible explanation for this finding is the suppressive effect of privacy concerns on consumer autonomy. When consumers perceive a threat to their privacy, they may feel a sense of insecurity and be inclined to suppress their demand for related technologies. This suppressed and constrained state can heighten consumers' sensitivity to autonomy. In situations where their autonomy is restricted, consumers are more likely to cherish the limited autonomy they have. When consumers engage in free interactions with VAs and gain a degree of autonomy, their perceived happiness may increase. The heightened salience of autonomy under privacy risk conditions thus strengthens the positive association between consumer autonomy and happiness.

While perceived privacy risks amplify the positive relationship between consumer autonomy and happiness, they also negatively influence consumer happiness. Heightened privacy concerns can induce significant anxiety and stress in consumers. Thus, consumers may experience a constant state of vigilance, feel apprehensive about disclosing personal information, or engage with technology that could compromise their privacy. This chronic sense of insecurity and lack of control can undermine well-being and detract from overall happiness.

To mitigate these adverse consequences, firms and policymakers should prioritize the implementation of robust and transparent privacy safeguards. Comprehensive data protection regulations, rigorous security standards, and the clear disclosure of data practices can help restore consumer trust and perceived control. Providing consumers with granular choices regarding data-sharing and the ability to selectively engage with technology can further enhance their autonomy.

6.2. Theoretical Implications

With the broad application of VAs in consumers' daily lives, several studies have focused on factors such as VA adoption, evaluation, and trust [15,17,110,111]. With continuous improvements to intelligent voice technology, VAs are becoming deeply embedded in consumers' lives through channels such as mobile applications and smart home appliances, which may have unexpected effects on consumer happiness. However, researchers and VA companies have a limited understanding of the effects of VA–consumer interaction on consumer happiness. The primary goal of this study is to generate insights into how the interactive functional features of VAs bring benefits and risks and thus affect consumer happiness, exploring this question from both positive and negative perspectives.

From a theoretical perspective, most existing research on VA examines its adoption [111,112]. While adoption is the initial stage in the customer journey, a focus on customer happiness is essential in research related to the VA experience. A few recent studies have focused on the effects of the VA experience on consumer happiness [8,9,56]; however, this research stream remains limited. Our research fills this gap by investigating the data of real VA consumers and combining affordance theory with existing research conclusions to explore the effects of three interactive VA characteristics on consumer happiness. This study also broadens current knowledge of how VA influences consumers through interaction and technological mediators. In addition, this study extends the application of technology affordance theory to VA research by illustrating how VA functionalities work as attractive factors and how consumers adapt VA to satisfy their need for autonomy and efficiency.

Perceived privacy risk has attracted much attention from scholars and enterprises. To better serve consumers, companies need to collect consumer information; however, consumer privacy concerns may reduce product experience satisfaction. Notably, we found that consumer privacy concerns not only have a negative effect on customer happiness but also may have a positive moderating effect on the relationship between autonomy and happiness. This finding warrants further investigation.

6.3. Practical Implications

Our findings have important practical implications for marketers. According to the research conclusions, when designing a VA, the experience mode of responsiveness should be improved as much as possible, such as by arousing diverse expressions, supporting multiple languages and even dialects with accents in activating VA, and avoiding excessively long and convoluted sentences as responses. Furthermore, because ubiquitous connectivity is an important feature of VA [1,11], VA design companies and operation managers should improve this feature as much as possible, especially to solve the problem of poor network signals or connection failures. Universally available connectivity can significantly enhance consumer perceptions of VA automation and save time. Additionally, a high level of personalization can improve the consumer experience [1]. According to our research conclusions, the higher the privacy concerns, the lower the consumer happiness; thus, companies should minimize the privacy concerns of consumers.

Based on these findings, companies should focus on optimizing the interactive features of VA, especially responsiveness, ubiquitous connectivity, and personalization, and explore additional factors that influence consumer happiness after using VA [8]. This practice is recommended because, as the results of our study suggest, the functional characteristics of VA significantly affect consumer happiness and include both positive and negative aspects. While some dimensions of personalization are as general as with other smart devices (e.g., targeted information, recommendations based on preferences), others are distinct to VAs (e.g., sentiment cognition from consumers' tones, emotion tracking) [113]. Therefore, it is essential to discover how VAs influence consumers and how to exploit these characteristics to enhance consumers' happiness. Accordingly, VA design managers and operation experience should support the improvement of consumers' happiness in using VA through better design and operation strategies while maintaining risk control, such as for privacy concerns, to obtain better results.

Consumers can use VAs to perform basic tasks, such as answering questions. A higher level of intelligent experiences based on the features of these functions can improve consumer happiness [114]. However, the functional features of VAs have both positive and negative effects on consumer happiness, and how these features affect happiness remains unclear. According to Privacy Calculus Assessments, consumers compare convenience benefits and relative privacy risks before consumption or usage [115]. If the advantages outweigh the risks, they will agree to disclose their information without negative feelings. Therefore, the present study provides corresponding conclusions that enable managers to understand the drivers of consumer happiness as well as the underlying mechanisms, which can help improve VA service quality in terms of design and operation.

