



Analytical Study of Automatic Speech Recognition and Linked Profile as a Tool for Effective Advertising

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ABSTRACT

Background: Automatic speech recognition, more commonly known as voice search, and linked profiles have emerged as powerful tools for advertising. Voice search allows users to perform searches using their voice instead of typing, while linked profiles enable users to connect their various online accounts to create a comprehensive profile. These technologies offer new opportunities for advertisers to reach their target audience in a more personalized and effective way.

Purpose: This study sheds light on the potential impact that voice assistants have on consumer brands. It also intends to study the impact of LinkedIn profiles as a key effective advertising tool.

Methods: The data was collected from a sample size of 100 customers. It was analyzed using correlation and regression analysis.

Results: The results of the study reveal that voice-linked search is fast becoming a focal point in marketing because of its swift adoption and disruptive potential in creating buying dynamics.

Conclusions: Correlation analysis helps conclude that there is a moderately positive correlation between age and usage patterns of voice search. The results suggest that effective advertising through voice search and linked profiles requires a deep understanding of the target audience, their interests, and their behavior. Advertisers must also develop creative and engaging ad content that aligns with the user's intent and preferences. Additionally, they must carefully consider the context in which the ad is presented, as voice-based advertising may feel intrusive if not executed properly.



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1. Introduction

Voice search is a technology that allows the user to use a voice command to perform a search on the Internet, a website, or an application. The result of advances in speech recognition, this feature first appeared on smartphones, making it possible to replace the search bar. Today, voice search is increasingly becoming a new way of making queries on the Internet, as evidenced by the emergence of new products such as voice assistants. A voice assistant is a conversational agent that performs tasks with or for an individual, whether of a functional or social nature, and has the ability to self-improve their understanding of the interlocutor and context. Conversational agents are “systems that mimic human conversation” using communication channels such as speech, text, facial expressions, and gestures (Laranjo *et al.*, 2018). Voice search uses natural language processing and speech recognition technology to understand the intent behind a user's spoken query and provide relevant search results. When a user asks a question using voice search, the

smart speaker processes the audio input, converts it into text, and then uses a search engine to find the most relevant results. Voice Search is a smart tool that is used by many of us to search for relevant and most accurate information.

Marketers are using voice search to reach consumers at the exact moment they are looking for information or considering a purchase. By optimizing their content for voice search, advertisers can increase their chances of being found and engaging with potential customers.

Marketers are also getting interested in this shift in consumer behavior and pursuing ways to get connected to consumers on the online portal. Today, with the increase in technology, millions of data bytes are being generated almost every day. This is a huge amount, and this data allows the marketer to understand the consumer better and target them with customized advertisements. Big data is used to store customer information and understand consumer behavior. This stored data helps in understanding consumers better and thus generating more profitability. Companies like Amazon, Google, and Apple are using various voice search applications.

Most companies are using voice search to collect data about consumers on a daily basis. The data thus generated is being used for predictive and prescriptive analysis.

Big companies are using some kind of technology through which they are able to provide customized advertisements to their customers. The answer to this is voice search. Voice search is being used for almost everything, from setting a reminder to searching for a product. Companies track this data and store this as a record in Big Data and utilize the data to target advertisements on consumers.

Voice Search has been around for years, yet it was first used to find information on the internet when Google looked at this as an opportunity and introduced their own voice search system through which people could look for information on their search engine using voice commands.

Today, voice search is being utilized by many people in different ways, one of which includes finding products and services. Companies have been using voice search to campaign their products as well. The role of voice search today in the field of marketing has been very prominent. Because consumers today are using voice search to find information on the products, companies are required to stay active and convey the usefulness of their product through the same medium.

Automated speech recognition is a growing trend each day. Companies are following various strategies in order to enhance the SEO of their company for consumers using voice search systems, which include providing long-term keywords that help in easy targeting. Companies have also used other strategies like adding question-based keywords because consumers tend to ask questions because they face problems and need solutions for the same, and the solution is the company's product.

