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Artificial intelligence - possible uses in e-commerce: Ways
to Improve Customer Experience through Intelligent
Customer Service

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Abstract

The use of AI chatbots has made a substantial positive impact in facilitating and expanding the scope of e-commerce across the world. The increasing scope of international business has enhanced the profitability and financial sustainability of global businesses. This is attributed to the increasing number of customers who buy products and services online. Notwithstanding the immense contribution of chatbots in enhancing business development by increasing the marketability of company products and services, the adoption of chatbots has been faced with several hurdles. The problems arise from the issue of customer dissatisfaction after realizing that the conversations they are making are not with humans. Firms engaged in electronic commerce facilitated by AI chatbots are in a dilemma given that disclosing to customers that they are exchanging information with robots may jeopardize the ability to sell. On the other hand, it is ethical to reveal to customers that they are served by chatbots. The general objective of the study was to find out if the usage of intelligent customer service in e-commerce always leads to a better customer experience. The researcher specifically sought to examine whether a customer who uses a chatbot after the purchase is more likely to have a negative experience or not. The study also sought to determine whether a customer who uses a chatbot before the purchase is more likely to have a better customer experience or not. The theories guiding the study were the technology acceptance model, diffusion of innovation theory, and theory of reasoned action. The descriptive research design was used. The study targeted 250 youth, aged between 18 to 35 years, at the University of Vienna in Vienna, Austria. In determining the size of the sample, the formula developed by Yamane (1967) was used. The respondents who were involved in the study were selected through snowball sampling. Primary data was used. Participants were required to submit responses to structured questions in Google Forms. 10% of the 150 sampled respondents were required to participate in the pilot study. Consultations with the supervisor ensure content validity and face validity. The test-retest method was used to assess the reliability of the research questionnaire. Standard deviation, frequencies, means, and percentages constitute descriptive statistics. Association and probit regression analyses were the inferential tools of analysis. The researcher used tables to present the data and results. It was found that the majority of respondents (42.3%) used chatbots after the purchase to complain. It was found that respondents used chatbots before purchase to better understand the service (47.0%) and the product (15.2%). It was determined that the majority of respondents (94.7%) agreed that they used chatbots after the purchase because they had a bad customer experience. It was noted that the majority of respondents (69.5%) agreed that they used chatbots after the purchase because they had a good customer experience. It was revealed that 48.3% of respondents rated the correlation between usage of AI such as chatbots and good customer experience at 9 out of 10. 29.8% of respondents rated the correlation between usage of AI such as chatbot and good customer experience at 10 out of 10. It was noted that the perceived usefulness of the chatbot function is positively and significantly associated with both good and bad customer experiences before and after the purchase. The findings indicate that the usefulness of the chatbot function significantly predicts the likelihood of both good and bad customer experiences before and after the purchase. It was concluded that the use of chatbots significantly increases the likelihood to buy something from an e-store.

