Major Research Project Report

on

Chat Bot: Efficiency Study and Scope of AI Integration

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DECLARATION

I, **Neelesh Somvanshi** student of **MBA 2022-24** of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi – 42, hereby declare that the Major Research Project report **"Chat Bot: Efficiency Study and scope of AI integration"** submitted in partial fulfilment of Degree of Masters of Business Administration is the original work conducted by me.

The information and data given in the report is authentic.

This report is not being submitted to any other University, for award of any other Degree, Diploma or Fellowship.

Place: **Student Name and Signature**

Date:

CERTIFICATE

This is to certify that the report titled **"Chat Bot: Efficiency Study and scope of AI integration"** has been submitted by **Neelesh Somvanshi**, Roll No. **2K22/DMBA/82** of **MBA 2022-24** to Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 in partial fulfilment of the requirement for the award of the Degree of Masters of Business Administration.

Signature of Guide **Signature of Head (DSM)**

Seal of Head

Place:
Date:

ACKNOWLEDGMENT

I would like to acknowledge Delhi School of Management, DTU, for giving me the opportunity to do the research of my liking and learn industry workings.

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EXECUTIVE SUMMARY

The study is based on the Chatbots and their efficiency in addressing the task they are designed for and if integration further enhances overall reliance on chat bots. Chat bots now are part of all the major websites and handle a wide variety of tasks such as data collection, customer support etc

A sample survey was conducted to find the outlook of the correspondents towards the current perception and usefulness in a users mind and to establish a connection between satisfaction and the user background. The study mainly focuses on ease of use, prerequisite knowledge of the user, time and effort savings, overall satisfaction with the chatbots and ultimately overall inclination towards using chat-bots rather than reaching out to a customer care executive.

It was found out that user experience was primarily based on pragmatic variables of a chatbot. To improve this it was recommended that the algorithm working behind these chatbots should be improved and more factual data should be fed as training set to train the chatbot for the responses

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CHAPTER -01

Introduction

If simply put, chatbots to Artificial intelligence is what Neothelic man is to the modern day man. They laid the foundation for more sophisticated and complicated modern day AI and virtual assistances. Chatbots are designed with the help of similar coding to that of an AI but at a very simplistic level. As the name very plainly suggests chat bots are the softwares which simulate a conversation (over a chat mostly) with users in a natural language via messaging applications, mobile apps, websites etc. over the time the incorporation of chatbots has increased in each sector and they range from chatbots who can answer a simple query with a single line response, or certain advance chatbots which can deliver more personalised results upon gathering and processing a certain set of data

Now a days it we all come across chatbots on every online activity from ordering food, to booking flight tickets all organisations have started to rely on chatbots to handle their customers.

1.1 Working of a chatbot

Driven by a background code a chat bot can be based on one or a combination of more than once technology such as AI, automated rules, natural-language processing (NLP), and machine learning (ML). these technolohgies help it to process the information given by the user and then by working in a predefined manner, they deliver the output.

Chatbots can be of multiple types and complexities but primarily they can be divided in two main categories:

Task-oriented (declarative) Chatbots

They are single-purpose programs that focus on performing one function. Using rules, NLP, and very little ML, they generate automated but conversational responses to user inquiries. Interactions with these chatbots are highly specific and structured and are most applicable to support and service functions—think robust, interactive FAQs. Task-oriented chatbots can handle common questions, such as queries about hours of business or simple transactions that don't involve a variety of variables. Though they do use NLP so end users can experience them in a conversational way, their capabilities are fairly basic. These are currently the most commonly used chatbots.

Data-driven and predictive (conversational) chatbots

Just are often referred to as virtual assistants or digital assistants and they are much more sophisticated, interactive, and personalized than task-oriented chatbots. These chatbots are contextually aware and leverage natural-language understanding (NLU), NLP, and ML to learn as they go. They apply predictive intelligence and analytics to enable personalization based on user profiles and past user behavior. Digital assistants can learn a user's preferences over time, provide recommendations, and even anticipate needs. In addition to monitoring data and intent, they can initiate conversations. Apple's Siri and Amazon's Alexa are examples of consumer-oriented, data-driven, predictive chatbots.