Linked Profiles: Linked Profiles are actually social media websites. Consumers today have been using social media and have experienced brand campaigns on it. Every business must know that their social media campaign must be sincere, honest, and trustworthy; then only would it resonate with their customers. Every strategy starts with a single goal of creating a long-lasting relationship with customers. Hence, social media strategy is not different. Every organization starts with gaining trust and creating a relationship that would lead to a fruitful path for both the company and the customer.

Social media, unlike any other form of marketing tool, involves two-way communication, and the company needs to understand that today consumers can be as interactive as they want. They can complain, praise, and acknowledge their doubts on your social media page; hence, it is important to know how to engage the audience. The usage of social media has increased in business in recent times. Social media websites introducing their new feature of product buying

has led to a market disruption. The behavior of consumers can be easily recorded and can be used by companies to gain a competitive advantage. This also allows businesses to know what to sell, when to sell, and whom to sell.

Businesses benefit a lot from linking their social media profiles. Companies can never say one thing on one profile and another thing on the other one. Having uniformity in messages across various platforms is a must for the company. With separate profiles, it becomes time-consuming to update each social media profile separately, and this ends up eating up a lot of the company's costs. Hence, companies prefer to link profiles in order to reduce work. Today, many social media websites also have the option of linking posts so that small businesses can easily update or add posts all around the pages while at the same time being consistent.

Various unique functions are offered by social media websites, such as, as we know, that Instagram is owned by Facebook; hence, Instagram showcases an option of connecting the profile to Facebook in order to allow everything to be consistent, including profile and about pages. The same happens on Twitter and Facebook also; a tweet posted on Twitter can add up simultaneously on Facebook also.

2. Literature Review

Speech-to-text and voice-based search are becoming more popular thanks to the use of voice assistants like Siri or Google Assistant on our smartphones and the expansion of the Internet of Things (IoT). As of right now, Google Voice Assistant, Siri from Apple Inc., Cortana from Microsoft, and Alexa from Amazon are the most popular personal voice assistance services.

Voice search technology has revolutionized the way people interact with their devices, providing a hands-free, convenient way to search for information, make calls, and perform other tasks. This technology has gained popularity in recent years, and various studies have been conducted to explore its impact and potential.

Marketers have spent years looking for the ideal method to raise the position of websites on search engine result pages (SERPs). Most of the time, appearing on the first page of SERPs for the ad or site specifics would be regarded as a success. The main goal of optimization was to create appealing material that would convince a target user to click while maximizing the use of relevant keywords. Being the top option on the results page is not necessary anymore because people are used to scrolling through at least all the first-page results. All of this is changing with voice-based search. Voice-based search no longer presents users with a variety of possibilities to weigh before selecting the one that seems the best (Katheria *et al.*, 2019).

Mari *et al.* (2020) investigated how managers saw the development of voice assistants and how they would impact marketing strategies. The authors examine the phenomena of voice commerce from the perspectives of AI specialists and managers who are sensitive to voice using an inductive theory creation process.

In an all-inclusive, thorough research work, Tandon *et al.* (2022) discussed consumers' attitudes and propensities toward "voice assistants," which have become popular in the fields of robotics, automated response, and information technology during the last ten years.

The voice touchpoint is set for adoption and disruptive potential in buying dynamics. Various studies have produced insights into the functional characteristics of voice assistants, their adoption, social roles, and applications for marketing. Despite various studies, a deeper understanding of the consequences for consumers and brand owners did not materialize. Studies on consumer technologies for shopping, such as personal computers, smartphones, and tablets, also seem sufficient to understand the unique nature of this new channel and shopping method (Bentley, 2018).

Voice assistants assume the role of an agent during the shopping and beyond (Li & Karahanna, 2015). These can be conceptualized as interaction decision aid tools that generate personalized suggestions with an attempt to match products to consumers' expressed preferences or implicit behaviors (Shen, 2014). These algorithms are indispensable in online shopping environments where a potentially extensive set of alternatives is available.

3. Research Methodology

3.1. Research Question

A study of automated speech recognition and linked profiles that affect advertisements and purchase behaviour of consumers.