Our findings suggest that the VA–consumer interaction process has a positive effect on consumer happiness, and the mechanisms underlying this effect include two aspects: consumer autonomy and timeliness. However, privacy risk concerns negatively affect consumer happiness. Therefore, in addition to continuously improving the convenience of using the basic functions of VA interaction, enterprises should pay sufficient attention to perceived privacy risks because consumer privacy concerns and their potential negative results may have a greater negative impact on VA consumers. Negative emotions reduce willingness to use and word of mouth [116–118]. However, privacy concerns are inevitable because of the necessity of collecting consumer information. Based on our conclusion that privacy concerns may enhance the effects of autonomy on consumer happiness, firms do not need to unduly worry about the negative effects of consumer privacy concerns. Technological products are good for enhancing consumer autonomy because of their characteristics. This provides some insights for businesses developing VAs and similar products: when privacy risks are unavoidable (e.g., websites need to collect user data for personalized recommendations), businesses can focus on enhancing the autonomy needs of consumers in using the product, which can offset the negative impact of privacy risks to some extent. Similarly, with the rapid development of AI technology, various smart devices are rapidly entering the market, and the distance between consumers and new technology products is decreasing. AI product companies should not only promote consumer happiness by enhancing positive effects (e.g., autonomy and timeliness) but also strive to reduce negative effects (e.g., perceived privacy risk) to prevent a decline in happiness. Therefore, long-term development in the AI industry should maintain a balance between improving service levels and respecting consumer privacy. Our findings have significant implications for VA businesses and executives who apply VAs to serve consumers in areas such as tourism and marketing.

6.4. Limitations and Future Research Directions

Although this study contributes to the literature on consumer happiness in the VA experience, it has some limitations that can guide future research. First, only one research method was used. In future studies, consumer behavioral data could be obtained from VA companies to further clarify the answers to the research questions of this study. Second, because this study focused on an interactive angle, only three essential VA features were covered. However, technological service features, such as informativeness, security, smartness, and customization experiences, may also affect consumer happiness [8,9,56]. Future research can explore other factors from different perspectives using a combination of secondhand field data and experimental methods. Furthermore, the research participants in this study were Chinese; therefore, there might be differences that limit the generalizability of the research findings to other groups in terms of cultural influence. Therefore, factors such as cultural and economic environments should be considered when attempting to replicate this study's findings. To compensate for this, we suggest conducting such studies on different groups of consumers to validate and generalize the findings more robustly. Finally, with the rapid development and maturity of AI products, AI-based VA technology is being integrated with technologies, such as virtual reality (VR), and diversified AI products are being applied in the marketing field, such as virtual people. Future research should comprehensively consider the combined product effects of multiple AI technologies, such as voice and vision, on consumer happiness.

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Appendix A Scale Items

Personalization [12]
PRS1
The information and answers that chatbots send to
me are tailored to my request and questions.
PRS2
Chatbots systems make me feel that I am a unique customer.
PRS3
Personalised information is given by chatbots.
PRS4
Chatbots offer customised information search.
Ubiquitous connectivity
UBQS1
I can access chatbots anytime for the necessary information or service.
UBQS2
I can use chatbots anywhere, anytime at the time of need.
UBQS3
I can access chatbots anywhere, anytime for the necessary information or service.
UBQS4
I can easily access chatbots regardless of the device (Laptop, Tablet, and smart phone) I use.
Responsiveness
RSPV1
The chatbots have the ability to respond to my specific questions relevantly.
RSPV2
When I use chatbots, I can always count on getting a lot of responses to my questions and comments.
RSPV3
The information shown when I interacted with the chatbots meet my expectations.
Autonomy [95]
AUTO1
The system provided choices based on the consumer's true interests.
AUTO 2

The system let the consumers do things their own way.
AUTO3
The system helped the consumer make their own decisions.
AUTO 4
The system let the consumer be in control of what they did.
Timeliness [82]
TIME1
Using voice assistant enables me to quickly process task demands
TIME2
Using voice assistant enables me to handle task demands in tight time schedules
TIME3
Using voice assistant enables me to handle task demands in a timely fashion
TIME4
Using voice assistant enables me to keep task demands up-to-date
Perceived Privacy Risks [119]
PPR1
The voice assistant would collect too much information about a consumer.
PPR2
I would be concerned about my privacy when using voice assistant.
PPR3
I have doubts as to how well my privacy is protected while using voice assistant.
PPR4

My personal information would be misused when the microphone of voice assistant is running.

PPR5

My personal information would be accessed by unknown parties when using voice assistant in my everyday life.

Subjective Happiness [120]

After using voice assistants, I consider myself a very happy person in general.

After using voice assistants, compared to most of my peers, I consider myself happier.

Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. After using voice assistants, to what extent does this characterization describe you?