Advanced digital assistants are also able to connect several single-purpose chatbots under one umbrella, pull disparate information from each of them, and then combine this information to perform a task while still maintaining context—so the chatbot doesn't become "confused."

1.2 Value added by chatbots

Chatbots primarily boost operational efficiency and bring cost saving to business while offering convenience and added services to internal employees and external customers. They allow companies to easily resolve many types of customer queries and issues while reducing the need for human interaction.

With chatbots, a business can scale, personalize, and be proactive all at the same time—which is an important differentiator. For example, when relying solely on human power, a business can serve a limited number of people at one time. To be cost-effective, human-powered businesses are forced to focus on standardized models and are limited in their proactive and personalized outreach capabilities.

By contrast, chatbots allow businesses to engage with an unlimited number of customers in a personal way and can be scaled up or down according to demand and business needs. By using chatbots, a business can provide humanlike, personalized, proactive service to millions of people at the same time.

1.3 Need of chatbots

Digitization is transforming society into a "mobile-first" population. As messaging applications grow in popularity, chatbots are increasingly playing an important role in this mobility-driven transformation. Intelligent conversational chatbots are often interfaces for mobile applications and are changing the way businesses and customers interact.

Chatbots allow businesses to connect with customers in a personal way without the expense of human representatives. For example, many of the questions or issues customers have are common and easily answered. That's why companies create FAQs and troubleshooting guides.

Chatbots provide a personal alternative to a written FAQ or guide and can even triage questions, including handing off a customer issue to a live person if the issue becomes too complex for the chatbot to resolve. Chatbots have become popular as a time and money saver for businesses and an added convenience for customers.

1.4 Evolution of chatbots

The origin of the chatbot arguably lies with Alan Turing's 1950s vision of intelligent machines. Artificial intelligence, the foundation for chatbots, has progressed since that time to include superintelligent supercomputers such as IBM Watson.

The original chatbot was the phone tree, which led phone-in customers on an often cumbersome and frustrating path of selecting one option after another to wind their way through an automated customer service model. Enhancements in technology and the growing sophistication of AI, ML, and NLP evolved this model into pop-up, live, onscreen chats. And the evolutionary journey has continued.

With today's digital assistants, businesses can scale AI to provide much more convenient and effective interactions between companies and customers—directly from customers' digital devices.

1.5 Uses of chatbots

Chatbots are frequently used to improve the IT service management experience, which delves towards self-service and automating processes offered to internal staff. With an intelligent chatbot, common tasks such as password updates, system status, outage alerts, and knowledge management can be readily automated and made available 24/7, while broadening access to commonly used voice and text based conversational interfaces.

On the business side, chatbots are most commonly used in customer contact centers to manage incoming communications and direct customers to the appropriate resource. They're also frequently used for internal purposes, such as onboarding new employees and helping all

employees with routine activities including vacation scheduling, training, ordering computers and business supplies, and other self-service activities that don't require human intervention.

On the consumer side, chatbots are performing a variety of customer services, ranging from ordering event tickets to booking and checking into hotels to comparing products and services. Chatbots are also commonly used to perform routine customer activities within the banking, retail, and food and beverage sectors. In addition, many public sector functions are enabled by chatbots, such as submitting requests for city services, handling utility-related inquiries, and resolving billing issues.

1.6 Why AI integration

The solution to shortcomings of chatbots reside withing the AI and data driving the process of the chatbot and hence AI integration becomes the next logical step in advancement of chatbots.

AI considerations

AI helps in automating mundane and repetitive processes. When AI is incorporated into a chatbot for these types of tasks, the chatbot usually functions well. However, if a demand is made on a chatbot that extends beyond its capabilities or makes its task more complicated, the chatbot might struggle—and that has negative consequences for businesses and customers. There are questions and issues that chatbots simply may not be able to answer or resolve—for example, complex service issues that have a large number of variables.

Developers can work around these limitations by adding a contingency to their chatbot application that routes the user to another resource (such as a live agent) or prompts a customer for a different question or issue. Some chatbots can move seamlessly through transitions between chatbot, live agent, and back again. As AI technology and implementation continue to evolve, chatbots and digital assistants will become more seamlessly integrated into our everyday experience.