3.2. Objectives

- To identify if there is a correlation between automated speech recognition or voice search and linked profiles
- To identify correlation between purchase patterns of consumers and usage of automated speech recognition or voice search and linked profiles
- To identify using regression analysis whether there is a significant impact of advertisements from automated speech recognition, voice search, or linked profiles on consumer purchase

3.3. Methodology

The study was conducted with a sample size of 100 customers, and the data was collected using an online survey.

A questionnaire was used to collect the data. The sampling method used is convenience sampling.

4. Data Analysis

The data has been analyzed using correlation and regression analysis.

4.1. Correlation Analysis

Table 1 provides information about the correlation coefficient's scale and value. The correlation analysis is shown in Tables 2–6.

Table 1: Scale of Correlation Coefficient and Value

Scale of Correlation Coefficient	Value
$0 < r \leq 0.19$	Very Low Correlation
$0.2 \leq r \leq 0.39$	Low Correlation
$0.4 \leq r \leq 0.59$	Moderate Correlation
$0.6 \leq r \leq 0.79$	High Correlation
$0.8 \leq r \leq 1.0$	Very High Correlation

Table 2: Correlation between Age and Usage Patterns of Voice Search

Correlation between age and usage patterns of voice search			
		Age	How_often_use_VS
Age	Pearson Correlation	1	0.647**
	Sig. (2-tailed)	-	<0.001
	N	100	100
How_often_use_VS	Pearson Correlation	0.647**	1
	Sig. (2-tailed)	<0.001	-
	N	100	100
**Correlation is significant at the 0.01 level (2-tailed).			

The correlation coefficient between age and How_often_use_VS is 0.647. The value of Pearson's Correlation Coefficient (r) lies in between 0.6 and 0.8 ($0.6 \leq r \leq 0.8$), hence, this indicates a moderate positive correlation between age and How_often_use_VS, meaning that as age increases, the frequency of using voice search also tends to increase.

The p-value (Sig.) for the correlation is less than 0.001, indicating that the correlation is significant at the 0.01 level (2-tailed). This means that there is strong evidence to support the claim that there is a correlation between age and How_often_use_VS.

This suggests that there is a significant positive correlation between age and How_often_use_VS, indicating that as people get older, they tend to use voice search more frequently.

Table 3: Correlation between Usage of Voice Search and Frequency of Advertisements on Social Media

Correlation between usage of voice search and frequency advertisements on social media			
		How_often_see_SM_ads	How_often_use_VS
How_often_see_SM_ads	Pearson Correlation	1	0.274
	Sig. (2-tailed)	-	0.054
	N	100	100
How_often_use_VS	Pearson Correlation	0.274	1
	Sig. (2-tailed)	0.054	-
	N	100	100

The value of Pearson’s correlation coefficient (r) lies between 0.2 and 0.39 (0.2 <= r <=0.39) the correlation coefficient (Pearson’s r) for the two variables is 0.274, indicating a positive but weak correlation between the two variables. This suggests that as the frequency of seeing advertisements on social media increases, the frequency of using voice search also tends to increase, but the relationship is not particularly strong.

The p-value for the correlation coefficient is 0.054, which is slightly above the conventional threshold of 0.05 for statistical significance. This means that there is a 5.4% chance of obtaining a correlation coefficient of 0.274 or greater by random chance, assuming that there is no true correlation between the variables. However, since the p-value is only slightly above 0.05, it is possible that there is a real correlation between the variables.

Table 4: Correlation between Usage of Voice Search and Purchase after Using Voice Search

Correlations between usage of voice search and purchase after using voice search			
		How_often_use_VS	Purchase_after_VS
How_often_use_VS	Pearson Correlation	1	-0.099
	Sig. (2-tailed)	-	0.496
	N	100	100

Purchase_after_VS	Pearson Correlation	-0.099	1
	Sig. (2-tailed)	0.496	-
	N	100	100

The value of Pearson’s correlation coefficient (r) lies in between 0 and 0.19 (0<= r <=0.19).