References

1. Alalwan, A.A.; Algharabat, R.S.; Baabdullah, A.M.; Rana, N.P.; Qasem, Z.; Dwivedi, Y.K. Examining the Impact of Mobile Interactivity on Customer Engagement in the Context of Mobile Shopping. *J. Enterp. Inf. Manag.* **2020**, *33*, 627–653. [CrossRef]
2. The Smart Audio Report. 2022. Available online: https://www.nationalpublicmedia.com/uploads/2022/06/The-Smart-Audio-Report-Spring-2022.pdf (accessed on 21 March 2024).
3. Ramadan, Z.B. "Alexafying" Shoppers: The Examination of Amazon's Captive Relationship Strategy. *J. Retail. Consum. Serv.* **2021**, *62*, 102610. [CrossRef]
4. Lee, K.Y.; Sheehan, L.; Lee, K.; Chang, Y. The Continuation and Recommendation Intention of Artificial Intelligence-Based Voice Assistant Systems (AIVAS): The Influence of Personal Traits. *Internet Res.* **2021**, *31*, 1899–1939. [CrossRef]
5. Ling, E.C.; Tussyadiah, I.; Tuomi, A.; Stienmetz, J.; Ioannou, A. Factors Influencing Users' Adoption and Use of Conversational Agents: A Systematic Review. *Psychol. Mark.* **2021**, *38*, 1031–1051. [CrossRef]
6. Dhiman, N.; Kumar, A. What We Know and Don't Know About Consumer Happiness: Three-Decade Review, Synthesis, and Research Propositions. *J. Interact. Mark.* **2023**, *58*, 115–135. [CrossRef]
7. Huang, M.-H.; Rust, R.T. Engaged to a Robot? The Role of AI in Service. *J. Serv. Res.* **2021**, *24*, 30–41. [CrossRef]
8. Henkens, B.; Verleye, K.; Larivière, B. The Smarter, the Better?! Customer Well-Being, Engagement, and Perceptions in Smart Service Systems. *Int. J. Res. Mark.* **2021**, *38*, 425–447. [CrossRef]
9. Pai, C.-K.; Liu, Y.; Kang, S.; Dai, A. The Role of Perceived Smart Tourism Technology Experience for Tourist Satisfaction, Happiness and Revisit Intention. *Sustainability* **2020**, *12*, 6592. [CrossRef]
10. Niedermeier, A.; Albrecht, L.; Jahn, B. "Happy Together": Effects of Brand Community Engagement on Customer Happiness. *J. Relatsh. Mark.* **2019**, *18*, 54–76. [CrossRef]
11. Lee, T. The Impact of Perceptions of Interactivity on Customer Trust and Transaction Intentions in Mobile Commerce. *J. Electron. Commer. Res.* **2005**, *6*, 16.

