# Shopping with Voice Assistant : Understanding Consumer Intention and the Mediating Role of Trust

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## Abstract

**Voice assistants are a new smart tool in the market to assist and ease the shopping process for consumers. A voice assistant, along with its in-built artificial intelligence, makes consumer and device interaction more humanlike and personal. Despite a promising debut in the Indian market, there has been limited research on the Indian consumers' intention to use VA for online shopping. Most of the studies are exploratory in nature and lack a clear theoretical framework. This study aimed to tap the growing trend of the use of voice assistants in the Indian market. The study focused on finding what factors determine consumer intention to shop online using a voice assistant. How does trust upon a voice assistant affect the relationship between these factors and intention? This is a cross-sectional quantitative study. A convenience sample of 121 respondents participated in the study using an online structured questionnaire. The hypotheses testing was done using AMOS SEM. The tests confirmed that information quality and system quality impacted intention only when mediated through trust. Interaction quality, however, only had a direct effect, and no mediation through trust was determined. The study explained how more sincere efforts by VA in information searching and delivering the right information to consumers lead to the development of trust in the VA.**

***Keywords :*** **Voice assistant, intention, interaction quality, system quality, information quality, trust**

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COVID-19 has challenged all conventional shopping modes. The latest shopping aids are voice assistants (VA). Voice assistants are digital devices with artificial intelligence that not only mimic human intelligence but also have the cognitive ability of thinking and reasoning (Poushneh, 2021). They use technologies such as voice recognition, NLP or natural language processing, and speech synthesis (Ramos, 2018). V commerce or voice commerce is shopping from an e-retailer using a voice assistant (Whang, 2018). There are currently three forms of VA: smartphone-based voice assistants, smart speakers-based voice assistants, and voice assistants for other smart devices such as computers, TV, or radio. The last two decennia saw e-commerce gaining stupendous success in the retailing segment because it provided the ease of shopping from anywhere and anytime. However, e-commerce became a hassle because of annoying long hours of internet surfing and multiple application downloads to find the right product.

Consequently, abandoned carts became frequent (Velev & Zlateva, 2019). The modern consumer demands utilitarian and monetary value (Kumar & Kaushal, 2019) and also seeks hedonic shopping gratification in online

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shopping (Jain et al., 2018). Past research studies showed that humans display positive emotions when they interact with the voice-assisted tool because they elicit fake human emotions (Poushneh, 2021). A human mimicked voice creates curiosity and positively influences decision-making (Whang & Im, 2018). Therefore, voice assistants have the potential for utilitarian as well as hedonic gratification of the consumer needs (Aeschlimann et al., 2020; Nasirian et al., 2017).

There have been research contributions on the functionality of voice assistants (Hoy, 2018), their role in social development (Schweitzer et al., 2019), their role in promotional and branding activities (Mari, 2019), their adoption and usage (Buteau & Lee, 2021), and on consumer's attitude towards a voice assistant (Song, 2019). However, there has been limited research on Indian consumers' intention to use VA for online shopping. Most of the studies are exploratory in nature and lack a clear theoretical framework. Minimal research exists to explain the factors promoting online shopping using a voice assistant in India. The main objectives of this study will be to determine the factors influencing consumer intention to shop using VA and determine the mediating effect of trust on the relationships between factors and intention to shop using VA.

