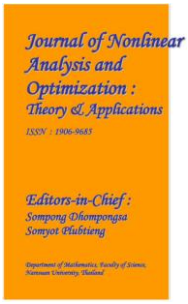
Journal of **N**onlinear **A**nalysis and **O**ptimization
Vol. 15, Issue. 2, No.2 : 2024
ISSN : **1906-9685**



A STUDY ON EFFECTIVENESS OF AI-POWERED VIRTUAL ASSISTANTS IN ENHANCING USER SATISFACTION IN DAILY APPLICATION.

Mrs. Vrushali Sachin Ghodke M.B.A in (Computer System), M.Sc in (Computer Science) Asst. Professor Sheth NKTT College of Commerce, Thane (West) E-mail Id: vrushalig277@gmail.com
Ms. Shilpa Aba Shelar M.Com , NET(Commerce), Pursuing Ph.D in Commerce Asst. Professor Sheth NKTT College of Commerce, Thane (West) E-mail Id: shilpaabashelar30@gmail.com

ABSTRACT

Purpose:

With the advancement in the information technologies and gaining popularity of Artificial intelligence technologies into day to day life, it is important to understand the role as well as impact of Virtual assistants in daily application by users. This research undertakes to provide insightful usefulness and impact of virtual AI-powered applications on user satisfaction. The study offers valuable information about the advantages and difficulties of using AI-powered virtual assistants.

Methodology:

For the purpose of data collection, 100 respondents will be surveyed .One sample t- test will be used for studying the effectiveness of AI-Powered Virtual Assistants in Enhancing User Satisfaction in daily application.

Keywords:
AI Powered virtual Assistance,user satisfaction ,Effectiveness.

Introduction

With advancement of Information technologies the popularity of Artificial intelligence (AI) is increasing in the present era. This includes the widespread acceptance of voice-activated devices, commonly referred to as chatbots. As a result, virtual assistants with AI capabilities have been developed, enabling integrated interactions and personalized experiences. The use of voice-activated devices, also known as chatbots, is steadily increasing in daily life. It assists in tasks, provides customised recommendations, as well as responding to inquiries. However, it is Important to evaluate the effectiveness of these assistants in improving user satisfaction. The purpose of the study is to investigate into and evaluate how user satisfaction is influenced by virtual assistants driven by AI. Virtual assistants, including Siri, Alexa, and Google Assistant, have changed daily life by managing schedules, organising tasks, and providing personalised assistance. These assistants are now accessible on various devices, including smartphones and smart speakers.

Research Question

What is the Effectiveness of AI-Powered Virtual Assistants in Enhancing User Satisfaction in daily application ?

Research Objectives

- To determine the effectiveness of AI-Powered Virtual Assistants in Enhancing User Satisfaction in daily application .
- To Understand the willingness of Users towards AI-Powered Virtual Assistants used in daily life.
- To determine which factors contribute user satisfaction towards AI-Powered Virtual Assistants.

Review of Literature

1.*Brill, T. M., Laura Serviere Munoz, & Miller, R. J. (2022),* in their research paper titled ***"Siri, Alexa, and other digital assistants: a study of customer satisfaction with artificial intelligence applications"*** investigated that expectations and confirmation of expectations have a positive and significant relationship on customer satisfaction with digital assistants. This study provides evidence that customer expectations are being satisfied through the digital assistant interaction experience. As firms integrate digital assistants into their operations, they must help customers properly define what to expect from the firm's interactive experience.The study found that customer expectations and confirmation of expectations have a positive and significant relationship with customer satisfaction with digital assistants. The results suggest that firms integrating digital assistants into their operations should focus on helping customers define their expectations from the interactive experience.

2.Aslam, F. (2023),in their research paper titled ***"The Impact of Artificial Intelligence on Chatbot Technology: A Study on the Current Advancements and Leading Innovations"*** concluded the influence of artificial intelligence (AI) on chatbot technology across various industries. It helps to understand the use of machine learning models, deep learning strategies, and natural language processing (NLP) algorithms in the application of chatbots. Additionally, it also identifies the existing ethical frameworks that aim to tackle ethical and privacy concerns. The study also investigated the effects of AI-powered chatbots on user behavior, organizational effectiveness, and cost-effectiveness are also analyzed. Moreover, the study investigates case studies and real-world implementations. The study also provides suggestions for addressing risks and biases.