All chatbots use data, which is accessed from a variety of sources. As long as the data is high quality and the chatbot is developed correctly, the data will be a chatbot enabler. However, if the data quality is poor, it will limit the chatbot's functionality. And even if the data quality is good, if the chatbot's ML training wasn't modeled properly or is unsupervised, the chatbot can perform poorly—or unexpectedly, at the very least.

In simpler words, your chatbots are as good as the complexity of your AI and and the amount of data used to train and execute the process of a chatbot

CHAPTER -02
Literature Review

Consumers use online and offline channels, and expect a personalized experience from their financial institution at all steps of their journey and hence Financial institutions must engage with their customers and members in the right way, and at the right place and time. A good integration of chatbots as part of the engagement process can provide consumers with quick and personalized interactions, using machine learning and artificial intelligence as a foundation. Although only **19% of consumers are currently using chatbots, 95% think they will make more use of chatbots in the coming years** (Sayiwal, 2020).

View of companies over chatbot

- **Cost Saving:** Chatbots are relatively inexpensive to develop and maintain compared to the human equivalent. Chatbots require less coding than standalone banking apps, can be supported by an expanding array of channels and don't require expensive data storage thanks to chatbots' cloud-based systems (Sayiwal, 2020).
- **Ease of use**. Chatbots are more intuitive and easier to use than a traditional banking app. There is no download required and the experience can be personalized over time through machine learning (Sayiwal, 2020).
- **Conversational interface**: Studies have already shown that people find phone calls tedious and slow as compared to instant chat. Customers are looking for speed and personalization when interacting with their financial institution. At the same time, they don't want the impersonal experience of email or online forms. Customer support chatbots offer a mix of both live conversation and speed (Sayiwal, 2020).
- **Financial advice**. Advanced banking chatbots provide access to all of a customer's data. It can track spending habits, provide credit scores, set and manage budgets and tell the consumer where they are spending their money. This allows for AI-based recommendations and advice for better money management (Sayiwal, 2020).
- **24/7 digital support**. A 24/7 instant chat feature is expected by the increasingly digital 'always-on' consumer. This means that banks with chatbots built into their websites

have a competitive advantage, and are likelier to attract and retain customers (Sayiwal, 2020).

According to Juniper Research, retail sales from chatbot-based interactions are forecast to almost double every year to US$112 Billion by 2023 from US$7.3 Billion in 2019 (publications).

According to Scopus, there was a rapid growth of interest in chatbots especially after the year 2016. Many chatbots were developed for industrial solutions while there is a wide range of less famous chatbots relevant to research and their applications (Springer, 2020).

The most frequent motivation for chatbot users is considered to be productivity, while other motives are entertainment, social factors, and contact with novelty. However, to balance the motivations mentioned above, a chatbot should be built in a way that acts as a tool, a toy, and a friend at the same time (Springer, 2020).

The reduction in customer service costs and the ability to handle many users at a time are some of the reasons why chatbots have become so popular in business groups. Chatbots are no longer seen as mere assistants, and their way of interacting brings them closer to users as friendly companions. According to a study, social media user requests on chatbots for customer service are emotional and informational, with the first category rate being more than 40% and with users not intending to take specific information (Springer, 2020).

Concerning the user's trust in chatbots, it depends on factors relative to the chatbot itself, like how much it responds like a human, how it is self-presented, and how much professional its appearance is. Nevertheless, it depends also on factors relative to its service contexts, like the brand of the chatbot host, privacy and security in the chatbot, and other risk issues about the topic of the request (Springer, 2020).

A chatbot is a computer program which responds like an intelligent entity when conversed with. The conversation may be through text or voice. Any chatbot program understands one or more human languages by Natural Language Processing. Due to this, the system

interprets human language input using information fed to it. A chatbot may also perform some productive functions like calculations, setting-up remainders or alarms etc. This has been made possible by integrating AI with chatbot and further increasing its functioning (Anirudh Khanna, 2015).