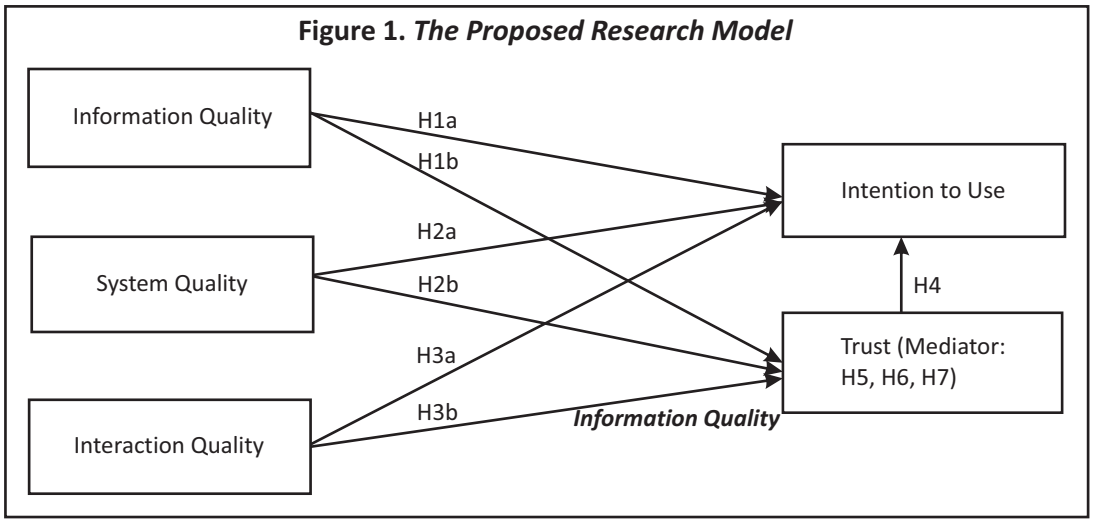
## Theoretical Framework and Hypotheses Development

VA is called by different names by different researchers, such as voice-activated intelligent personal assistants (Cowan et al., 2017) and virtual personal assistants (Yang & Lee, 2019). They are characterized by two basic functions: artificial intelligence and voice interaction (Goksel Canbek & Mutlu, 2016). Artificial intelligence is the technology that enables a smart device to mimic human intelligence (Copeland, 1998). They are designed in such a manner that they try to replicate human-to-human interaction, such as responding to a customer when addressed by its name or being activated by a wake word (Whang, 2018). They are designed to learn and adapt from their previous interactions and make suggestions in response to the current context (Mari, 2019). As the VA has context awareness, it is expected to collect information on usage patterns and make predictions for future behavior (Hoffman & Novak, 2017). Since they have an inbuilt capacity to make suggestions and predict future behavior, they play an important part in determining the intention to shop online.

Every service delivery is intangible and perishable in nature, and therefore, its measurement is difficult. A consumer evaluates service delivery on the parameters of hedonic value, utilitarian value (Rashid & Rokade, 2021), and the functional or unique value offered by the system (Singh & Nigam, 2021). Voice assistants are an interactive service delivery platform and, therefore, in the context of shopping using a VA, consumers have more hedonic gratification expectations than utilitarian. Hedonic gratification expectations are usually fulfilled by experiences with the equipment, people, and the system (Nattuvathuckal et al., 2020).

People make logical judgments based on the available information. These logical judgments result in decision-making (Chatterjee & Kundu, 2020; Dey & Sharma, 2019). Therefore, information quality is deduced to be paramount in influencing the intention of usage (DeLone & McLean, 2003). Systems provide ease of usage and operational flexibility to the consumers (Ojo, 2017), and equipment provides a medium for the interaction between a user and the voice assistant. Social agency theory (Mayer et al., 2003) explains that artificial intelligence systems provide social cues to consumers with modern equipment. Consumers react to these human-like social cues and delve into cognitive decision-making (Aeschlimann et al., 2020). The customers use these cues to interact with the voice assistant. Time and again, a consumer is touted as a benefit seeker (Kumar & Kaushal, 2019). Any system that is efficient in performing the ordered tasks (Al-dweeri et al., 2017) with competence and sincerity will eventually succeed in gaining consumer trust (Guru et al., 2021). Therefore, the perceived e-service quality of a system is often considered an antecedent of consumer trust (Rashid & Rookade, 2021). Trust further influences consumer behavior by aiding in the formation of positive intention to use a system (Ponte et al., 2015). The role of trust in online commerce is greater because the consumers do not have any direct interaction with the retailer, and they are also not able to touch and feel the products (Ha et al., 2021).

