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Optimizing the usage of voice assistants for shopping

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Abstract

Objectives: To measure the awareness of voice assistants among the consumers and to understand the reasons for consumers minimal voice shopping. To measure the challenges faced by voice shopping in spite of voice assistants' upward trend and also to understand the attitude behavior and personality of the consumers for adopting and for ignoring voice shopping. **Methods / Statistical Analysis:** The design used for this study is descriptive and the population that was considered for the study belongs to Chennai, India. The sample taken for the study is 65 respondents and sampling technique used is convenient sampling. Statistical tools namely percentage analysis, correlation, and chi – square analysis is applied. **Findings:** Most (86%) of the respondents are aware of the voice assistant, but still they were not trained to use it for shopping. Female respondents are hesitant to use the voice assistant for shopping and the reason for ignorance was user voice was not identified and respondents get error message. Respondents feel unsecured in using payment options in voice assistant. Attitude and technology usage plays a major role. From the study, it is evident that the awareness of the existing voice assistants is low and consumer's behavior is not consistent. **Applications / Improvements:** Thus to increase the usage of voice assistants for shopping, customer awareness and engagement should be increased and the user can be motivated about discounts and offers and providing secured payment system. Even if people can't afford voice assistants speakers (like Alexa, Google home), facilities are available in smart phones, even for which the awareness is less. Attitude and technology has to improve a lot so that after creating awareness and after providing modalities of safety measures to the respondents, usage might improve in future.

Keywords: Voice assistant; e-commerce; SEO; online shopping; optimization; Alexa; Google assistant; SIRI

1 Introduction

Technology is constantly growing and advancing, and the voice assistant market is also advancing faster and it will progress along with it. In April 2015, the research firm Gartner predicted that by the end of 2018, 30 percent of interactions with technology

would be through "conversations" with smart machines, many of them by voice. The statistics reveals that shipments of virtual assistants rose 25% year on year to 1.1billion units in 2019. Overall, the report predicts that the market for assistants will exceed 2.5 billion shipments by 2023. It means so many people will start using the facility by 2023, with the introduction of 4G technology this might enhance the voice assistants (Times of India, Dec 29, 2019).

Tractica is a market intelligence firm that focuses on technology based on human interaction. Their report says virtual digital assistants (automated software applications or platforms understanding natural language in spoken or written form) will grow from 390 million worldwide in 2015 to 1.8 billion by 2021. The business growth is expected to increase worldwide from 155 million in 2015 to 843 million by 2021. By this projected growth, it is forecasted that revenue will increase from $1.6 billion in 2015 to $15.8 billion in 2021.

Voice recognition technology was debuted by Apple's Siri in 2011. In 1962, at the Seattle world's fair, Shoebox, is a tool presented by IBM. It could perform mathematical functions and it was the shoebox size and recognizes 16 words as well as digits 0 – 9. In US Market, Voice assistants have significant growth. But, in today's scenario the awareness is very limited about the various usages of voice assistants. From the public people perspective voice assistants are for listening to music, weather checking, asking a general knowledge question, call someone, find out the number of a person, place, shop, set alarm, but it is not only that, a lot more functionalities are possessed by assistant which includes further digging by people like purchasing, booking a cab, or delivery arrangements In [1].

Consumer behavior in these activities are limited and factors like personality and attitude traits influence these acts as a starting point for this study. Hence, this study will help to understand the mindset of the consumer behavior and how it can influence the adoption rate of the voice assistant's is the important sole purpose of this study.

Voice assistants have significant growth in US market. But the awareness about the various usages of voice assistants is very limited in today's scenario In [2]. From public people perspective voice assistants are meant for asking a question, listening to music, call someone, checking weather, set alarm but a lot more facilities are possessed by virtual assistants which needs further digging by people like purchasing, booking a cab or ordering a cab.