Abstrakt

Der Einsatz von KI-Chatbots hat erhebliche positive Auswirkungen auf die Erleichterung und Erweiterung des Umfangs des E-Commerce auf der ganzen Welt. Der zunehmende Umfang des internationalen Geschäfts hat die Rentabilität und finanzielle Nachhaltigkeit globaler Unternehmen verbessert. Dies wird auf die Zunahme der Zahl der Kunden zurückgeführt, die Produkte und Dienstleistungen online kaufen. Ungeachtet des immensen Beitrags von Chatbots zur Verbesserung der Geschäftsentwicklung durch die Erhöhung der Marktfähigkeit von Unternehmensprodukten und -dienstleistungen wurde die Einführung von Chatbots mit einer Reihe von Hürden konfrontiert. Die Probleme ergeben sich aus der Unzufriedenheit der Kunden, nachdem sie erkannt haben, dass die Gespräche, die sie führen, nicht mit Menschen geführt werden. Unternehmen, die im elektronischen Handel tätig sind, der durch KI-Chatbots unterstützt wird, befinden sich in einem Dilemma, da die Offenlegung gegenüber Kunden, dass sie Informationen mit Robotern austauschen, die Verkaufsfähigkeit gefährden kann. Andererseits ist es ethisch vertretbar, Kunden zu offenbaren, dass sie von Chatbots bedient werden. Das allgemeine Ziel der Studie war herauszufinden, ob der Einsatz von intelligentem Kundenservice im E-Commerce immer zu einem besseren Kundenerlebnis führt. Konkret wollte der Forscher untersuchen, ob ein Kunde, der nach dem Kauf einen Chatbot nutzt, eher negative Erfahrungen macht oder nicht. Die Studie wollte auch feststellen, ob ein Kunde, der einen Chatbot vor dem Kauf verwendet, eher ein besseres Kundenerlebnis hat oder nicht. Die der Studie zugrunde liegenden Theorien waren das Technologieakzeptanzmodell, die Verbreitung der Innovationstheorie und die Theorie des begründeten Handelns. Es wurde das deskriptive Forschungsdesign verwendet. Die Studie richtete sich an 250 Jugendliche im Alter zwischen 18 und 35 Jahren an der Universität Wien in Wien, Österreich. Zur Bestimmung der Stichprobengröße wurde die von Yamane (1967) entwickelte Formel verwendet. Die an der Studie beteiligten Befragten wurden durch Schneeballstichproben ausgewählt. Es wurden Primärdaten verwendet. Die Teilnehmer mussten Antworten auf strukturierte Fragen in Google Formulare einreichen. 10 % der 150 befragten Befragten mussten an der Pilotstudie teilnehmen. Konsultationen mit dem Vorgesetzten stellen Inhaltsvalidität und Gesichtvalidität sicher. Die Test-Retest-Methode wurde verwendet, um die Zuverlässigkeit des Forschungsfragebogens zu beurteilen. Standardabweichung, Häufigkeiten, Mittelwerte und Prozentsätze bilden deskriptive Statistiken. Assoziations- und Probit-Regressionsanalyse waren die wichtigsten Analysewerkzeuge. Der Forscher verwendete Tabellen, um die Daten und Ergebnisse darzustellen. Es wurde festgestellt, dass die Mehrheit der Befragten (42,3 %) den Chatbot nach dem Kauf nutzte, um sich zu beschweren. Es wurde festgestellt, dass die Befragten vor dem Kauf Chatbots nutzten, um den Service (47,0 %) und das Produkt (15,2 %) besser zu verstehen. Es wurde festgestellt, dass die Mehrheit der Befragten (94,7 %) zustimmte, dass sie Chatbots nach dem Kauf nutzten, weil sie ein schlechtes Kundenerlebnis hatten. Es wurde festgestellt, dass die Mehrheit der Befragten (69,5 %) zustimmte, dass sie Chatbots nach dem Kauf nutzten, weil sie eine gute Kundenerfahrung hatten. Es zeigte sich, dass 48,3 % der Befragten den Zusammenhang zwischen der Nutzung von KI wie Chatbot und einem guten Kundenerlebnis mit 9 von 10 bewerteten. 29,8 % der Befragten bewerteten den Zusammenhang zwischen dem Einsatz von KI wie Chatbot und einem guten Kundenerlebnis mit 10 von 10 von 10. Es wurde festgestellt, dass die wahrgenommene Nützlichkeit der Chatbot-Funktion positiv und signifikant mit sowohl guten als auch schlechten Kundenerlebnissen vor und nach dem Kauf verbunden ist. Die Ergebnisse zeigen, dass die Nützlichkeit der Chatbot-Funktion die Wahrscheinlichkeit von sowohl guten als auch schlechten Kundenerlebnissen vor und nach dem Kauf signifikant vorhersagt. Es wurde der Schluss gezogen, dass die Verwendung von Chatbots die Wahrscheinlichkeit, etwas in einem E-Store zu kaufen, signifikant erhöhen.

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Chapter One

Introduction

1.1 Background to the Study

Electronic commerce is one of the major technological developments that has indeed made the world become a global village. People in every part of the world can now conduct business online as long as they have a computer and internet connection. A computer could be a mobile phone, a tablet, or a laptop. Businesses are able to get customers over the internet and even receive payments through secured online channels such as PayPal. This has expanded the potential markets that businesses can explore and invest in. Therefore, e-commerce has led to the advancement of all economies across the world (Cheng & Jiang, 2020).