**Figure 1.** ***The Proposed Research Model***




For this study, we have developed a model based on the above three measures (people, system, & equipment) of hedonic gratification. The proposed research model is adapted from the famous DeLone & McLean Information Systems Success Model (ISSM). DeLone and McLean (1992) first proposed the ISSM model with a basic structure with two factors: information quality and system quality. These two factors were used to analyze the organizational impact of the technology. An updated version of ISSM developed by DeLone and McLean (2003) included intention as a factor to measure total net benefits from using technology. ISSM model has been used and validated several times by later researchers. Ojo (2017) used it in the context of hospital information systems, Yi et al. (2009) used this model to evaluate the success of mobile phone learning, Alshibly (2014) used it to analyze the success of e-HRM in organizations, and Rana et al. (2015) used it find the success of an e-government initiative. The adapted model (Figure 1) has information quality to measure consumer perception (people) about how good voice assistants are at finding what they intend to buy. System quality measures how easy it is to use the voice assistants (system) to perform the act of shopping. Interaction quality (equipment) measures how well the voice assistant understands the commands and instructions. This study contributes by empirically testing the adapted ISSM model to find the consumer intention for shopping using a voice assistant.

It has been described as the correctness, timeliness, and usefulness of the information provided by the system (Ojo, 2017). It also represents the accuracy, completeness, relevance, and consistency of the output information from the system in use (DeLone & McLean, 2003). It has been further stated that in the absence of physical examination of products, information quality is of utmost importance to the customer, and this information helps customers in making purchase decisions (Ghasemaghaei & Hassanein, 2015). Since the senses of touch, feel, and sight are very limited with the use of VA, trust plays a very important role. Trust in the technology can determine the intention to shop using that technology.

- **H1a :** Information quality of VA positively affects the consumer's intention to shop using VA.
- **H1b :** Information quality of VA positively determines trust towards VA.

### *System Quality*

DeLone and McLean (2003) elaborated on system quality as a measure that records the characteristics of a digital system in terms of reliability, adaptability, response time, and availability. Ojo (2017) defined system quality in the

context of the ease of use and flexibility of the system. Alshibly (2014) defined system quality in the context of the performance characteristics such as functionality and usability. Dreheeb et al. (2016) elaborated on this and found that system quality is a function of reliability, usability, and efficiency. Further, if the system meets the desires and requirements of the customer, it will lead to trust development and will impact future intentions.

- **H2a :** System quality of VA positively affects the consumer's intention to shop using VA.
- **H2b :** System quality of VA positively determines trust towards VA.

### *Interaction Quality*

A voice assistant interacts with humans in a human-like manner. Interaction quality has been described as the effect of artificial intelligence of VA on the consumer during human-computer interaction (Nasirian et al., 2017). It is also described as the rate at which the voice assistants process consumer requests (Aeschlimann et al., 2020). Interaction quality is also described as correct speech recognition relevant to the context (Cowan et al., 2017). It was measured by Klein et al. (2020) as a function of response behavior (VA behaves in a polite and respectful manner), response quality (VA answers quickly, aptly, and is up to date), and comprehensibility (VA clearly understands and interprets the questions). Since VA interacts with users using only voice commands, therefore, we assume that interaction quality is an antecedent to shopping intention. Interactions that lead to positive outcomes can be proposed to be dependent on trust.

- **H3a :** Interaction quality of VA positively affects the consumer's intention to shop using VA.
- **H3b :** Interaction quality of VA positively determines trust towards VA.

### *Trust*

Gefen et al. (2003) stated that trust is the mutual understanding that all related parties will honor their related commitment and behave in an ethically just manner. Bulsara and Vaghela (2020) defined trust as an expectation that online retailers and technology will not behave opportunistically and unethically in their dealings with customers. It is further elaborated that trust is an important component in determining online shopping intention, and the greater the trust will be, the greater will be the intention to shop (Siddiqui & Siddiqui, 2021). The role of trust in an online transaction is greater because the consumers do not have any direct interaction with the retailer, and they are also not able to touch and feel the products (Ha et al., 2021). As argued, trust is an understanding by consumers that VA will honor the commitment (Gefen et al., 2003), and we propose that the commitment expected to be honored by VA is providing consumers with accurate, relevant, and reliable information at the right time. Therefore, we propose that trust mediates the relationship between information quality and e-purchase intention. Further, the personalities of different consumers differ and, therefore, their buying behaviors differ (Poushneh, 2021); so, by interacting with consumers in a personalized manner, VA will create a sense of trust among consumers (Rashid & Rookade, 2021). Therefore, we propose that trust mediates the relationship between interaction quality and e-purchase intention. It has also been reported that consumers are motivated to use technology by the convenience and ease of its use (Tanwar, 2020). So, we propose that this ease of use can create trust in consumers to use the technology more frequently. Therefore, trust can mediate the relationship between system quality and intention to shop using VA.