12. Baabdullah, A.M.; Alalwan, A.A.; Algharabat, R.S.; Metri, B.; Rana, N.P. Virtual Agents and Flow Experience: An Empirical Examination of AI-Powered Chatbots. *Technol. Forecast. Soc. Chang.* **2022**, *181*, 121772. [CrossRef]
13. Aw, E.C.-X.; Tan, G.W.-H.; Cham, T.-H.; Raman, R.; Ooi, K.-B. Alexa, What's on My Shopping List? Transforming Customer Experience with Digital Voice Assistants. *Technol. Forecast. Soc. Chang.* **2022**, *180*, 121711. [CrossRef]
14. Hoy, M.B. Alexa, Siri, Cortana, and More: An Introduction to Voice Assistants. *Med. Ref. Serv. Q.* **2018**, *37*, 81–88. [CrossRef] [PubMed]
15. Pitardi, V.; Marriott, H.R. Alexa, *She's* Not Human But. . . Unveiling the Drivers of Consumers' Trust in Voice-based Artificial Intelligence. *Psychol. Mark.* **2021**, *38*, 626–642. [CrossRef]
16. Lee, S.; Oh, J.; Moon, W.-K. Adopting Voice Assistants in Online Shopping: Examining the Role of Social Presence, Performance Risk, and Machine Heuristic. *Int. J. Hum.–Comput. Interact.* **2022**, *39*, 2978–2992. [CrossRef]
17. Klaus, P.; Zaichkowsky, J. AI Voice Bots: A Services Marketing Research Agenda. *J. Serv. Mark.* **2020**, *34*, 389–398. [CrossRef]
18. Choi, T.R. "OK, Google, Why Do I Use You?" Motivations, Post-Consumption Evaluations, and Perceptions of Voice AI Assistants. *Telemat. Inform.* **2021**, *62*, 101628. [CrossRef]
19. Malodia, S.; Islam, N.; Kaur, P.; Dhir, A. Why Do People Use Artificial Intelligence (AI)-Enabled Voice Assistants? *IEEE Trans. Eng. Manag.* **2021**, *71*, 491–505. [CrossRef]
20. Rhee, C.E.; Choi, J. Effects of Personalization and Social Role in Voice Shopping: An Experimental Study on Product Recommendation by a Conversational Voice Agent. *Comput. Hum. Behav.* **2020**, *109*, 106359. [CrossRef]
21. de Bellis, E.; Venkataramani Johar, G. Autonomous Shopping Systems: Identifying and Overcoming Barriers to Consumer Adoption. *J. Retail.* **2020**, *96*, 74–87. [CrossRef]
22. König, P.D.; Wurster, S.; Siewert, M.B. Consumers Are Willing to Pay a Price for Explainable, but Not for Green AI. Evidence from a Choice-Based Conjoint Analysis. *Big Data Soc.* **2022**, *9*, 20539517211069632. [CrossRef]
23. Zhang, J.; Curley, S.P. Exploring Explanation Effects on Consumers' Trust in Online Recommender Agents. *Int. J. Hum.–Comput. Interact.* **2018**, *34*, 421–432. [CrossRef]
24. McLean, G.; Osei-Frimpong, K.; Barhorst, J. Alexa, Do Voice Assistants Influence Consumer Brand Engagement?–Examining the Role of AI Powered Voice Assistants in Influencing Consumer Brand Engagement. *J. Bus. Res.* **2021**, *124*, 312–328. [CrossRef]
25. Schweitzer, F.; Van den Hende, E.A. To Be or Not to Be in Thrall to the March of Smart Products. *Psychol. Mark.* **2016**, *33*, 830–842. [CrossRef] [PubMed]
26. Um, T.; Kim, T.; Chung, N. How Does an Intelligence Chatbot Affect Customers Compared with Self-Service Technology for Sustainable Services? *Sustainability* **2020**, *12*, 5119. [CrossRef]