In general, the aim of chatbot designers should be: to build tools that help people, facilitate their work, and their interaction with computers using natural language; but not to replace the human role totally, or imitate human conversation perfectly. In the future, you could "imagine Chatterbots acting as talking books for children, Chatterbots for foreign language instruction, and teaching Chatterbots in general (Shawar, 2007)

CHAPTER -03
Research Methodology

This section will describe the systematic way in which the research is conducted to study a problem and to reach a solution. It organises the components of the study in a way that it illustrates the steps taken to reach the main and sub problems in this research. It highlights the specific procedures or techniques used to identify, select, process, and alalyse information about the selected topic

3.1 Research Design

Research design used to meet objective for this report is Exploratory type. As Exploratory research is the researcher's tool to understand an issue more thoroughly, before attempting to quantify mass responses into statistically inferable data.

3.2 Problem Statement

To study the user experience with chatbots and establish a relationship between various factors and overall satisfaction of the users which further would help us understand the lagging areas of a chatbot

3.3 Objective of study

- Study overall satisfaction with chatbots
- To establish the relationship between various factors and satisfaction level
- To explore ways to further enhance this experience

3.4 Scope of study

The study is conducted in year 2024 over a sample population with age ranging between 16-30 years who have prior experience or are familier with the concept of chatbots.

3.5 Data collection

Primary data was collected via questionnaire containing 15 questions. These were open ended questions where the participants responds in free text, using own words. The other questions concerned included participant demographics(Gender, Age, Education and Place of Residence), aspects of chatbot use(help, assistance, entertainment etc)

3.6 Data Analysis

The analysis of the data is done and presented in same order with the use of softwares such as Microsoft word and excel. And presentation tools such as pie charts and graphs are used to represent that data.

CHAPTER -04
Analysis and Findings

4.1 Statements analysed in this study

S1: While using Chatbot, which language would you prefer?

S2: Getting a query solved through Chatbot is more comfortable than Customer Care Representative?

S3: How Frequent do you use Chatbot for Queries?

S4: Using Chatbot is Fun?

S5: Using Chatbot is Entertaining?

S6: I use Chatbot because it is easy to use and task-oriented?

S7: Using Chatbot is quite Informative?

S8: Using Chatbot is time saving?

S9: How likely are you to recommend others to use Chabot for any Query/Information?

S10: How helpful was the Information given by Chatbot?

S11: How would you rate chatbot on basis of Novelty?

S12: I would rate my overall experience of using Chatbot on a Scale of 1-10.

These statements are divided further into two factors to better undertand the statement:

Pragmatic attributes: These refer to the perceived usefulness, efficiency, and ease of use (so called utility and usability aspects). This usability focuses on the task oriented nature of an experience.

Staments categorised under this attribute: S1, S3, S6, S7, S8, S9, S10

Hedonic attributes: This refers to the “Joy of use” and emphasize on stimulation, identification and evocation generated by the use of a system or a product.

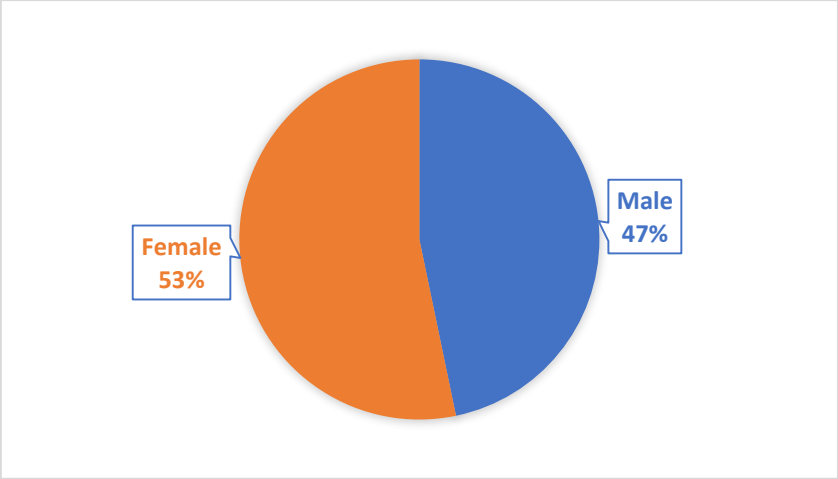
Staments categorised under this attribute: S2, S4, S5, S11