- **H4 :** Trust in VA positively affects the consumer's intention to shop using VA.

- **H5 :** Trust mediates the relationship between information quality and intention to shop using VA.
- **H6 :** Trust mediates the relationship between system quality and intention to shop using VA.
- **H7 :** Trust mediates the relationship between interaction quality and intention to shop using VA.

## Research Methodology

### *Research Design and Sampling Procedure*

This is a quantitative cross-sectional study. It uses a mix of both exploratory and descriptive research designs because the research aims to explore and find the factors affecting purchase intention and then empirically test the proposed hypotheses. A structured online questionnaire was used to collect primary data. The target sample consists of people who have smart devices and used voice assistants at least once. The questionnaire was divided into two parts. Part A had general questions relating to demographics. It also had two screening questions "Do you own a smart device?" and "Have you ever used a voice assistant?" Part B had 20 items in total measuring different constructs of the study. The scale for information quality had six items adopted from Alshibly (2014) with a Cronbach's α of 0.93, and system quality had four items (Alshibly, 2014) with a Cronbach's α of 0.85. Interaction quality had four items adopted from Ekinci and Dawes (2009) with a Cronbach's α value of 0.87. Trust was measured using a scale with three items proposed by Kim et al. (2008) (Cronbach's α = 0.85), and intention was measured using three items adapted from Yi et al. (2009) (Cronbach's α = 0.97).

All the items were measured using a 5-point Likert scale, and the respondents had to rate their scores from "1-*strongly disagree*" to "5 - *strongly agree*." The questionnaire was mailed to the respondents in the NCR region of India, considering the social distancing norms and government regulations of COVID-19. A convenience sample of 124 was obtained. Out of these, four responses had to be discarded as they had never used a voice assistant. The final sample for the study was 121 respondents. The demographics of the respondents are shown in Table 1. Data for the study were collected from the NCR region of India in March – April 2021.

**Table 1.** ***Demographic Profile of the Respondents***

| Particulars Details | | Respondents | |
|---|---|---|---|
| | | Frequency | Percentage |
| Gender | Male | 60 | 49.6 |
| | Female | 61 | 50.4 |
| Educational Qualification | Intermediate (Grade12) | 9 | 7.4 |
| | Graduate | 45 | 37.2 |
| | Post Graduate | 64 | 52.9 |
| | Doctorate | 3 | 2.5 |
| Age | < 25 years | 31 | 25.6 |
| | 26 – 35 years | 45 | 37.2 |
| | 36 – 45 years | 27 | 22.3 |
| | 46 – 55 years | 13 | 10.7 |
| | > 55 years | 5 | 4.1 |

## Analysis And Results

### *Reliability and Validity Analysis*

The reliability and validity are determined by using confirmatory factor analysis (CFA) using AMOS software. Three items were deleted to ensure the validity and reliability of the instrument.

The values for Cronbach's α for all constructs are between 0.90 – 0.96, which is considered very good (Hair et al., 1998). Composite reliability was determined for all the scales, which is above 0.90 for all the constructs, as presented in Table 2.