27. Jiang, Z.; Chan, J.; Tan, B.; Chua, W.S. Effects of Interactivity on Website Involvement and Purchase Intention. *J. Assoc. Inf. Syst.* **2010**, *11*, 34–59. [CrossRef]
28. Wu, G. The Mediating Role of Perceived Interactivity in the Effect of Actual Interactivity on Attitude Toward the Website. *J. Interact. Advert.* **2005**, *5*, 29–39. [CrossRef]
29. Zhao, L.; Lu, Y. Enhancing Perceived Interactivity through Network Externalities: An Empirical Study on Micro-Blogging Service Satisfaction and Continuance Intention. *Decis. Support Syst.* **2012**, *53*, 825–834. [CrossRef]
30. Liu, Y. Developing a Scale to Measure the Interactivity of Websites. *J. Advert. Res.* **2003**, *43*, 207–216. [CrossRef]
31. Ogara, S.O.; Koh, C. Investigating Design Issues in Mobile Computer-Mediated Communication Technologies. *J. Comput. Inf. Syst.* **2014**, *54*, 87–98. [CrossRef]
32. Zhou, F.; Mou, J.; Kim, J. Toward a Meaningful Experience: An Explanation of the Drivers of the Continued Usage of Gamified Mobile App Services. *Online Inf. Rev.* **2021**, *46*, 285–303. [CrossRef]
33. Wang, C.L. New Frontiers and Future Directions in Interactive Marketing: Inaugural Editorial. *J. Res. Interact. Mark.* **2021**, *15*, 1–9. [CrossRef]
34. Hsieh, S.H.; Lee, C.T. Hey Alexa: Examining the Effect of Perceived Socialness in Usage Intentions of AI Assistant-Enabled Smart Speaker. *J. Res. Interact. Mark.* **2021**, *15*, 267–294. [CrossRef]
35. Huh, J.; Kim, H.-Y.; Lee, G. "Oh, Happy Day!" Examining the Role of AI-Powered Voice Assistants as a Positive Technology in the Formation of Brand Loyalty. *J. Res. Interact. Mark.* **2023**, *17*, 794–812. [CrossRef]
36. Chen, Y.H.; Keng, C.-J.; Chen, Y.-L. How Interaction Experience Enhances Customer Engagement in Smart Speaker Devices? The Moderation of Gendered Voice and Product Smartness. *J. Res. Interact. Mark.* **2021**, *16*, 403–419. [CrossRef]
37. Hayes, J.L.; Brinson, N.H.; Bott, G.J.; Moeller, C.M. The Influence of Consumer–Brand Relationship on the Personalized Advertising Privacy Calculus in Social Media. *J. Interact. Mark.* **2021**, *55*, 16–30. [CrossRef]
38. Rafieian, O.; Yoganarasimhan, H. Targeting and Privacy in Mobile Advertising. *Mark. Sci.* **2020**, *40*, 193–218. [CrossRef]
39. Edu, J.S.; Such, J.M.; Suarez-Tangil, G. Smart Home Personal Assistants: A Security and Privacy Review. *ACM Comput. Surv.* **2020**, *53*, 1–36. [CrossRef]
40. Jain, S.; Basu, S.; Dwivedi, Y.K.; Kaur, S. Interactive Voice Assistants–Does Brand Credibility Assuage Privacy Risks? *J. Bus. Res.* **2022**, *139*, 701–717. [CrossRef]
41. Lee, S.; Choi, J. Enhancing User Experience with Conversational Agent for Movie Recommendation: Effects of Self-Disclosure and Reciprocity. *Int. J. Hum. Comput. Stud.* **2017**, *103*, 95–105. [CrossRef]
42. Awad, N.F.; Krishnan, M.S. The Personalization Privacy Paradox: An Empirical Evaluation of Information Transparency and the Willingness to Be Profiled Online for Personalization. *MIS Q.* **2006**, *30*, 13. [CrossRef]