Consumer behavior in these activities are limited and factors like personality and attitude traits influence these which acts as a starting point for this study. Hence to understand the consumer behavior and how greatly it influences the voice assistant's adoption rate is the sole purpose of this study.
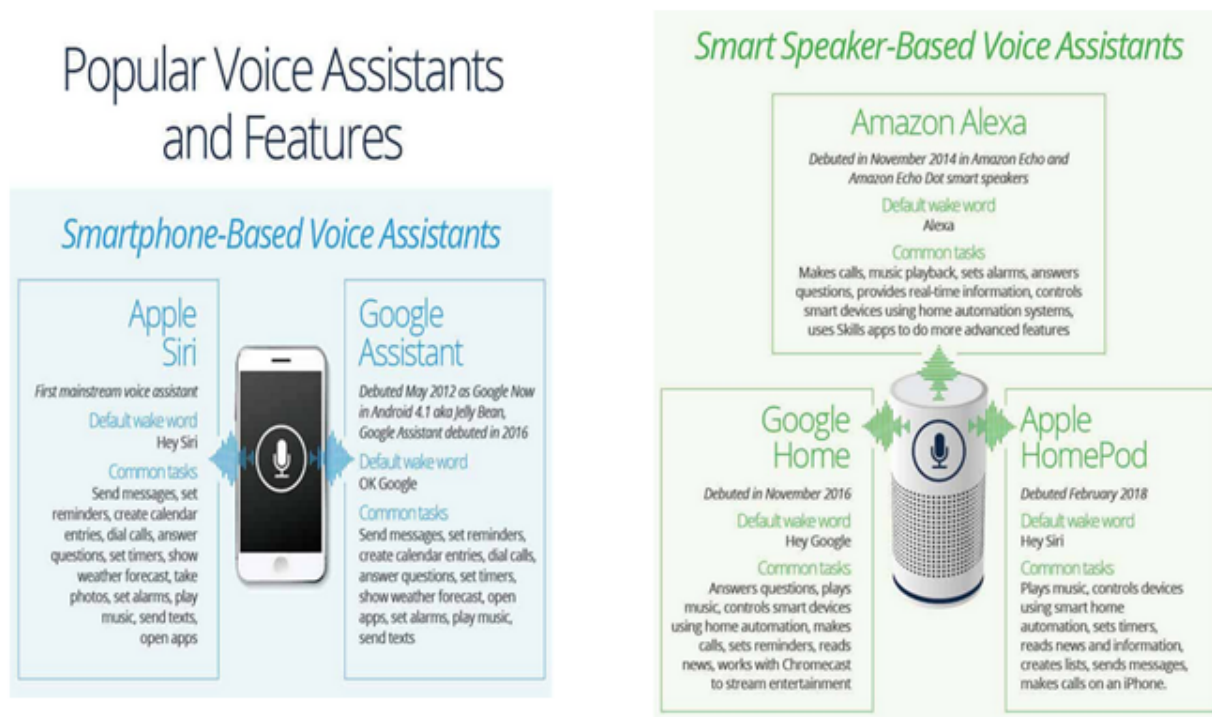

Fig 1. Popular smart assistants and their features

The conceptual framework created will make us to understand the consumer behavior in using voice assistants and to analyze the ways to increase the adoption rate of shopping through voice using digital marketing solutions. Also, to understand the awareness level of the consumer, reasons for minimal usage and if they are using it what are the challenges faced in voice shopping, in a way this will help to explain attitude and personality of the consumers to optimize the voice shopping.
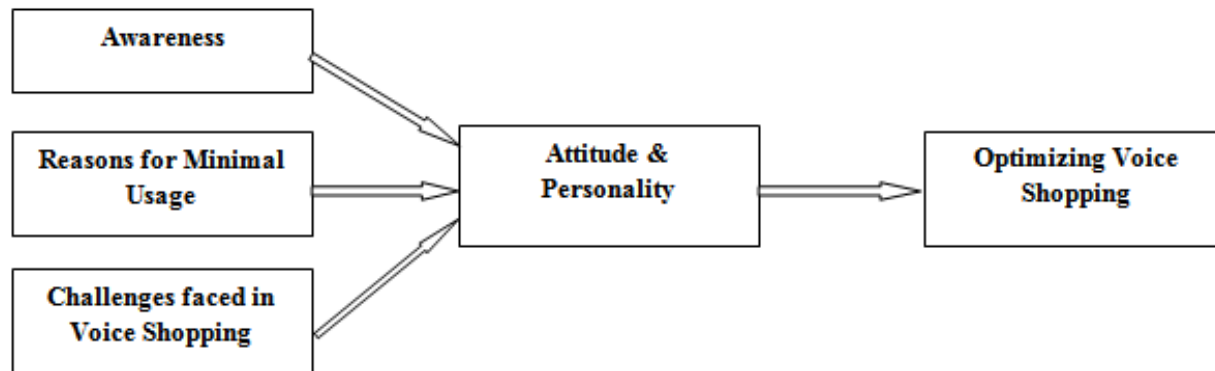