Methodology

For the purpose of data collection, a questionnaire has been drafted to collect responses with respect to study the Effectiveness of AI-Powered Virtual Assistants in Enhancing User Satisfaction in daily application . Due to time constraints, the sample size was limited to 74 Users.The responses will then be analysed using a one-sample t-test to investigate the Effectiveness of AI-Powered Virtual Assistants in Enhancing User Satisfaction in daily application .

Scope of Study

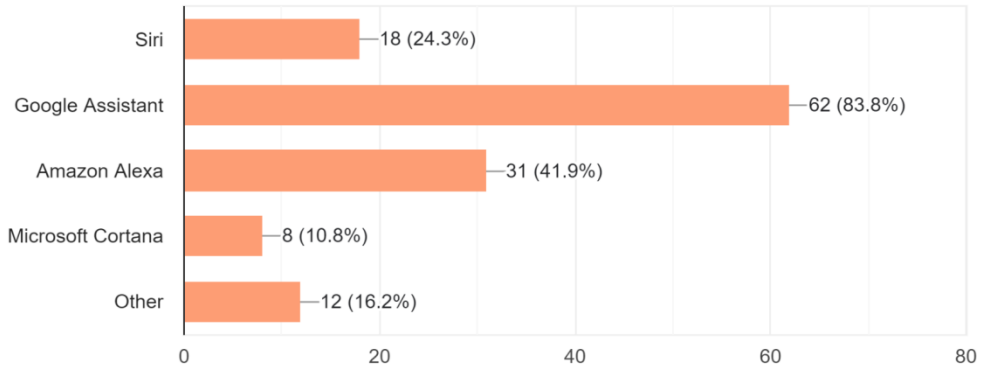
The study is conducted by collecting data from Users belonging to Mumbai and Thane city.

Limitations of Study

The research is undertaken only in Mumbai and Thane city. The findings of the study may not be applicable elsewhere.

Data Analysis

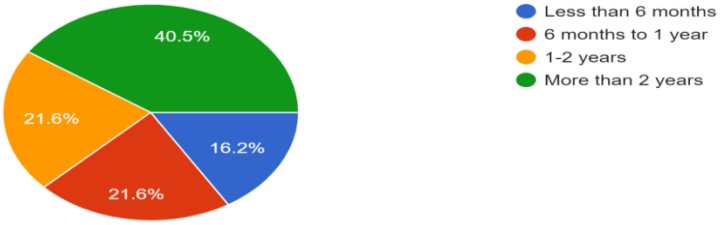
1.Which AI-powered virtual assistant(s) do you use most frequently?



Findings and Interpretations:-

As per the data collected from the respondents, 24.3% respondents uses Siri as Virtual assistant tool ,whereas most commonly used virtual assistant is Google assistant which account for 83.8% of overall respondent and 41.91% of respondents used Amon alexa 10.8% account for Microsoft Cortana and 16.2 % respondents used other form of virtual assistant.

2.How long have you been using AI-powered virtual assistants?



Findings and Interpretations:-

As per the data collected from the respondents,40.5% respondents are using virtual assistant since more than two years whereas 21.6 % respondents using it from last 1-2 years and 21.6% respondents is using it from 6 months to 1 year as well as 16.2 % respondents using it from less than 6 months.

One Sample t-test

Objective:

To study the Effectiveness of AI-Powered Virtual Assistants in Enhancing User Satisfaction in daily application.

Findings and Interpretation:

H0: There is no significant difference in the Effectiveness of AI-Powered Virtual Assistants in Enhancing User Satisfaction in daily application .($\mu = 3$)

H1: There is a significant difference in the Effectiveness of AI-Powered Virtual Assistants in Enhancing User Satisfaction in daily application .($\mu \neq 3$)

As the data is primary, the confidence level is assumed at 95% and so the significance level α is at 5% or 0.05. As hypothesis is non directional (two-sided), so the level of significance is divided by 2, thus 5/2= 2.5% or 0.025. α : 0.05 (non-directional : 0.05/ 2= 0.025)

To identify positive or negative in the Effectiveness of AI-Powered Virtual Assistants in Enhancing User Satisfaction in daily application.The table of One sample t-test will be referred to α : 0.05 (non-directional : 0.05/ 2= 0.025)