Construct validity of the instrument is determined by calculating convergent validity and divergent validity. Convergent validity is defined as the degree to which the results of multiple measurements of the same concept are in agreement. It is determined by factor loadings, composite reliabilities (CR), and average variance extracted

**Table 2.** ***Reliability Coefficients of the Constructs***

| Constructs | Items | Factor Loading | Cronbach's α | CR | AVE |
|---|---|---|---|---|---|
| Information Quality | *Info_1* | 0.82 | 0.93 | 0.93 | 0.73 |
| | *Info_2* | 0.85 | | | |
| | *Info_3* | 0.88 | | | |
| | *Info_4* | 0.85 | | | |
| | *Info_5* | 0.88 | | | |
| System Quality | *Sys_1* | 0.92 | 0.95 | 0.95 | 0.84 |
| | *Sys_2* | 0.93 | | | |
| | *Sys_3* | 0.91 | | | |
| | *Sys_4* | 0.91 | | | |
| Interaction Quality | *Inter_1* | 0.95 | 0.93 | 0.93 | 0.88 |
| | *Inter_2* | 0.93 | | | |
| Intention | *Inten_1* | 0.96 | 0.90 | 0.96 | 0.90 |
| | *Inten_2* | 0.97 | | | |
| | *Inten_3* | 0.92 | | | |
| Trust | *Tru_1* | 0.88 | 0.96 | 0.90 | 0.75 |
| | *Tru_2* | 0.86 | | | |
| | *Tru_3* | 0.86 | | | |

**Table 3.** ***Discriminant Validity of the Constructs***

| Construct | Information Quality | System Quality | Interaction Quality | Intention | Trust |
|---|---|---|---|---|---|
| Information Quality | **0.85** | | | | |
| System Quality | 0.84 | **0.91** | | | |
| Interaction Quality | 0.79 | 0.84 | **0.94** | | |
| Intention | 0.84 | 0.88 | 0.76 | **0.95** | |
| Trust | 0.75 | 0.80 | 0.61 | 0.83 | **0.87** |

(AVE) (Fornell & Larcker, 1981). The factor loadings for each item are more than the cut-off limit of 0.60 (Nunnally, 1994).

The composite reliabilities for all the constructs are > 0.70 (Hair et al., 1998). AVE for all the constructs ranges from 0.73 – 0.90, which is above the cut-off limit. Discriminant validity is defined as the extent which measures to what extent different concepts are different from each other. It is determined by comparing the square root of AVE with the inter-construct correlations, √AVE > inter-construct correlation. All the values for √AVE are greater than the inter-construct correlations (Fornell & Larcker, 1981), as shown in Table 3.

### *Structural Model*

The proposed hypotheses are tested using the structural model equation (SEM) by AMOS v18 software with maximum likelihood estimation. The structural model is used to determine the proposed relationships and to examine the model fit results for the hypothesized model. The following measures determine the goodness of fit of the proposed model. CMIN/*DF* value is 1.741 ($\chi^2$ = 181.113, *Df* = 104). The goodness of fit index (GFI) is 0.850, which is higher than the cut-off limit of 0.80. Normed fit index (NFI), Tucker – Lewis index (TLI), and comparative fit index (CFI) are > 0.90. The root mean square error of approximation (RMSEA) also meets the cut-off level of 0.08 (Browne & Cudeck, 1992). The model fit indices are summarized in Table 4.

The structural model is run to determine the path analysis. We used the structural equation modeling to test our hypothesized model because the constructs of our study are conceptually correlated, and SEM defines the variance – covariance relations of the latent constructs, which we evaluate by determining the standardized path coefficients (Forsythe et al., 2014). The results of SEM path analysis are presented in Figure 2. The results indicate that the intention to shop using voice assistants is not determined by information quality (β = –.05, sig. > 0.05) and system quality (β =.27, sig. >.05). Hence, H1a and H2a are not accepted. However, the impact of interaction quality is significant in determining the intention to shop (β = –.34, sig.< 0.05). So, hypothesis H3a is accepted.

Information quality has a significant impact on trust (β = 0.47, sig.< 0.05) and system quality also positively impacts trust (β = 0.63, sig.< 0.05) ; hence, H1b and H2b are accepted. Interaction quality does not significantly impact trust (β = –.12, sig. > 0.05) ; so, H3b is not accepted.

Trust in a voice assistant is found to significantly impact the intention to shop using VA (β = 0.95, sig.< 0.05). H4 is also accepted. $R^2$ for trust is 0.92, which explains a good 92% of the variance in trust because of the three proposed constructs. $R^2$ intention is 0.81, which explains 81% of the total variation in intention because of information quality, system quality, interaction quality, and trust (Table 5).