Fig 2. Conceptual framework to understand the behavior in using voice assistants

If we consider the related studies, In [3] says that based on the anthropomorphism literature and the para social interaction theory, proposed consumers to expand a stronger para social relationship with a increase in humanlike shopping medium, which in turn influences consumers try to evaluate the recommended product more positively. Specifically, consumers were expected to understand / perceive voice assistants as more humanlike than websites because of the way voice assistants are designed (i.e., vocal conversation). The primary goal of this study was to investigate how shopping with voice assistants may be uniquely different from shopping on websites. Also, the study helped to understand the effect of other two moderators, one being, interaction style (socially-oriented interaction vs. task-oriented interaction) and the other being product type (experience product vs. search product). Also In [4], the authors explains voice interface is becoming such a common feature in mobile devices such as tablets and smart phones. Moreover, voice recognition technology is expected to become the default method to control variety of interfaces, including mobile devices. The present study examined how the perceived acceptability of using the Voice-Activated Personal Assistant (VAPA) in smart phones influences the reported use.

In case of authors In [5], researched that the Google home and Alexa didn't even exist three years ago. He also predicts that 33 million voices – first devices by the end of 2017 will be in circulation. The author has also predicted 30% of browsing sessions will be done without a screen by 2020, leaving many buying decisions to voice assistants choosing brands to be invisible. He also researches that brands and agencies are looking to innovate identities for when consumers can't see the products and also start developing audio mnemonics, logos, like the green giant's "hohoho" or the five-note Intel sound mark. This made the brands to think how they can develop a unique voice that makes their brands instantly recognizable to the consumer. It is also important to understand the view In [6], the author discovers a challenge for two primary reasons: the "affordances," or "capabilities", of virtual assistants are often unclear and the number of skills available in virtual assistants is increasing rapidly. It is difficult to create awareness about the assistants in the market and it is not that easy to communicate all the activities that the assistants do in the market. The number and variety of skills that is available in virtual assistants is also accelerating rapidly, especially with the advent of third-party skill creation tools (such as the Alexa Skills Kit-c and the Cortana Skills Kit-d) In [7]. The most established skills platform, Amazon Alexa, had more than 26,000 skills is available (data as of December 2017). The pace of growth is such that users often struggle to keep track as new skills are released.

Another interesting information about the study is shared In [8], says that there is a rising trend of use of voice-enabled digital assistants among people between the ages of 25 and 34 in the U.S. People between the ages of 25 and 34 are considered to be "The heaviest users of digital assistants". Virtual assistant users represent 26.3%. In terms of generation, more than one third of millennials (33.5%) will use a virtual assistant this year."

2 Need for the study

To understand the consumer behavior in using voice assistants and to analyze the ways to increase the adoption rate of shopping through voice using digital marketing solutions.

Some trivia

- 50% of all searches will be voice searches by 2020, per comScore.
- About 30% of all searches will be done without a screen by 2020, per Gartner
- 5% of consumers use voice shopping, but that number could reach 50% by 2022, per MoffettNathanson[9].
- 52% of voice-activated speaker owners would like to receive information about deals, sales, and promotions from brands, per Google. 39% would like to receive options to find business information.