4.2 Sample Description

Visual representation of the sample(demography of the respondents):

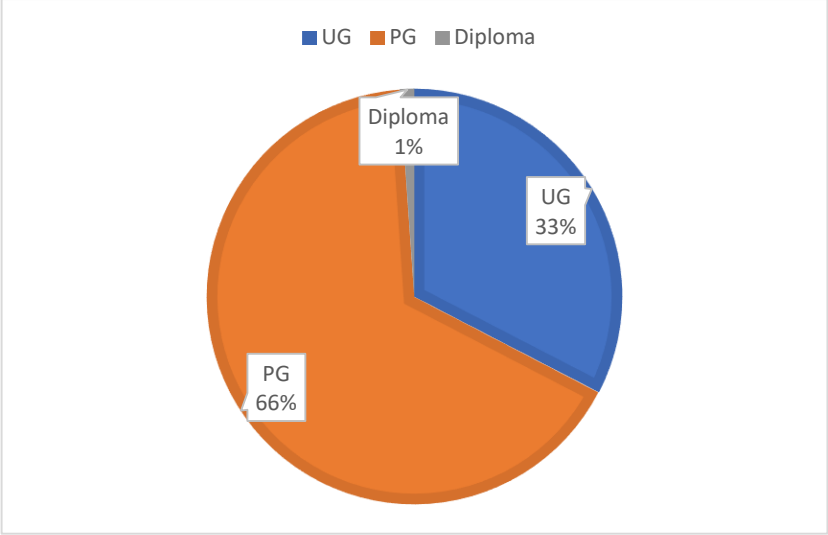
4.2.1 Gender

Data from 92 Respondents of Age 16-30 Years is gathered, out of which 43 respondents identify themselves as Male and 49 respondents as Female.



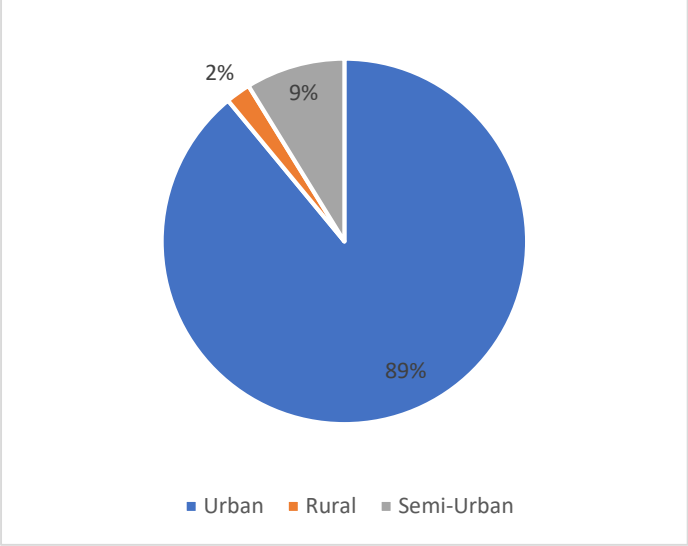
4.2.2 Education Qualification

92 Respondents of Age 16-30, out of which 30 respondents are Under Graduate, 61 respondents are Post Graduate and 1 respondent is Diploma Holder.



4.2.3 Place of residence

Out of total 81 respondents lives in Urban Region, 2 respondents live in Rural Region and 8 respondent lives in Semi-Urban Region.



4.3 Inferential Statistics Results

The aim of inferential statistics is to analyse and uncover the relationship between the independent Variable and Dependent Variable in order to validate the Hypothesis created in order to meet the Research overall objectives.

Inferential statistical techniques like Two-way ANOVA and Regression have been used in order to analyse gathered data

4.3.1 Two-way ANOVA

4.3.1.1 Hyposthesis 1

If user overall chatbot experience is influenced by Hedonic and Pragmatic attributes

Dependent Variable: User overall chatbot experience
Two Independent Variable: Hedonic and pragmatic

Null Hypothesis(H0): There is No Statistical Significance between effect of Hedonic and Pragmatic Attributes interaction on Users overall Chatbot Experience.
Alternative Hypothesis(H1) --There is Statistical Significance between effect of Hedonic and Pragmatic Attributes interaction on Users overall Chatbot Experience.