**Table 4.** ***Model Fit Indices***

| Fit Indices | Values | Recommended Criteria |
|---|---|---|
| *Df* | 104 | |
| $\chi^2$ | 181.113 | |
| $\chi^2/df$ | 1.741 | ≤ 3.00 |
| GFI | 0.85 | ≥ 0.80 |
| NFI | 0.93 | ≥ 0.90 |
| TLI | 0.96 | ≥ 0.90 |
| CFI | 0.97 | ≥ 0.90 |
| RMSEA | 0.07 | < 0.08 |

**Figure 2.** ***Results of the Path Analysis of the Proposed Model***

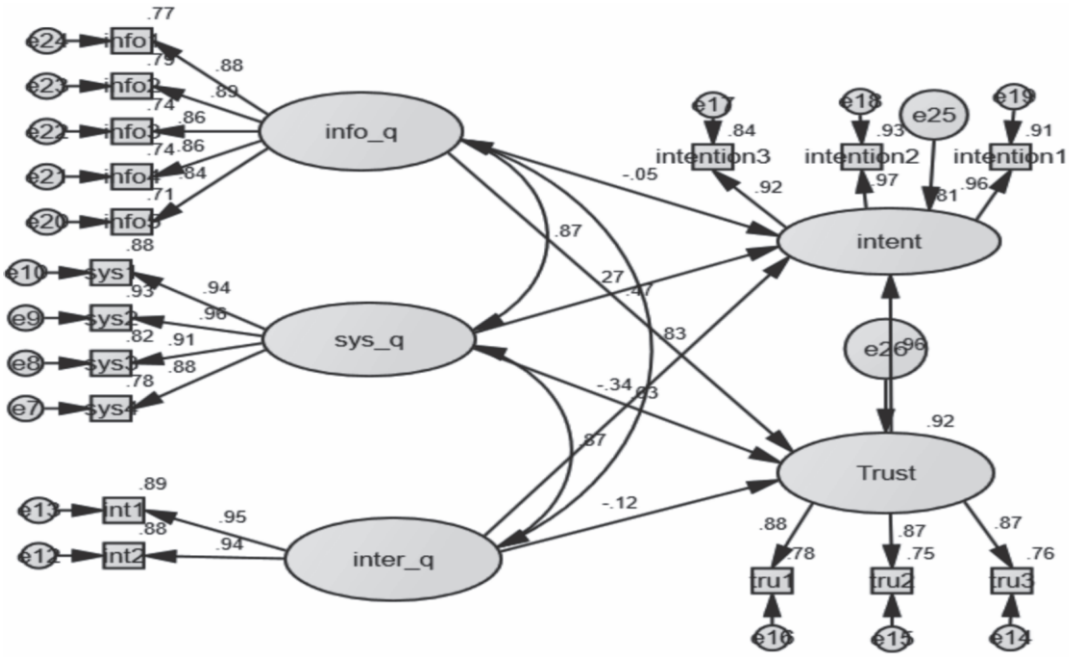



**Table 5.** ***Path Coefficients and Results of the Path Analysis***

| Path | Hypothesis | *B* | β | SE | CR | Sig. | Result |
|---|---|---|---|---|---|---|---|
| Intention <---Information Quality | H1a | –0.06 | –0.05 | .253 | –0.25 | 0.804 | Not Supported |
| Intention <--- System Quality | H2a | 0.28 | 0.27 | .279 | 1.03 | 0.305 | Not Supported |
| Intention <--- Interaction Quality | H3a | –0.36 | –0.34 | .153 | –2.36 | 0.018 | Supported |
| Trust <--- Information Quality | H1b | 0.51 | 0.47 | .119 | 4.25 | 0.000 | Supported |
| Trust <--- System Quality | H2b | 0.61 | 0.63 | .120 | 5.08 | 0.000 | Supported |
| Trust <--- Interaction Quality | H3b | –0.12 | –0.12 | .105 | –1.11 | 0.266 | Not Supported |
| Intention <--- Trust | H4 | 1.03 | 0.95 | .378 | 2.74 | 0.006 | Supported |
| **Squared Multiple Correlations** | | | | | | | |
| $R^2$ intention | 0.81 | | | | | | |
| $R^2$ Trust | 0.92 | | | | | | |