From the charts below, it is easy to understand the adoption rate of the consumers during the year 2018 & 2019. This calls to understand the attitude & personality of the consumers to optimize the voice shopping.
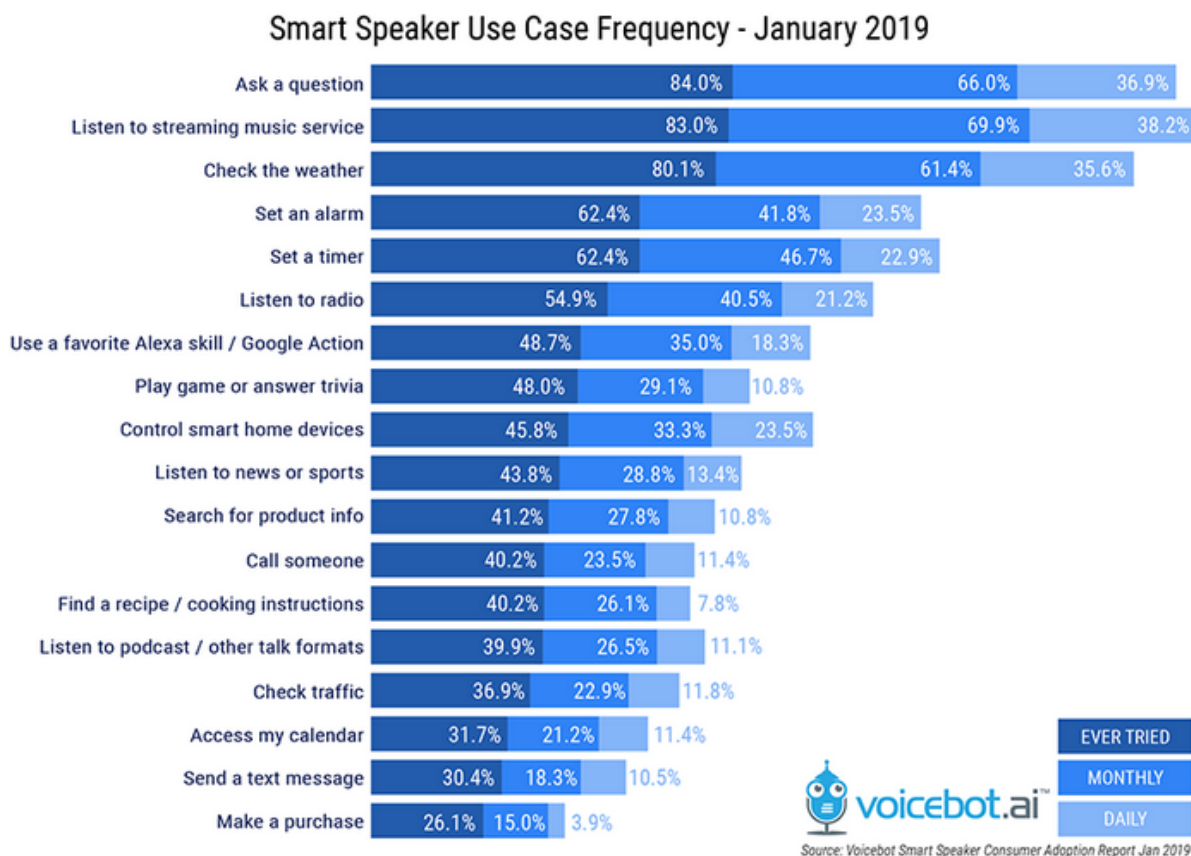