43. Cloarec, J. The Personalization–Privacy Paradox in the Attention Economy. *Technol. Forecast. Soc. Chang.* **2020**, *161*, 120299. [CrossRef]
44. Cloarec, J.; Meyer-Waarden, L.; Munzel, A. The Personalization–Privacy Paradox at the Nexus of Social Exchange and Construal Level Theories. *Psychol. Mark.* **2022**, *39*, 647–661. [CrossRef]
45. Anderson, L.; Ostrom, A.L.; Corus, C.; Fisk, R.P.; Gallan, A.S.; Giraldo, M.; Mende, M.; Mulder, M.; Rayburn, S.W.; Rosenbaum, M.S.; et al. Transformative Service Research: An Agenda for the Future. *J. Bus. Res.* **2013**, *66*, 1203–1210. [CrossRef]
46. Ostrom, A.L.; Parasuraman, A.; Bowen, D.E.; Patrício, L.; Voss, C.A. Service Research Priorities in a Rapidly Changing Context. *J. Serv. Res.* **2015**, *18*, 127–159. [CrossRef]
47. Volkmer, S.A.; Lermer, E. Unhappy and Addicted to Your Phone?–Higher Mobile Phone Use Is Associated with Lower Well-Being. *Comput. Hum. Behav.* **2019**, *93*, 210–218. [CrossRef]
48. Diener, E.; Emmons, R.A.; Larsen, R.J.; Griffin, S. The Satisfaction With Life Scale. *J. Pers. Assess.* **1985**, *49*, 71–75. [CrossRef] [PubMed]
49. Myers, D.G.; Diener, E. Who Is Happy? *Psychol. Sci.* **1995**, *6*, 10–19. [CrossRef]
50. Ryan, R.M.; Deci, E.L. On Happiness and Human Potentials: A Review of Research on Hedonic and Eudaimonic Well-Being. *Annu. Rev. Psychol.* **2001**, *52*, 141–166. [CrossRef]
51. Li, Z.; Zhang, J.; Li, M.; Huang, J.; Wang, X. A Review of Smart Design Based on Interactive Experience in Building Systems. *Sustainability* **2020**, *12*, 6760. [CrossRef]
52. Jeste, D.V.; Graham, S.A.; Nguyen, T.T.; Depp, C.A.; Lee, E.E.; Kim, H.-C. Beyond Artificial Intelligence: Exploring Artificial Wisdom. *Int. Psychogeriatr.* **2020**, *32*, 993–1001. [CrossRef] [PubMed]
53. Yu, H.; Bae, J.; Choi, J.; Kim, H. LUX: Smart Mirror with Sentiment Analysis for Mental Comfort. *Sensors* **2021**, *21*, 3092. [CrossRef] [PubMed]
54. Baumeister, R.F.; Vohs, K.D.; Aaker, J.L.; Garbinsky, E.N. Some Key Differences between a Happy Life and a Meaningful Life. *J. Posit. Psychol.* **2013**, *8*, 505–516. [CrossRef]
55. Carter, T.J.; Gilovich, T. I Am What I Do, Not What I Have: The Differential Centrality of Experiential and Material Purchases to the Self. *J. Pers. Soc. Psychol.* **2012**, *102*, 1304–1317. [CrossRef] [PubMed]
56. Kim, H.Y.; Lee, Y. The Effect of Online Customization on Consumers' Happiness and Purchase Intention and the Mediating Roles of Autonomy, Competence, and Pride of Authorship. *Int. J. Hum. Comput. Interact.* **2020**, *36*, 403–413. [CrossRef]
57. Van Boven, L.; Gilovich, T. To Do or to Have? That Is the Question. *J. Pers. Soc. Psychol.* **2003**, *85*, 1193–1202. [CrossRef] [PubMed]
58. Gibson, A.C.; Nobel, P.S. *The Cactus Primer*; Harvard University Press: Cambridge, MA, USA, 1986.
59. Treem, J.W.; Leonardi, P.M. Social Media Use in Organizations: Exploring the Affordances of Visibility, Editability, Persistence, and Association. *Ann. Int. Commun. Assoc.* **2013**, *36*, 143–189. [CrossRef]
60. Leonardi, P.M.; Vaast, E. Social Media and Their Affordances for Organizing: A Review and Agenda for Research. *Acad. Manag. Ann.* **2017**, *11*, 150–188. [CrossRef]
61. Majchrzak, A.; Markus, M.L. Technology Affordances and Constraints in Management Information Systems (MIS). 2012. Available online: https://papers.ssrn.com/abstract=2192196 (accessed on 22 September 2022).
62. Gibson, E.J. Where Is the Information for Affordances? *Ecol. Psychol.* **2000**, *12*, 53–56. [CrossRef]
63. Leonardi, P.M.; Nardi, B.A.; Kallinikos, J. *Materiality and Organizing: Social Interaction in a Technological World*; OUP: Oxford, UK, 2012.
64. Majchrzak, A.; Faraj, S.; Kane, G.C.; Azad, B. The Contradictory Influence of Social Media Affordances on Online Communal Knowledge Sharing. *J. Comput. Mediat. Commun.* **2013**, *19*, 38–55. [CrossRef]
65. Hennebert, M.-A.; Pasquier, V.; Lévesque, C. What Do Unions Do... with Digital Technologies? An Affordance Approach. *New Technol. Work Employ.* **2021**, *36*, 177–200. [CrossRef]
66. Johnson, G.J.; Bruner II, G.C.; Kumar, A. Interactivity and Its Facets Revisited: Theory and Empirical Test. *J. Advert.* **2006**, *35*, 35–52. [CrossRef]
67. Prentice, C.; Weaven, S.; Wong, I.A. Linking AI Quality Performance and Customer Engagement: The Moderating Effect of AI Preference. *Int. J. Hosp. Manag.* **2020**, *90*, 102629. [CrossRef]
68. Yang, H.; Lee, H. Understanding User Behavior of Virtual Personal Assistant Devices. *Inf. Syst. E-Bus. Manag.* **2019**, *17*, 65–87. [CrossRef]
69. Chellappa, R.K.; Sin, R.G. Personalization versus Privacy: An Empirical Examination of the Online Consumer's Dilemma. *Inf. Technol. Manag.* **2005**, *6*, 181–202. [CrossRef]
70. Aksoy, L.; Bloom, P.N.; Lurie, N.H.; Cooil, B. Should Recommendation Agents Think Like People? *J. Serv. Res.* **2006**, *8*, 297–315. [CrossRef]
71. Hanus, M.D.; Fox, J. Persuasive Avatars: The Effects of Customizing a Virtual Salesperson's Appearance on Brand Liking and Purchase Intentions. *Int. J. Hum. Comput. Stud.* **2015**, *84*, 33–40. [CrossRef]
72. Payne, E.H.M.; Dahl, A.J.; Peltier, J. Digital Servitization Value Co-Creation Framework for AI Services: A Research Agenda for Digital Transformation in Financial Service Ecosystems. *J. Res. Interact. Mark.* **2021**, *15*, 200–222. [CrossRef]
73. Marathe, S.; Sundar, S.S. What Drives Customization? Control or Identity? In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*; CHI '11; Association for Computing Machinery: New York, NY, USA, 2011; pp. 781–790. [CrossRef]