### *Mediation Effects*

The mediation effect is calculated by bootstrapping in AMOS. In the following relationships, trust is used as a mediator. In the relationship between information quality → trust → intention, it is found that the direct path between information quality and intention is insignificant, but the indirect path is significant. Hence, a full mediation effect is present in the relationship. Therefore, H5 is accepted. In the relationship between system quality → trust → intentions, it is found that the direct effect between system quality and intention is insignificant, but the indirect effect and total effect are significant. Therefore, H6 is also accepted. However, no mediation is

**Table 6.** ***Results of Mediation Tests***

| Relationship | Standardized Estimation | *p*-value | Mediation Impact |
|---|---|---|---|
| **Information Quality → Trust → Intentions** | | | |
| Direct (No Mediator) | –0.053 | 0.826 | Full Mediation present |
| Indirect (With Mediator) | 0.450 | 0.019 | |
| Total Effect | 0.397 | 0.005 | |
| **System Quality → Trust → Intentions** | | | |
| Direct (No Mediator) | 0.272 | 0.553 | Full Mediation present |
| Indirect (With Mediator) | 0.604 | 0.019 | |
| Total Effect | 0.876 | 0.001 | |
| **Interaction Quality → Trust → Intentions** | | | |
| Direct (No Mediator) | –0.341 | 0.017 | No mediation present |
| Indirect (With Mediator) | –0.115 | 0.242 | |
| Total Effect | –0.456 | 0.006 | |

observed in the relationship between interaction quality → trust → intentions. The mediation effects are mentioned in Table 6. From the results, we conclude that H5 and H6 are accepted as trust shows a full mediation effect between information quality and intention and also between system quality and intention to shop online. We fail to accept H7 as trust does not mediate the relationship between interaction quality and intention.

## Discussion and Conclusion

Voice assistants are the new emerging devices that hold the potential to capture consumers' buying patterns with their inbuilt artificial intelligence. As they can make suggestions for future purchases, managers and marketers have the opportunity to use VA as a medium to reach out to consumers in an innovative manner. This paper reports that information quality, system quality, and interaction quality play an important role in determining consumers' intention to shop online using VA. The objective of the present study is to investigate the impact of information quality, system quality, and interaction quality on the e-purchase intention using a voice assistant. ISSM model is adapted and extended by adding interaction quality to study the same. The study also proposes the mediating role of trust between the factors and e-purchase intention.

The present study's results validate and support earlier researchers' findings (Bulsara & Vaghela, 2020; Gefen et al., 2003) that trust has a direct and positive impact on the e-purchase intention of a consumer using a voice assistant. This study reports that although information quality and system quality do not have a significant positive impact on intention, but they show full mediation through trust. It would mean that these qualities determine trust-building, which in turn, impacts intention. However, interaction quality directly impacts intention and is not mediated by trust (Aeschlimann et al., 2020; Nasirian et al., 2017).

The study provides insights into consumers who are shopping using a voice assistant. Therefore, the study is an important instrument for marketers to understand what prompts Indian consumers to engage in online shopping using a voice assistant. Indian consumers are at ease using technologies that provide convenience (Tanwar, 2020), therefore, companies should focus on developing the interaction quality of the voice assistant further so that consumers can interact with the device more easily and more frequently. The system quality can also be enhanced to enable VA to indulge in performing more complicated tasks such as voice-to-text or text-to-voice tasks, enhanced data security, and enhanced secure payment modes (Tanwar, 2020). This study supports the findings by

Ekinci and Dawes (2009) that different consumers have different personality traits and will have different interaction styles. Thus, interaction quality will play a significant role in determining any future intention to use that technology. The research also supports the existing literature in stating that information quality, interaction quality, and system quality are foremost in determining the intent to use VA (Alshibly, 2014; Nasirian et al., 2017).