Table 4 shows the Pearson correlation coefficient between the two variables, which measures the strength and direction of the linear relationship between them. The coefficient ranges from -1 to 1, where -1 represents a perfect negative correlation, 0 represents no correlation, and 1 represents a perfect positive correlation.

The correlation coefficient for “How often use VS” and “Purchase after VS” is -0.099, which indicates a weak negative correlation between the two variables. However, the p-value (Sig. 2-tailed) is 0.496, which is greater than the conventional alpha level of 0.05, indicating that this correlation is not statistically significant. Therefore, we cannot conclude that there is a significant relationship between the frequency of voice search usage and purchase behaviour after using voice search.

Table 5: Correlation between How Often Do You See Social Media Ads and How Often Do You Click on Social Media Ads

Correlation between how often you see social media ads and how often do you click social media ads			
		How_often_see_SM_ads	How_often_you_click_SM_ads
How_often_see_SM_ads	Pearson Correlation	1	0.220
	Sig. (2-tailed)	-	0.126
	N	100	100
How_often_you_click_SM_ads	Pearson Correlation	0.220	1
	Sig. (2-tailed)	0.126	-
	N	100	100

The value of Pearson’s correlation coefficient (r) lies between 0.2 and 0.39 (0.2 <= r <= 0.39). The correlation coefficient between “How_often_see_SM_ads” and “How_often_you_click_SM_ads” is 0.220, which indicates a positive correlation between these two variables. However, this correlation is not statistically significant as the p-value (Sig. 2-tailed) is greater than the conventional alpha level of 0.05 (i.e., p > 0.05).

Table 6: Correlation between How Often Do You Click On Social Media Ads and How Often Do You Purchase After Clicking on Social Media Ads

Correlations between how often you click on social media ads and how often do you purchase after clicking on social media ads			
		How_often_you_click_SM_ads	Purchase_after_clicking_SM_ads
How_often_you_click_SM_ads	Pearson Correlation	1	0.713**
	Sig. (2-tailed)	-	<0.001
	N	100	100
Purchase_after_clicking_SM_ads	Pearson Correlation	0.713**	1
	Sig. (2-tailed)	<0.001	-
	N	100	100

**Correlation is significant at the 0.01 level (2-tailed).

The value of Pearson’s correlation coefficient (r) lies between 0.6 and 0.79 (0.6 <= r <= 0.79).

Table 6 shows that there is a strong positive correlation (r = 0.713) between how often individuals click on social media ads and how often they purchase after clicking on social media ads. The correlation is significant at the 0.01 level (2-tailed), meaning that the relationship between the two variables is not likely to have occurred by chance.

The results suggest that individuals who click on social media ads frequently are more likely to make a purchase after clicking on them. This information can be useful for businesses that use social media advertising to target customers and improve their marketing strategies. They can use this information to better target their ads to those who are more likely to make a purchase after clicking on them, thereby increasing their return on investment.

4.2. Regression Analysis

Table 7 and 8 show the regression analysis of the data.

Table 7: Dependency of Purchase Using Voice Search on Search Based on Voice Commands

Model Summary						
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate		
1	0.099 ^a	0.010	-0.011	0.4929		
a. Predictors: (Constant), Purchase_after_VS						
ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.114	1	0.114	0.471	0.496 ^b
	Residual	11.665	48	0.243		
	Total	11.779	49			
a. Dependent Variable: Purchase_after_VS						
b. Predictors: (Constant), How_often_use_VS						
Coefficients ^a						
Model B		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		Std. Error	Beta			
1	(Constant)	1.466	0.144		10.205	<0.001
	Purchase_after_VS	-0.037	0.054	-0.099	-0.686	0.496
a. Dependent Variable: How_often_use_VS						

R square of 0.010 indicates that only 1.0% of the variation in the Purchase_after_VS can be explained by How_often_use_VS. The adjusted R square of -0.011 suggests that How_often_use_VS is not a good predictor of Purchase_after_VS. The standard error of the estimate (0.4929) is the average amount that the predicted value of Purchase_after_VS deviates from the actual value.