74. Feng, X.; Fu, S.; Qin, J. Determinants of Consumers' Attitudes toward Mobile Advertising: The Mediating Roles of Intrinsic and Extrinsic Motivations. *Comput. Hum. Behav.* **2016**, *63*, 334–341. [CrossRef]
75. Ryan, R.M.; Grolnick, W.S. Origins and Pawns in the Classroom: Self-Report and Projective Assessments of Individual Differences in Children's Perceptions. *J. Pers. Soc. Psychol.* **1986**, *50*, 550. [CrossRef]
76. Levesque, C.; Zuehlke, A.N.; Stanek, L.R.; Ryan, R.M. Autonomy and Competence in German and American University Students: A Comparative Study Based on Self-Determination Theory. *J. Educ. Psychol.* **2004**, *96*, 68–84. [CrossRef]
77. Chirkov, V.; Ryan, R.M.; Kim, Y.; Kaplan, U. Differentiating Autonomy from Individualism and Independence: A Self-Determination Theory Perspective on Internalization of Cultural Orientations and Well-Being. *J. Pers. Soc. Psychol.* **2003**, *84*, 97–110. [CrossRef] [PubMed]
78. Chirkov, V.I.; Ryan, R.M.; Willness, C. Cultural Context and Psychological Needs in Canada and Brazil: Testing a Self-Determination Approach to the Internalization of Cultural Practices, Identity, and Well-Being. *J. Cross-Cult. Psychol.* **2005**, *36*, 423–443. [CrossRef]
79. Welzel, C.; Inglehart, R. Agency, Values, and Well-Being: A Human Development Model. *Soc. Indic. Res.* **2010**, *97*, 43–63. [CrossRef] [PubMed]
80. Inglehart, R.; Foa, R.; Peterson, C.; Welzel, C. Development, Freedom, and Rising Happiness: A Global Perspective (1981–2007). *Perspect. Psychol. Sci.* **2008**, *3*, 264–285. [CrossRef] [PubMed]
81. Liang, H.; Wang, N.; Xue, Y.; Ge, S. Unraveling the Alignment Paradox: How Does Business—IT Alignment Shape Organizational Agility? *Inf. Syst. Res.* **2017**, *28*, 863–879. [CrossRef]
82. Yin, P.; Wang, C.; Liang, L. Consumer Information Technology Use in the Post-Pandemic Workplace: A Post-Acceptance Adaptation Perspective. *Inf. Technol. People*, *ahead-of-print*. [CrossRef]
83. Marsh, E.; Vallejos, E.P.; Spence, A. The Digital Workplace and Its Dark Side: An Integrative Review. *Comput. Hum. Behav.* **2022**, *128*, 107118. [CrossRef]
84. Maroufkhani, P.; Asadi, S.; Ghobakhloo, M.; Jannesari, M.T.; Ismail, W.K.W. How Do Interactive Voice Assistants Build Brands' Loyalty? *Technol. Forecast. Soc. Chang.* **2022**, *183*, 121870. [CrossRef]
85. Hernández Acosta, L.; Reinhardt, D. A Survey on Privacy Issues and Solutions for Voice-Controlled Digital Assistants. *Pervasive Mob. Comput.* **2022**, *80*, 101523. [CrossRef]
86. McLean, G.; Osei-Frimpong, K. Hey Alexa . . . Examine the Variables Influencing the Use of Artificial Intelligent In-Home Voice Assistants. *Comput. Hum. Behav.* **2019**, *99*, 28–37. [CrossRef]
87. Seiderer, A.; Ritschel, H.; André, E. Development of a Privacy-By-Design Speech Assistant Providing Nutrient Information for German Seniors. In *Proceedings of the 6th EAI International Conference on Smart Objects and Technologies for Social Good*; GoodTechs '20; Association for Computing Machinery: New York, NY, USA, 2020; pp. 114–119. [CrossRef]
88. Sweeney, M.; Davis, E. Alexa, Are You Listening? *Inf. Technol. Libr.* **2020**, *39*. [CrossRef]
89. Hu, J.; Ma, X.; Xu, X.; Liu, Y. Treat for Affection? Customers' Differentiated Responses to pro-Customer Deviance. *Tour. Manag.* **2022**, *93*, 104619. [CrossRef]
90. Huang, M.; Ju, D.; Yam, K.C.; Liu, S.; Qin, X.; Tian, G. Employee Humor Can Shield Them from Abusive Supervision. *J. Bus. Ethics* **2022**, *186*, 407–424. [CrossRef]
91. Su, L.; Yang, X.; Swanson, S.R. The Impact of Spatial-Temporal Variation on Tourist Destination Resident Quality of Life. *Tour. Manag.* **2022**, *93*, 104572. [CrossRef]
92. Kautish, P.; Purohit, S.; Filieri, R.; Dwivedi, Y.K. Examining the Role of Consumer Motivations to Use Voice Assistants for Fashion Shopping: The Mediating Role of Awe Experience and eWOM. *Technol. Forecast. Soc. Chang.* **2023**, *190*, 122407. [CrossRef]
93. El-Said, O.; Hajri, S.A. Are Customers Happy with Robot Service? Investigating Satisfaction with Robot Service Restaurants during the COVID-19 Pandemic. *Heliyon* **2022**, *8*, e08986. [CrossRef]
94. Kato, T. Brand Loyalty Explained by Concept Recall: Recognizing the Significance of the Brand Concept Compared to Features. *J. Mark. Anal.* **2021**, *9*, 185–198. [CrossRef]
95. Sankaran, S.; Zhang, C.; Aarts, H.; Markopoulos, P. Exploring Peoples' Perception of Autonomy and Reactance in Everyday AI Interactions. *Front. Psychol.* **2021**, *12*, 713074. [CrossRef] [PubMed]
96. Rauschnabel, P.A. Virtually Enhancing the Real World with Holograms: An Exploration of Expected Gratifications of Using Augmented Reality Smart Glasses. *Psychol. Mark.* **2018**, *35*, 557–572. [CrossRef]
97. Lee, C. Googlish as a Resource for Networked Multilingualism. *World Englishes* **2020**, *39*, 79–93. [CrossRef]
98. Pérez, G.; Hesse, E.; Dottori, M.; Birba, A.; Amoruso, L.; Martorell Caro, M.; Ibáñez, A.; García, A.M. The Bilingual Lexicon, Back and Forth: Electrophysiological Signatures of Translation Asymmetry. *Neuroscience* **2022**, *481*, 134–143. [CrossRef] [PubMed]
99. Acikgoz, F.; Vega, R.P. The Role of Privacy Cynicism in Consumer Habits with Voice Assistants: A Technology Acceptance Model Perspective. *Int. J. Hum. Comput. Interact.* **2022**, *38*, 1138–1152. [CrossRef]
100. Hair, J.F., Jr.; Matthews, L.M.; Matthews, R.L.; Sarstedt, M. PLS-SEM or CB-SEM: Updated Guidelines on Which Method to Use. *Int. J. Multivar. Data Anal.* **2017**, *1*, 107. [CrossRef]
101. Ali, F.; Rasoolimanesh, S.M.; Sarstedt, M.; Ringle, C.M.; Ryu, K. An Assessment of the Use of Partial Least Squares Structural Equation Modeling (PLS-SEM) in Hospitality Research. *Int. J. Contemp. Hosp. Manag.* **2018**, *30*, 514–538. [CrossRef]
102. Wold, H. Soft Modelling: The Basic Design and Some Extensions. *Syst. Indirect Obs. Part II* **1982**, *2*, 36–37.