The use of artificial intelligence (AI) applications in business is one of the innovations that is revolutionizing the online business system. When customers log into a company's website that uses AI technology, they can find a chatbot which is an automated tool to get customer queries or feedback regarding purchases. Ideally, a customer chats with a machine that has inbuilt responses for every query that may be put across (Cheng and Jiang, 2020). This is a good way of compiling client information, which may be complaints, compliments, or queries. The AI chatbots are usually pre-programmed and can respond to conversations in words or texts. These machines are usually fed with instructions on how to respond to queries and conversations on given topical issues. Chatbots can be used for handling information about specific or multiple products and services. They could respond to calls or texts (Sands et al., 2020).

The use of chatbots, enabled by the internet, has gained momentum. The rapid growth of chatbots is also expected in the future. Pise (2018) argues that the number of chatbots in use could rise to over 1.34 billion US dollars in market size by 2024. Over 21% of adult citizens in the United States have embraced chatbots. This implies that firms using AI chatbots should expect a rise in sales over time (Del Valle, 2018). Leading global companies such as Amazon have adopted chatbots to help with enhancing visibility and accelerate sales. The chatbots have a great advantage over humans as they are not negatively affected by emotional issues when dealing with customer requests for information and complaints if any. Moreover, they are expandable in terms of the volume of queries and number of clients they can handle at any given time. Chatbots also don't get tired. This enables chatbots to offer 24-hour service which is a great advantage for businesses that have a presence across the globe due to the difference in time zones (Leviathan & Matias, 2018).

Scholars have noted that the use of chatbots directly affects the customer experience. Marketing and technology researchers across the globe have examined the effect that AI technology has on customers. In particular, the effect that AI technology on purchase decisions has been examined by researchers. Morgan (2018) opined that the effect of AI on customers' experience can be examined from three perspectives. The first aspect is the satisfaction that customers obtain from interactions with assistants virtually during and after the purchase process. The second dimension appertains to the customization of chatbot platforms so that chatbots can respond to special queries. For example, providing information relating to restaurant and hotel services. Thirdly, there is the beneficial effect that results from customers getting an insight into the kind of data that AI chatbots can

provide. From the data that is collected by chatbots, the organization can understand the preferences and buying patterns, and attitudes of customers and hence, decide in advance before making product and service decisions to serve a particular market niche (Morgan, 2018).

Notwithstanding the immense potential of chatbots in improving the experiences of businesses and their customers, negative perceptions about chatbots still exist. InMoment (2018) finds that ads that are personalized have a negative effect on customer experience because some people do not like being monitored especially when they are making significant purchase decisions. It seems like some people do not like chatbots. This could be due to negative experiences that they had with them like popping up on a website while they are busy trying to find other important information at a given time. However, these are just perceptions (InMoment, 2018). Mannino et al. (2015) expressed concern over the role of using computers which would mean a loss of jobs for people, but not necessarily mean that people would be expunged from providing customer service.

It is admissible that organizations across the world have tried to introduce AI chatbots to improve the experience of customers. This is because customers are the cornerstone of every entity, without whom there will be no sales, and without sales, the business would ideally be dead (Daqar & Smoudy, 2019). Businesses that want to remain competitive ought to continuously make the process followed by customers when buying from them easily. This means that the initial idea behind AI involvement in e-commerce was to facilitate buying decisions among customers. However, businesses should take cognizance of the need to ensure that the online chatbot platforms created are top-notch in terms of handling customer queries satisfactorily. In most parts of the world, people

have embraced technology. Services of humans may be sought in cases where chatbots cannot provide all information required on products and services. This ensures that customers get satisfied. A customer cannot be satisfied with a product or service without having the adequate information required to make the right purchase decision. AI chatbot platforms ought to be fully updated to handle queries in their specific lines so that customers find information about products easily and make their buying decisions effectively (Daqar & Smoudy, 2019).

The AI technology should be able to answer queries appropriately, create patterns in the data collected and make reasoned decisions based on predetermined models. This will ensure that chatbots are effective in addressing customer issues. As much as chatbots are meant to provide insights into the customer purchase process, they are not meant to disrupt and disturb customers during the buying process. Encountering disturbing personalized ads is one of the reasons that may discourage customers from purchasing some products. Another reason why AI can never be wished away is the ability to provide services throughout, as opposed to humans who get tired and may not be available to provide support to customers as and when they need it to make purchase decisions (Daqar & Smoudy, 2019).