## Theoretical Implications

The framework of this study contributes towards the advancement of theoretical as well as methodological literature available for voice assistants and consumer intention to shop online using a voice assistant. The research is an addition to the present existing literature on the ISSM model by DeLone and McLean (2003). The study also contributes by applying and empirically testing the ISSM model for evaluating factors influencing e-purchase using voice assistants. This study advances the research on this model (Alshibly, 2014; Nasirian et al., 2017; Ojo, 2017; Rana et al., 2015) by adding another parameter of interaction quality. This factor serves as an original contribution to the existing literature, especially in the context of e-purchases made using voice assistants. Hence, this research aggregates a robust conceptual framework that future researchers could use to add and advance the study on purchase intention using voice assistants.

## Managerial Implications

The research also offers a substantial implication for various stakeholders of the voice assistant and e-retailing industry, such as CEOs, managers, technical service providers, and associated government bodies. The paper determines how the human-like voice interaction of the VA influences buying behavior (Poushneh, 2021), therefore, managers need to ensure that VA has capabilities of more personalized interaction with the user. The study also explains how more sincere efforts by VA in information searching and delivering it to consumers lead to the development of trust in the VA. This trust factor also encourages consumers to use voice assistants for more and more daily activities; so companies need to enhance VA technology further to ensure that the information search is fast, relevant, and easily understandable. Manufacturers of voice assistants can use targeted marketing to the young population to create more awareness about the ease of use and to promote the fun and hedonic element associated with shopping through voice assistants. A media campaign can also be launched to invoke a sense of trust among users to ensure the positive e-purchase intention of the buyers.

## Limitations of the Study and the Way Forward

In this study, we have used non-random sampling methods, therefore, future studies have a scope to replicate this study with more accurate and detailed random sampling techniques. In this study, we have tried to analyze shopping intention through VA. We did not select the shopping for any particular product category because the use of voice assistants is at a very nascent stage in India. Future researchers can further elaborate on this research by selecting a particular product or service category. Lastly, this study uses cross-sectional data, and researchers have a scope of using longitudinal data to elevate the generalization of the results.

## Authors' Contribution

Vasundhra Singh and Dr. Naveen Kumar conceived the novel idea about the research on voice assistants. Vasundhra Singh conceptualized the initial design for the research. She did the data collection, data analysis, and

interpretation of the results. Dr. Naveen Kumar did the final critical review of the research and provided the final approval for the article to be forwarded for publication.

## Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.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## Appendix

| | | |
|---|---|---|
| **Information Quality** | | |
| *Info_1* | VA provides information that is exactly what you need. | Retained |
| *Info_2* | VA provides the information you need at the right time. | Retained |
| *Info_3* | VA provides information that is relevant to your job. | Retained |
| *Info_4* | VA provides sufficient information. | Retained |
| *Info_5* | VA provides information that is easy to understand. | Retained |
| *Info_6* | VA provides up-to-date information. | Deleted |
| **System Quality** | | |
| *Sys_1* | VA is easy to use. | Retained |
| *Sys_2* | VA is user-friendly. | Retained |
| *Sys_3* | VA provides high-speed information. | Retained |
| *Sys_4* | VA provides flexible interaction features between user and system. | Retained |
| **Interaction Quality** | | |
| *Inter_1* | VA was willing to help you. | Retained |
| *Inter_2* | VA was consistently courteous with you. | Retained |
| *Inter_3* | VA was competent in doing its job. | Deleted |
| *Inter_4* | VA gave a prompt reply. | Deleted |
| **Intention** | | |
| *Inten_1* | Given that you have access to VA, you intend to use it for shopping. | Retained |
| *Inten_2* | I will use VA in the near future to shop. | Retained |
| *Inten_3* | I will frequently use VA in the near future to shop. | Retained |
| **Trust** | | |
| *Tru_1* | VA is trustworthy. | Retained |
| *Tru_2* | VA gives the impression that it keeps promises and commitments. | Retained |
| *Tru_3* | I believe that VA has my best interests in mind. | Retained |


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