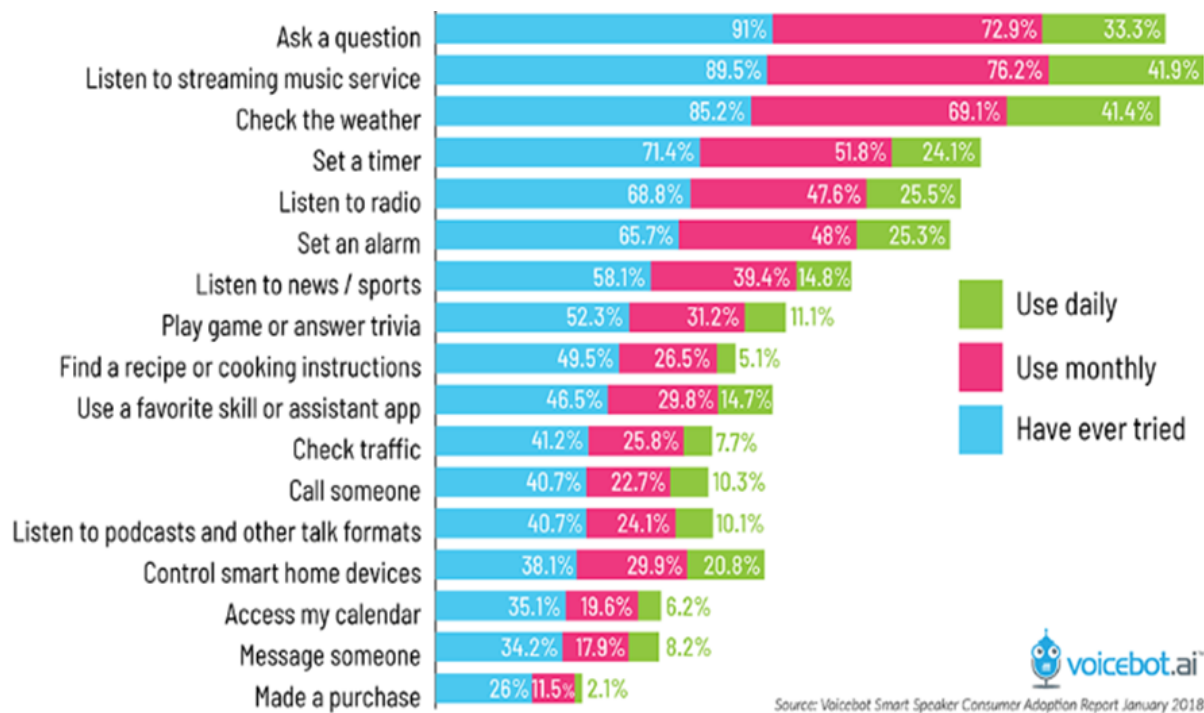Chart 1: Voicebot speaker adoption rate in January 2019

Chart 2: Voicebot speaker adoption rate in January 2018

3 Objectives for the study

- To measure the awareness of voice assistants among the consumers
- To understand the reasons for consumers minimal voice shopping
- To measure the challenges faced by voice shopping in spite of voice assistants' upward trend
- To understand the attitude behavior and personality of the consumers for adopting and for ignoring voice shopping

4 Methodology

4.1 Research Design

The design used for this study is Descriptive research design. Here in this study as we wanted to know about certain characteristics such as attitude, personality traits and consumer behavior this research type is chosen.

4.2 Population and Sample

The population that was taken for study is random since topic chosen is broad. The sample taken for the study is 65 respondents. The technique used for selecting the sample is convenient sampling.

4.3 Source of data

The study has used primary data. For collecting primary data structured questionnaire was framed and necessary corrections have been implemented. A well-structured questionnaire was designed towards adoption of voice shopping based on awareness, Attitude behavior, personality and intentions to use.

Secondary data was used to collect necessary information about the topic from Blogs, websites & voicebot reports.

4.4 Statistical tools

Statistical tools namely chi-square analysis, correlation, cross tabulation and percentage analysis are applied in relevant places to achieve the objectives.

5 Results and Findings

5.1 Analysis Flow

Data is collected from 65 respondents.

- Percentage analysis is applied to understand the demographic and social factors of respondents.
- Cross tabulations for Gender vs. Awareness level and also between Gender vs. User voice not being recognized by the assistants are analyzed.
- Chi – square analysis to find out the association between gender and awareness level and also association between gender and reasons for ignorance of voice shopping
- Correlation between the Income vs. Frequency of shopping and Age vs. Likelihood of shopping in future are analyzed.