Jeff (2018) stresses the importance of AI in helping managers understand customer needs. Managers could subjectively pre-suppose that they are meeting customer needs. However, surveying customers may reveal that they are not. Managers have to adopt AI technology to gather information about customer needs. Most people across the globe have embraced technology, thus businesses should not be worried about introducing chatbots because the benefits outweigh the costs. Moreover, acceptance and adoption of technology is a process

that takes time even among the customers. It is wise for businesses to expand their technological sphere through the adoption of AI chatbots among other innovative artificial intelligence applications. Most people nowadays browse the internet to get information about products and services that they are interested in getting (Jeff, 2018).

1.2 Statement of the Problem

The use of AI chatbots has made a substantial positive impact in facilitating and expanding the scope of e-commerce across the world. Increasing the scope of international business has enhanced the profitability and financial sustainability of global businesses. This is attributed to the increasing number of customers who buy products and services online (Froehlich, 2018). Notwithstanding the immense contribution of chatbots in enhancing business development by increasing the marketability of company products and services, the adoption of chatbots has been faced with several hurdles. The problems arise from the issue of customer dissatisfaction after realizing that the conversations they are making are not with humans. However much the services offered by chatbots may be effective, there is a general feeling and perception among humans that machines cannot be trusted. Machines are considered inferior in the provision of purchase-related services. Given the nature of online transactions that involve payments, humans may not trust chatbots with financial transactions and recommendations that they make on what products to buy (Leviathan & Matias, 2018).

Firms engaged in electronic commerce facilitated by AI chatbots are in a dilemma given that disclosing to customers that they are exchanging information with robots may jeopardize the ability to sell. On the other hand, it is ethical to reveal to customers that

they are served by chatbots. Hence the dilemma between being ethical in business and making profits exists. Luo et al. (2019) examined the effect of disclosing the nature of chatbots used in electronic commerce transactions and noted that disclosing to customers that they are being served by robots negatively impacts their purchase decisions. However, the researcher did not examine how the usage of chatbots before and after a purchase affects the customer experience. Sands et al. (2020) examined how the disconnection between people and chatbots could be addressed using scripts. The study indicated the need to tailor scripts in such a way that they bridge the emotional and rapport disconnect between people and machines. Sands et al. (2020) noted that this would improve the effect of chatbot usage on purchasing decisions. However, the study did not examine how disclosure of a chatbot's identity before and after a purchase affects the customer experience.

Having reviewed literature relevant to the study, it is clear that little has been done by researchers in Austria to examine the effect of using chatbots before and after customer purchases. To bridge this knowledge gap, the proposed study intends to investigate whether the usage of chatbots in facilitating e-commerce is beneficial in terms of the experience of customers or not. In particular, the researcher wishes to examine customer experience after using chatbots, before and after purchasing goods and services, by conducting a survey in Austria. The perspectives of customers on the use of chatbots before and after purchase were sought. A descriptive research design was adopted. Participants were required to submit responses to structured questions in Google Forms. After data collection and coding, analysis was conducted in Statistical Package for Social Science (SPSS) software. The descriptive statistical tools of analysis were frequencies,

means, and standard deviations. Inferential analytical tools used were probit regression and association analysis.

1.3 Research Question

The researcher intended to examine whether the usage of AI chatbots has positive or negative effects on customer experience, about purchasing products and services. Therefore, the study answered the following question: Does the usage of intelligent customer service in e-commerce always lead to better customer experience?

1.4 Research Hypotheses

A research hypothesis refers to a tentative statement outlining the expectations of the researcher before conducting the actual study. Two forms of hypotheses exist-null and alternative hypotheses. This study was guided by the following null hypothesis:

H₀₁: If a customer uses a chatbot after the purchase, he/she is more likely to have a negative experience.

H₀₂: If a customer uses a chatbot before the purchase, he/she is more likely to have a better customer experience.

The hypotheses will be tested through probit regression analysis which will be considered applicable as both the dependent and independent variables are dichotomous. Dichotomous variables are nominal variables that can be placed into two categories. For example, a 'yes' or 'no' answer for chatbot usage.