103. Hair, J.F.; Ringle, C.M.; Sarstedt, M. Editorial-Partial Least Squares Structural Equation Modeling: Rigorous Applications, Better Results and Higher Acceptance. 14 March 2013. Available online: https://papers.ssrn.com/abstract=2233795 (accessed on 15 April 2024).
104. Fornell, C.; Larcker, D.F. Evaluating Structural Equation Models with Unobservable Variables and Measurement Error. *J. Mark. Res.* **1981**, *18*, 39–50. [CrossRef]
105. Kock, N. Common Method Bias in PLS-SEM: A Full Collinearity Assessment Approach. *Int. J. e-Collab. IJeC* **2015**, *11*, 1–10. [CrossRef]
106. Chen, X.; Huang, Q.; Davison, R.M.; Hua, Z. What Drives Trust Transfer? The Moderating Roles of Seller-Specific and General Institutional Mechanisms. *Int. J. Electron. Commer.* **2015**, *20*, 261–289. [CrossRef]
107. Chen, X.; Wei, S.; Davison, R.M.; Rice, R.E. How Do Enterprise Social Media Affordances Affect Social Network Ties and Job Performance? *Inf. Technol. People* **2020**, *33*, 361–388. [CrossRef]
108. Aiken, L.S.; West, S.G.; Reno, R.R. *Multiple Regression: Testing and Interpreting Interactions*; SAGE: Thousand Oaks, CA, USA, 1991.
109. Chen, X.; Wei, S.; Rice, R.E. Integrating the Bright and Dark Sides of Communication Visibility for Knowledge Management and Creativity: The Moderating Role of Regulatory Focus. *Comput. Hum. Behav.* **2020**, *111*, 106421. [CrossRef]
110. Davenport, T.; Guha, A.; Grewal, D.; Bressgott, T. How Artificial Intelligence Will Change the Future of Marketing. *J. Acad. Mark. Sci.* **2020**, *48*, 24–42. [CrossRef]
111. Fernandes, T.; Oliveira, E. Understanding Consumers' Acceptance of Automated Technologies in Service Encounters: Drivers of Digital Voice Assistants Adoption. *J. Bus. Res.* **2021**, *122*, 180–191. [CrossRef]
112. Liao, Y.; Vitak, J.; Kumar, P.; Zimmer, M.; Kritikos, K. Understanding the Role of Privacy and Trust in Intelligent Personal Assistant Adoption. In *Information in Contemporary Society*; Taylor, N.G., Christian-Lamb, C., Martin, M.H., Nardi, B., Eds.; Lecture Notes in Computer Science; Springer International Publishing: Cham, Switzerland, 2019; pp. 102–113. [CrossRef]
113. Thomaz, F.; Salge, C.; Karahanna, E.; Hulland, J. Learning from the Dark Web: Leveraging Conversational Agents in the Era of Hyper-Privacy to Enhance Marketing. *J. Acad. Mark. Sci.* **2020**, *48*, 43–63. [CrossRef]
114. Kang, W.; Shao, B. The Impact of Voice Assistants' Intelligent Attributes on Consumer Well-Being: Findings from PLS-SEM and fsQCA. *J. Retail. Consum. Serv.* **2023**, *70*, 103130. [CrossRef]
115. Dinev, T.; Hart, P. An Extended Privacy Calculus Model for E-Commerce Transactions. *Inf. Syst. Res.* **2006**, *17*, 61–80. [CrossRef]
116. Buchanan, T.; Paine, C.; Joinson, A.N.; Reips, U.-D. Development of Measures of Online Privacy Concern and Protection for Use on the Internet. *J. Am. Soc. Inf. Sci. Technol.* **2007**, *58*, 157–165. [CrossRef]
117. Choi, T.R.; Sung, Y. Instagram versus Snapchat: Self-Expression and Privacy Concern on Social Media. *Telemat. Inform.* **2018**, *35*, 2289–2298. [CrossRef]
118. Wu, K.-W.; Huang, S.Y.; Yen, D.C.; Popova, I. The Effect of Online Privacy Policy on Consumer Privacy Concern and Trust. *Comput. Hum. Behav.* **2012**, *28*, 889–897. [CrossRef]
119. Rauschnabel, P.A.; He, J.; Ro, Y.K. Antecedents to the Adoption of Augmented Reality Smart Glasses: A Closer Look at Privacy Risks. *J. Bus. Res.* **2018**, *92*, 374–384. [CrossRef]
120. Lyubomirsky, S.; Lepper, H.S. A Measure of Subjective Happiness: Preliminary Reliability and Construct Validation. *Soci. Indic. Res.* **1999**, *46*, 137–155. [CrossRef]