Table 1. Descriptive Analysis of Demographic factors andSocio economic factors of the respondents

S.NO	Sample	Sub Sample	# RESPONDENTS	%
1.	Age Group	15-30 Years	59	90.8%
		30-40 Years	5	7.7%
		40-50 Years	1	1.5%
2.	Gender	Male	32	49.2%
		Female	33	50.8%
3.	Qualification	UG	15	23.1%
		PG	28	43.1%
		Others	22	33.8%
4.	Income	3-5 LPA	33	76.7%
		5-10 LPA	4	9.3%
		Above 10 LPA	6	14%

The study of descriptive analysis showed that 1.5% of the respondents are under the category of 40 - 50 and 90.8% of the respondents are under the category of 15 – 30 years of age. Among the respondents considered for the study, 50.8% are female and 49.2% are male. The analysis shows that the income range of the respondents fall under the category of 3 – 5 LPA is the highest with 76.7% of the total. The qualification of the 33.8% of the respondent's qualification falls under the category of PG.

Table 2. Analysis to find out theawareness level, reasons for using Voice assistant's and their likelihood of using in future

S.NO	Sample	Sub Sample	# RESPONDENTS	%
1.	Awareness level of Voice assistants	Yes	64	98.5%
		No	1	1.5%
2.	Source of awareness about voice assistants	Advertisements	26	40%
		Through friends	18	27.7%
		I myself know it	30	46.2%
		Found it on my phone	28	43.1%
		None of the above	4	6.2%
3.	Purpose of using voice assistants	Ask a question	45	69.2%
		Listening to music	29	44.6%
		Check the weather	14	21.5%
		Call someone	38	58.5%
		Purchase	5	7.7%
4.	Prior experience in voice shopping	Yes	14	21.5%
		No	51	78.5%

Continued on next page

Table 2 continued

5.	Reason for liking voice shopping	Its hands free	9	64.3%
		I can do it while doing other things	5	35.7%
		Its faster to get answers and results	5	35.7%
		I took advantage of a deal or coupon	1	7.1%
		It seems more natural	2	14.3%
6.	Reason for ignoring voice shopping	I'm not comfortable shopping by voice	6	42.9%
		I don't trust smart speakers for payment	3	21.4%
		There is no screen	6	42.9%
		I can type faster to get what I want	2	14.3%
		I don't like saying the wake word (i.e, Alexa, Hey google	5	35.7%
7.	User feeling shy to use voice assistants in Public	Yes	25	48.1%
		No	27	51.9%
8.	Likelihood of voice shopping in future	Rarely-1	8	15.4%
		2	10	19.2%
		3	19	36.5%
		4	12	23.1%
		Often -5	3	5.8%