Chapter Two

Literature Review

2.1 Introduction

The merits and demerits of chatbot usage, theories, and empirical studies about the study and the conceptual framework.

2.2 Assessment of Chatbot Usage

The usage of chatbots has associated advantages and disadvantages.

2.2.1 Advantages of Chatbot Usage

Chatbots are widely used due to their ability to offer 24-hour services. This is a great advantage to businesses because it means that products and services offered can be accessed at any time. This increases sales volumes in businesses because of expanded market share. People across the world can purchase company products and ask for any information that will help them in making purchase decisions. Given that the world has different time zones in different regions, this feature is of great significance to businesses that conduct global transactions (Illescas-Manzano et al., 2021).

Chatbots also enable businesses to offer personalized services to customers. They can collect data about preferred customer products and even give suggestions for alternative products in case the requested products are not available. The chatbots may also inform the customers when the products and services will be available. This process of compiling data about customer needs helps in offering products and services that satisfy customers (Zumstein & Hundertmark, 2017).

The usage of chatbots is also associated with cost reduction. This is because the business does not have to invest a lot in customer service. With chatbots in use, the number of customer care personnel required to handle customers is substantially reduced. This enables the business to focus on improving the user interface on websites to optimize sales (Waghmare, 2019).

2.2.2 Disadvantages of Chatbot Usage

The use of chatbots in business also has disadvantages. First, chatbots are viewed as too mechanical. They are programmed machines that mostly answer simple queries. The chatbots cannot engage in in-depth conversations with customers in situations when understanding the customers and convincing them to purchase products and services is needed. Hence, the lack of an emotional aspect is a limitation that chatbot usage is associated with. It means that chatbots cannot do all work that people can do in facilitating purchases (Chandel et al., 2018).

Chatbots also require constant maintenance, without which they would be irrelevant. A business needs to update chatbots based on a new range of products and services it has. Moreover, the responses that chatbots give to customers need to be reviewed and updated over time to improve the services that chatbots offer to customers. Natural language processing technology also keeps changing over time and will need to be updated so that the business can remain competitive (Khoa, 2021).

Chatbot usage also results in a loss of customer insights. This is because the interaction between customer service and customers is reduced. It would be difficult to get a real picture of changing customer tastes and preferences and potential business opportunities

to exploit in the market. Getting feedback from customers is essential because it enables businesses to improve on critical aspects of customer service, products, and other services (Khan, 2020).

2.3 Theoretical Literature

The theories which will guide the study are outlined in this section. The theories are the technology acceptance model (TAM), diffusion of innovation theory, and theory of reasoned action.

2.3.1 Technology Acceptance Model

Developed in 1989, the TAM explains the acceptance of new technology by the user as well as the adoption of new technology. The TAM argues that the customer's intention to utilize computers and use new systems of information depends on perceptions about their importance and ease to use (Hussein et al., 2010). Technology is perceived to be useful if performance will be enhanced once a particular technology is used. It is easy to use technology if one can use it with less effort once a certain system is in place (Azmi & Bee, 2011). In investigating the use of electronic systems in Malaysia, Azmi and Kamarulzaman (2010) considered perceived risks such as performance risks.

There has been a rise in the use of perceived risk in studies of electronic governance. When we speak about the danger felt by online consumers, it is the opinion of online customers regarding whether system operation and online management of personal data are trustworthy or not. Privacy risk refers to concerns over the safety of data collected while online customers are interacting with the chatbot. There are concerns that third parties may gain access to certain sensitive information (Azmi & Kamarulzaman, 2010).

TAM is the basis of conceptualizing that chatbot usage affects customer experience in Austria (Azmi & Kamarulzaman, 2010).

2.3.2 Theory of Reasoned Action

According to the proponents of this theory, Fishbein and Ajzen (1975), the behavior of an individual depends on the performance intention. The performance intention depends on the behavioral attitudes as well as the subjective (Gwaro et al., 2016). Attitude in this case refers to one's general feeling of whether that behavior is favorable or unfavorable. Subjective norm is one's thinking that the most important people ought to think and behave in a certain manner. The result of this is the voluntary use of chatbots by customers for making purchases online (Kuria & Omboi, 2016). The theory of reasoned action was the basis for conceptualizing that chatbot usage affects customer experience in Austria.