Tests of Between-Subjects Effects

Dependent Variable: I would rate my overall experience of using Chatbot on a Scale of 1-10.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	225.718[a]	41	5.505	4.156	.000
Intercept	1576.193	1	1576.193	1189.779	.000
H	11.075	6	1.846	1.393	.236
P	74.077	15	4.938	3.728	.000
H * P	36.608	18	2.034	1.535	.117
Error	66.239	50	1.325		
Total	4828.000	92			
Corrected Total	291.957	91			

a. R Squared = .773 (Adjusted R Squared = .587)

Result: Accept Null Hyphothesis

4.3.1.2 Hyposthesis 2

If Education Level and Place of Residence has any influence on Pragmatic Attribute of User. These two factors were selected as it was theorised that both these factors will contribute towards ease of understanding of the functioning of the chat bots as well as awareness about them.

Dependent Variable -- Pragmatic Attribute of User
Two Independent Variable -- Education Level and Place of Residence

Null Hypothesis(H0) --There is No Statistically Significant effect of Interaction between the Education Level and Place of Residence on (User) Pragmatic attribute.
Alternative Hypothesis(H1) --There is Statistically Significant effect of Interaction between the Education Level and Place of Residence on (User) Pragmatic attribute.

Tests of Between-Subjects Effects

Dependent Variable: Pragmatic Attribute

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.462[a]	6	.744	1.627	.149
Intercept	109.081	1	109.081	238.739	.000
EL	2.236	2	1.118	2.447	.093
POR	1.827	2	.914	2.000	.142
EL * POR	1.116	2	.558	1.221	.300
Error	38.837	85	.457		
Total	1180.120	92			
Corrected Total	43.299	91			

a. R Squared = .103 (Adjusted R Squared = .040)

Result: Accept Null Hypothesis

4.3.1.3 Hyposthesis 3

If Education Level and Gender has any influence on Hedonic Attribute of User. These two factors were chosen due to the fact that our previous hypothesis was accepted hence a further probe was done to better understand the combination of education level and Gender of the user over the hedonic attribute.

Dependent Variable -- Hedonic Attribute of User
Two Independent Variable -- Education Level and Gender

Null Hypothesis(H0) --There is No Statistically Significant effect of Interaction between the Education Level and Gender on (User) Hedonic attribute.
Alternative Hypothesis(H1) --There is Statistically Significant effect of Interaction between the Education Level and Gender on (User) Hedonic attribute.

Tests of Between-Subjects Effects

Dependent Variable: Hednoic Attribute

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	6.068[a]	4	1.517	2.930	.025
Intercept	134.017	1	134.017	258.804	.000
G	.334	1	.334	.645	.424
EL	5.853	2	2.926	5.651	.005
G * EL	.028	1	.028	.055	.815
Error	45.051	87	.518		
Total	1242.000	92			
Corrected Total	51.120	91			

a. R Squared = .119 (Adjusted R Squared = .078)

Result: Accept Null Hypothesis

4.3.1.4 Hyposthesis 4

If User overall Chatbot Experience is Influenced by interaction between Gender and Education Level. As in the previous case we observed that the same factors have an impact on Hedonic attributes now we further need to see the affect on overall experience

Dependent Variable – User overall Chatbot Experience
Two Independent Variable -- Education Level and Gender

Null Hypothesis(H0) --There is No Statistically Significant effect of Interaction between the Education Level and Gender on User overall Chatbot Experience
Alternative Hypothesis(H1) --There is Statistically Significant effect of Interaction between the Education Level and Gender on User Overall Chatbot Experience

Tests of Between-Subjects Effects

Dependent Variable: I would rate my overall experience of using Chatbot on a Scale of 1-10.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3.666[a]	4	.916	.277	.892
Intercept	616.351	1	616.351	186.002	.000
G	1.189	1	1.189	.359	.551
EL	1.766	2	.883	.266	.767
G * EL	1.687	1	1.687	.509	.477
Error	288.291	87	3.314		
Total	4828.000	92			
Corrected Total	291.957	91			

a. R Squared = .013 (Adjusted R Squared = -.033)