The results of frequency table showed that only 64% of the respondents are aware of the voice assistants and 46.2% of the respondents are aware by themselves. Also, the frequency results showed that 69.2% of the respondent's main purpose of using voice assistants was to ask their doubts. 78.5% of the respondents did not have any prior experience in voice shopping. The analysis showed that 64.3% of the respondent's reasons for liking voice shopping is its hands free. From the total respondents surveyed, 42.9% of the respondent's reason for ignoring voice shopping was that they were not comfortable. Further the analysis showed 51.9% of the respondent's was feeling shy to use voice assistants in public. 36.5% of the respondents may or may not use the voice shopping in the future.
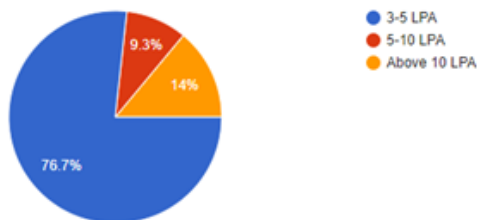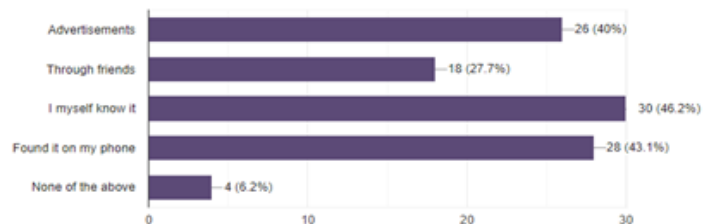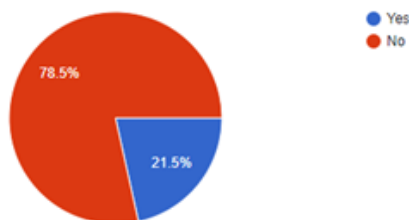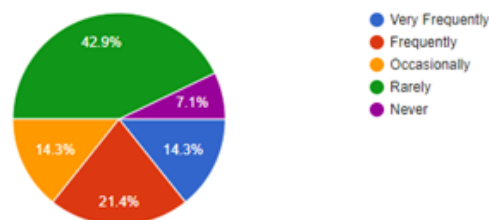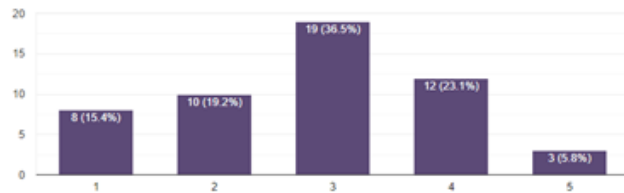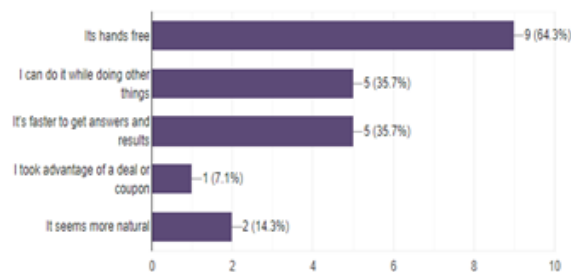

Fig 3. Descriptive analysis of demographic factors and socio-economic factors of the respondents

Likelihood of shopping in future

Reason for using voice shopping

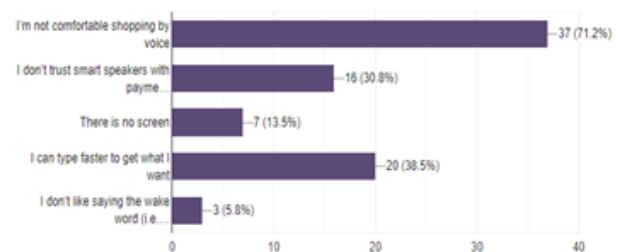## Reason for voice shopping ignorance

Fig 4. To understand the attitude behavior and personality of the consumers for adopting and for ignoring voice shopping.

Chi – Square Test
Chi – Square 1 - Gender vs. Awareness level

Table 3. Chi– square to find association between gender and awareness level

Chi Square Tests				Symmetric Measures		
	Value	df	Asymp. Sig (2-sided)		Value	Approx.Sig
Pearson Chi-Square	67.063*	4	.000	Nominal by Nominal Phi	1.008	.000
Likelihood Ratio	11.798	4	.019	Cramer's V	.713	.000
N of Valid Cases	66			No of Valid Cases	66	

Gender Vs Awareness level

Chi square test is applied between gender and awareness level. The Chi- square value is 67.063 and the p- value is 0.000 which is less than 0.05. There is significant association between gender and awareness. From the observed value, it is found that there is a strong association between gender and awareness level of voicebot among the respondents.

Chi – Square 2 - Gender vs. Reason for ignorance of voice shopping (User voice not being recognized by the assistants)

Table 4. Chi – square to find association between Gender vs. Reason for ignorance of voice shopping

Chi Square Tests				Symmetric Measures		
	Value	df	Asymp. Sig (2-sided)		Value	Approx.Sig
Pearson Chi-Square	67.543*	6	.000	Nominal by Nominal Phi	1.012	.000
Likelihood Ratio	11.900	6	.064	Cramer's V	.715	.000
N of Valid Cases	66			No of Valid Cases	66	

Gender Vs Awareness level

Chi square test is applied between gender and reason for ignorance of voice shopping. The Chi- square value is 67.543 and the p- value is 0.000 which is less than 0.05. There is significant association between gender and reason for ignorance of voice shopping. From the observed value, it is found that there is a strong association between gender and reason for ignorance of voice shopping among the respondents.