Table 1: Table of One Sample t test

Parameters	**P Value**	**Result**
Familiar with artificial intelligence technologies	< .001	Reject H0
Satisfaction with the uses of AI-powered virtual assistant you	< .001	Reject H0
Effectiveness of the virtual assistant in understanding and interpreting the natural language queries	< .001	Reject H0
Satisfaction towards personalization of the virtual assistant's responses	< .001	Reject H0
Usefulness of AI-powered virtual assistants in assisting with tasks	< .001	Reject H0
Reliability in providing accurate information by AI-powered virtual assistants	< .001	Reject H0
Satisfaction towards the speed and efficiency of the virtual assistant in providing information or performing tasks	< .001	Reject H0
AI-powered virtual assistants to be user-friendly and easy to interact with	< .001	Reject H0
Encounter issues or errors when interacting with the virtual assistant	< .001	Reject H0
Recommendation for uses of the AI-powered virtual assistant to others.	< .001	Reject H0

It is observed from the above table that the p value of all the factors is less than 0.025 thus rejecting the null hypothesis leading to acceptance of the alternative hypothesis which concludes that there is a significant difference between the Effectiveness of AI-Powered Virtual Assistants in Enhancing User Satisfaction in daily application.

One Sample Statistics

To identify positive or negative Effectiveness of AI-Powered Virtual Assistants in Enhancing User Satisfaction in daily application.

Table 2: Table of One Sample t test

Parameters	N	Mean	Perception
Familiar with artificial intelligence technologies	74	3.00	Positive
Satisfaction with the uses of AI-powered virtual assistant you	74	3.78	Positive
Effectiveness of the virtual assistant in understanding and interpreting the natural language queries	74	3.53	Positive
Satisfaction towards personalization of the virtual assistant's responses	74	3.61	Positive
Usefulness of AI-powered virtual assistants in assisting with tasks	74	4.04	Positive
Reliability in providing accurate information by AI-powered virtual assistants	74	3.76	Positive
Satisfaction towards the speed and efficiency of the virtual assistant in providing information or performing tasks	74	3.39	Positive
AI-powered virtual assistants to be user-friendly and easy to interact with	74	3.99	Positive
Encounter issues or errors when interacting with the virtual assistant	74	2.95	Negative
Recommendation for uses of the AI-powered virtual assistant to others.	74	3.69	Positive

One Sample T test Analysis

The above table shows the positive and negative Effectiveness of AI-Powered Virtual Assistants in Enhancing User Satisfaction in daily application.The mean for all the Parameter except for one Parameter that Users encounter issues and errors when interacting with the uses of virtual assistant has negative influence as its mean is below 3.

Findings

The study's findings examined that Effectiveness of AI-powered users' perceptions and satisfaction for all the parameters investigated are positive except for one parameter issues and error encounter by user while interacting with virtual assistant is negative.AI-powered virtual assistants helps in assisting with tasks is having higher average followed by other parameters includes it is user friendly and easy to interact,it also provide accurate information. It is concluded that AI-powered virtual assistants which are available 24/7 has significantly enhanced user satisfaction by improving efficiency, providing personalized experiences, ensuring accessibility, reducing errors, and continuously evolving to meet user needs. They handle routine tasks, answer queries, and provide information promptly, allowing users to focus on more important tasks.

Conclusion and Recommendation

In conclusion,the study of Effectiveness of AI-Powered Virtual Assistants' effectiveness in enhancing user satisfaction in daily applications found that they significantly improve user experience by providing quick, accurate responses, personalized recommendations, and seamless integration with

various applications. Furthermore, Virtual Assistants help in better understanding the user queries and provide relevant information, making them valuable tools for improving productivity and overall user experience. They are an important instrument for raising user satisfaction because of their capacity to speed up work, provide immediate assistance, and respond to individual preferences.

Social Relevance of the study

The study of Effectiveness of AI-Powered Virtual Assistants' effectiveness in enhancing user satisfaction in daily applications has broad social relevance beyond other various industries.The study may help to increase user satisfaction levels by solving accessibility issues for people with disabilities and those with traditional service access.In order to provide adequate access to advances in technology can be helpful to understand user satisfaction with these technologies.

Future scope for research

In future, researchers can focus on other industries such as retail, customer service, healthcare, education, and finance as well as the impact of virtual assistants on the productivity of employees,their perception as well as behavioural studies towards it.Also, similar types of research can be conducted in other cities of the country as well.

References:-

- Brill, T. M., Laura Serviere Munoz, & Miller, R. J. (2022). Siri, Alexa, and other digital assistants: a study of customer satisfaction with artificial intelligence applications. Routledge EBooks, 35–70. https://doi.org/10.4324/9781003307105-3.
- Aslam, F. (2023). The Impact of Artificial Intelligence on Chatbot Technology: A Study on the Current Advancements and Leading Innovations. European Journal of Technology, 7(3), 62–72. https://doi.org/10.47672/ejt.1561.