Result: Accept Null Hypothesis

4.3.1.5 Hyposthesis 5

If User Overall Chatbot Experience is influenced by interaction between Place of Residence and Education Level

Dependent Variable -- User Overall Chatbot experience

Two Independent Variable -- Education Level and Place of Residence

Null Hypothesis(H0) --There is No Statistically Significant effect of Interaction between Gender and Place of Residence on Users overall Chatbot Experience.

Alternative Hypothesis(H1) --There is Statistically Significant effect of Interaction between Gender and Place of Residence on Users overall Chatbot Experience.

Tests of Between-Subjects Effects

Dependent Variable: I would rate my overall experience of using Chatbot on a Scale of 1-10.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	27.018[a]	6	4.503	1.445	.207
Intercept	485.243	1	485.243	155.680	.000
EL	9.571	2	4.785	1.535	.221
POR	21.370	2	10.685	3.428	.037
EL * POR	7.069	2	3.535	1.134	.327
Error	264.939	85	3.117		
Total	4828.000	92			
Corrected Total	291.957	91			

a. R Squared = .093 (Adjusted R Squared = .028)

Result : Accept NULL Hypothesis

4.3.2 Regression

4.3.2.1 Case 1

To predict User overall Chatbot Experience based on Hedonic and Pragmatic Attributes

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.713[a]	.508	.497	1.270	2.184

a. Predictors: (Constant), Pragmatic Attribute, Hednoic Attribute

b. Dependent Variable: I would rate my overall experience of using Chatbot on a Scale of 1-10.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	148.439	2	74.220	46.026	.000[b]
	Residual	143.517	89	1.613		
	Total	291.957	91			

a. Dependent Variable: I would rate my overall experience of using Chatbot on a Scale of 1-10.

b. Predictors: (Constant), Pragmatic Attribute, Hednoic Attribute

Regression Model is a Good Fit of the data

User Overall Chatbot Experience = 0.508 + 0.009* (Hedonic Attribute) + 1.844* (Pragmatic Attribute)

Only Pragmatic Attribute add statistical Significance to the Prediction

4.3.2.2 Case 2

To predict User overall Chatbot Experience based on Hedonic Attribute, Pragmatic Attribute, Gender, Education Level and Place of Residence.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.725[a]	.525	.498	1.269

a. Predictors: (Constant), Pragmatic Attribute, Gender, Education Level, Place of residence, Hednoic Attribute

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	153.360	5	30.672	19.032	.000[b]
	Residual	138.597	86	1.612		
	Total	291.957	91			

a. Dependent Variable: I would rate my overall experience of using Chatbot on a Scale of 1-10.

b. Predictors: (Constant), Pragmatic Attribute, Gender, Education Level, Place of residence, Hednoic Attribute

User overall Chatbot Experience = 0.096+0.106*Gender-0.059*Education Level+0.387*Place of Residence-0.008*Hedonic+1.828*Pragmatic

Regression Model Is Good Fit

CHAPTER -05
Conclusion

In this research, we have presented a study investigating chatbot user experience. The study was conducted as a questionnaire survey. The analysis allowed us to analyse how pragmatic and hedonic attributes of user experience can affect overall user experiences. This is a relevant contribution to chatbot research and practice, as it suggests the benefit of strategically combining pragmatic and hedonic attributes. Whereas the former type will need to take a starting point in pragmatic user experience attributes and then enhance the user experience with hedonic attributes, the Company may benefit from leverage that can be used in order to improve user experience and provide the consumers with the best experience

Now to enhance this pragmatic experience of a user AI can be introduced with lot of factual data which can be fed to that AI while training in order to obtain more factual training which in turn would enhance the response and would be data backed hence ultimately enhancing the pragmatic experience

For hedonic part a more deeper integration is required, also this can only be achieved by gathering huge user data and enhancing accordingly. This can be done by including a survey form at the end of the task conducted by the chatbot and taking feedback.

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