Correlation

Correlation 1- Correlation between Income and frequency of voice shopping

Table 5. Correlation between Income and frequency of voice shopping Correlations

		Income_1	Frequency
Income_1	Pearson Correlation	1	.254
	Sig. (2-tailed)		.001
	N	165	165
Frequency	Pearson Correlation	.254	1
	Sig.(2-tailed)	.001	
	N	165	165

When the correlation between income and frequency of voice shopping is established there exists a low positive co - relation (0.254). The p value (0.000) indicates that the relationship is significant.

Correlation 2 – Correlation between age and likelihood of shopping in future

Table 6. Correlation between age and likelihood of shopping in future Correlations

		Income_1	Frequency
Income_1	Pearson Correlation	1	.134
	Sig. (2-tailed)		.342
	N	165	52
Frequency	earson Correlation	.134	1
	Sig.(2-tailed)	.342	
	N	52	52

The relationship between age and likelihood of shopping in future is established using correlation tool and there exist a low positive correlation (0.134) between them. The p value (0.000) indicates that the relationship is significant.

From the above analysis, it is evident that demographics play a vital role in using voice assistants for shopping. In many cases, there exists a positive relationship between the variables that are considered for the test and able to understand the attitudes and preferences of the consumers using voice assistants, which are considered to be a very important factor for this study.

6 Results and Discussions

- The analysis found that there is no relation between age and likelihood of shopping in future using voice assistant. This implies age is not influencing the study.
- When the relationship between income and frequency of shopping was studied, it shows that there exists a positive correlation between the two variables.
- When the association between gender and awareness level was found in the study, it shows that there exists a strong association between the variables.
- There exist a strong association between gender and reason for ignorance of voice shopping. This shows that mostly female respondents were reluctant in using voice assistance for shopping and the main reason for ignoring voice assistant by most of them is user voice was not being recognized by the assistants most of the time.

7 Conclusion

The usage of voice technology for shopping is growing rapidly worldwide and the adoption of voice assistants, particularly in the U.S — including Google Assistant, Apple's Siri, Amazon Alexa is increasing very faster than experts previously anticipated. eMarketer, this year, estimates that over 111 million people in the U.S. are using a voice assistant at least monthly, up 9.5% from 2018. The consumers started using and they have become more comfortable using voice assistant technology in

everyday tasks like getting directions by migrant norms [10] for any kind of search, growth of voice commerce, checking weather etc. Majority of brands (68%) believe voice assistant technology will be a key component of future sales strategy and also they wanted to improve voice assistant usage to increase in shopping.

Voice assistants should understand the customer mind and what they are looking for so that user experience in searching or locating a product should be enhanced. Awareness about the various skills existing in assistants should be given to the user [11]. Assurance should be given to the customers for the payment information that is being shared while purchasing. More brands should engage the user using voice mnemonics so that user recognizes the products easily through voice. Voice SEO should be enhanced so that the user can get according to their desire. More number of respondents has used voice assistants to ask question, based on the questions asked, try to relate the product to each questions and tempt the customers to purchase. From the study we understand that there is high positive correlation between income and frequency of shopping. Low income people should be given awareness about the benefits of using voice assistants in smart phone itself.

From the study, it is evident that the awareness of the existing voice skills is low and consumer's behavior is not consistent. Users are trying voice assistants for shopping initially but not consistently due to many reasons as listed out in findings. So, customer engagement should be increased through voice assistants where the user can be informed about the discounts and offers. Even if people can't afford voice assistants speakers (like Alexa, Google home), sufficient facilities are available through voice assistants present in smart phone, even for which the awareness is less. The adoption rate of voice shopping can be increased by providing security in payment information and enhancing voice SEO so that user gets what they want easily. This might help in optimizing the usage of voice assistants particularly in shopping.

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