The ANOVA table summarizes the sources of variation in the regression model. The regression sum of squares (0.114) represents the amount of variation in Purchase_after_VS that is explained by the How_often_use_VS. The residual sum of squares (11.665) is the amount of variation in Purchase_after_VS that is not explained by the model. The F-test (0.471) and p-value (0.496) indicate that the model is not statistically significant at the 0.05 level.

The coefficients table provides estimates of the regression coefficients. The intercept (constant) is 1.466. The coefficient for How_often_use_VS is -0.037. The t-test (t = -0.686)

and p-value (0.496) indicate that How_often_use_VS is not statistically significant at the 0.05 level. The standardized coefficient (beta) for How_often_use_VS is -0.099, indicating that a one-unit increase in How_often_use_VS is associated with a 0.099 unit decrease in Purchase_after_VS.

Table 8: Dependency of Purchase Using Social on Click Rate of Users on Advertisements on Social Media

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.713 ^a	0.509	0.499	0.95957

a. Predictors: (Constant), Purchase_after_clicking_SM_ads

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	45.803	1	45.803	49.743	<0.001 ^b
	Residual	44.197	48	0.921		
	Total	90.000	49			

a. Dependent Variable: How_often_you_click_SM_ads
b. Predictors: (Constant), Purchase_after_clicking_SM_ads

Coefficients ^a						
Model	B	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		Std. Error	Beta			
1	(Constant)	0.692	0.278	-	2.493	0.016
	Purchase_after_clicking_SM_ads	0.776	0.110	0.713	7.053	<0.001

a. Dependent Variable: How_often_you_click_SM_ads

The regression model shows that the predictor variable “purchase_after_clicking_SM_ads” has a significant positive effect on the dependent variable “how_often_you_click_SM_ads” ($\beta = 0.713$, $p < 0.001$), meaning that an increase in purchase after clicking on social media ads is associated with an increase in the frequency of clicking on social media ads.

The R-squared value of 0.509 indicates that 50.9% of the variance in the dependent variable is explained by

the predictor variable, which suggests that the model has moderate predictive power.

The ANOVA table shows that the regression model is statistically significant ($F = 49.743$, $p < 0.001$), which means that the model is a good fit for the data and that the predictor variable significantly contributes to the variation in the dependent variable.

The coefficients table shows that the intercept (constant) has a significant positive effect on the dependent variable ($\beta = 0.278$, $p = 0.016$), indicating that even in the absence of any purchase after clicking on social media ads, there is still some level of frequency in clicking on social media ads.

5. Conclusion

Using correlation analysis, it was confirmed that there is a moderately positive correlation between age and usage patterns of voice search. This clearly indicates that with an increase in age we can observe an increased frequency in use of voice search.

The p-value (Sig.) for the correlation is less than 0.001, indicating that the correlation is significant at the 0.01 level (2-tailed). This means that there is strong evidence to support the claim that there is a correlation between age and usage patterns of voice search. This analysis helps us to prove theoretically with evidence that “Voice Search benefits the older generation who are unable to type longer questions,” as stated by the CISION PR newswire.

However, when we tried to develop a relationship between frequency of voice search usage and purchase behavior, no significant relationship was developed between the two.

The ANOVA table summarizes the sources of variation in the regression model. The regression sum of squares (0.114) represents the amount of variation in Purchase_after_VS that is explained by the How_often_use_VS. The residual sum of squares (11.665) is the amount of variation in Purchase_after_VS that is not explained by the model. The F-test (0.471) and p-value (0.496) indicate that the model is not statistically significant at the 0.05 level.

The coefficients table provides estimates of the regression coefficients. The intercept (constant) is 1.466. The coefficient for How_often_use_VS is -0.037. The t-test ($t = -0.686$) and p-value (0.496) indicate that How_often_use_VS is not statistically significant at the 0.05 level. The standardized coefficient (beta) for How_often_use_VS is -0.099, indicating that a one-unit increase in How_often_use_VS is associated with a 0.099 unit decrease in Purchase_after_VS. This proves that it is not necessary that when people use voice search, they are guaranteed to make purchases using the VS advertisements or other sources. The reasons are yet unidentified.

As per the third objective, it has been observed that the value of Pearson’s correlation coefficient (r) lies between 0.6 and

0.79 ($0.6 \leq r \leq 0.79$). The table shows that there is a strong positive correlation ($r = 0.713$) between how often individuals click on social media ads and how often they purchase after clicking on social media ads. The correlation is significant at the 0.01 level (2-tailed), meaning that the relationship between the two variables is not likely to have occurred by chance.

The results suggest that individuals who click on social media ads frequently are more likely to make a purchase after clicking on them. This information can be useful for businesses that use social media advertising to target customers and improve their marketing strategies. They can use this information to better target their ads to those who are more likely to make a purchase after clicking on them, thereby increasing their return on investment.

Finally, it is safe to say that through this research it has been proven that at present consumer's buying behavior has been changing. People are now becoming more digitalized and prone to not just online shopping but also social media shopping, which shows that companies now need to emphasize more on this aspect in order to gain high ROI.

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Authorship Contribution

The authors confirm their contribution to the paper as follows: introduction and literature review by Ruchika Jeswal; methodology by Ruchi Jain; data analysis by Shreya Tripathi; and conclusion by Shreya Tripathi and Ruchi Jain. All authors reviewed the results and approved the final version of the manuscript.

Ethical Approval

No approvals were required.

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References

- Bentley, F., Luvogt, C., Silverman, M., Wirasinghe, R., White, B., & Lottridge, D. (2018). Understanding the long-term use of smart speaker assistants. *Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies*, 2(3), 1-24. <https://dl.acm.org/doi/abs/10.1145/3264901>
- Das, P. (2022). A prospective venue for Marketing is Social Media Marketing. *RESEARCH REVIEW International Journal of Multidisciplinary*, 7(10), 07-23. <https://doi.org/10.31305/rrijm.2022.v07.i10.002>
- Katheria, M., & Brahmabhatt, M. (2019). A Critical Review of Voice Based Searches and Its Impact on Digital Marketing. *Restaurant Business*. <https://doi.org/10.26643/rb.v118i11.11849>
- Lambrecht, P., & Peter, M. K. (2022). The influence of digital assistants on search engine strategies: recommendations for voice search optimization. *Marketing and Smart Technologies: Proceedings of ICMarTech 2021*, 2, 665-672. https://doi.org/10.1007/978-981-16-9272-7_55
- Laranjo, L., Dunn, A. G., Tong, H. L., Kocaballi, A. B., Chen, J., Bashir, R., & Coiera, E. (2018). Conversational agents in healthcare: a systematic review. *Journal of the American Medical Informatics Association*, 25(9), 1248-1258. <https://doi.org/10.1093/jamia/ocy072>
- Li, S. S., & Karahanna, E. (2015). Online recommendation systems in a B2C E-commerce context: a review and future directions. *Journal of the association for information systems*, 16(2), 2. <https://doi.org/10.17705/1jais.00389>
- Mari, A., Mandelli, A., & Algesheimer, R. (2020). The Evolution of Marketing in the Context of Voice Commerce: A Managerial Perspective. *Lecture Notes in Computer Science*, 405-425. https://doi.org/10.1007/978-3-030-50341-3_32
- Shen, A. (2014). Recommendations as personalized marketing: insights from customer experiences. *Journal of Services Marketing*, 28(5), 414-427. <https://doi.org/10.1108/JSM-04-2013-0083>
- Tandon, U., Jhamb, D., Mittal, A., & Jain, V. (2022). Fostering Consumers' Attitude and Satisfaction towards Voice Assistants: An Empirical Validation. *Fifth International Conference on Computational Intelligence and Communication Technologies (CCICT)*. <https://doi.org/10.1109/ccict56684.2022.00086>
- Van Dijck, J. (2013). 'You have one identity': Performing the self on Facebook and LinkedIn. *Media, culture & society*, 35(2), 199-215. <https://doi.org/10.1177/0163443712468605>



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