2.3.3 Diffusion of Innovation Theory

Lazarsfeld proposed the diffusion of innovation theory in 1949. The theory describes the patterns in adopting technology. It also expounds on the mechanism of adopting technology and predicts the rate of success beforehand (Gwaro et al., 2016). Diffusion of innovation is the communication of innovation through various mechanisms over time. Any concept, practice, or entity which is new to potential users such as individuals, organizations, governments, and other bodies is referred to as innovation. Any set of units involved in jointly solving problems with a focus on a common goal is referred to as a social system. Innovations in technology pass through five systematic steps (Kasilingam, 2020).

The diffusion of innovation theory has been categorized into five stages. Firstly, the technology user attitude is positively transformed. Secondly, there is an evaluation of the process of making decisions over innovations. Thirdly, the user resolves whether to adopt or reject innovations. The fourth stage entails the testing and utilization of the innovation. Lastly, the innovation is confirmed; support from stakeholders is required (Gwaro et al., 2016). The theory of diffusion of innovation suggests that innovations in technology are spread over time through certain channels in a social system (Kasilingam, 2020). The diffusion of innovation theory is the basis of conceptualizing that chatbot usage affects customer experience in Austria.

2.4 Empirical Literature Review

Luo et al. (2019) conducted a study to expound on the effects that result from using chatbots to disclose customer experiences, needs, and expectations during purchases. The study adopted an experimental research design to investigate the subject matter. It was noted that chatbots whose identities are not disclosed have increased chances of luring customers to buy products. Generally, it was revealed that chatbots are more effective than people in stimulating the purchase decisions of customers. It was shown that disclosed chatbots were perceived as having inadequate knowledge and thus could not convince customers to make more purchases, compared to humans. It was noted that people perceived chatbots negatively despite the efficiency associated with their usage. It was determined that the adverse effects of these negative perceptions could be prevented through late disclosure of the true nature of chatbots and the experience of customers in using chatbots.

Folstad, Nordheim, and Bjorkli (2018) investigated the factors that lead customers to have faith in a chatbot. The use of chatbots as a replacement for human customer support representatives is on the rise. Users must believe that chatbots can effectively assist them with this goal before they would use them (Folstad et al., 2018). The confidence that customers have in chatbots was investigated by interviewing 13 chatbot users. It was discovered that aspects of a given chatbot's implementation might influence users' faith in its ability to provide helpful customer care. Some of these characteristics are how well it understands and responds to questions and suggestions, how humanlike it seems, how well it presents itself, and how polished it seems to others. The service environment, and more particularly the chatbot host's brand, the chatbot's perceived security and privacy, and the general risk perceptions around the issue of the request all play a role in determining whether a customer would trust the chatbot to fulfill their request.

A new chatbot for social media customer service was evaluated in 2017 by Xu, Liu, Guo, Sinha, and Akkiraju. Users are increasingly resorting to social media in search of customer support, yet the vast majority of these pleas have gone unanswered or been ignored for too long. Scientists develop novel conversational technology to provide answers to social media users' queries automatically. Modern deep learning methods are included, and the system is educated on roughly 1 million tweets involving customer service representatives from 60 different businesses. Emotional requests make up over 40% of all inquiries, and the algorithm is just as effective as human agents in demonstrating empathy and providing support to consumers at difficult times, according to the assessment. Both human and automated assessment metrics reveal that the system provides superior performance compared to other information retrieval systems.

To predict how people would respond to a Facebook chatbot, Zarouali, Van den Broeck, Walrave, and Poels (2018) conducted research. Most social media platforms have caught on to the enormous economic potential of chatbots as they have grown in popularity over the last several years. Their recent proliferation necessitates more research. Researchers in this article analyze the potential of chatbots on Facebook to help companies. A model inspired by the CAT model is proposed and evaluated in this study. A user's opinion of a product's utility, simplicity of use, and helpfulness are the three cognitive variables that make up the CAT model. The CAT model also includes three emotional components: reward, excitement, and control. Customer attitudes toward chatbot-providing businesses may be affected by the CAT model's cognitive and emotional variables, which in turn can impact customers' intentions to use and suggest the chatbot. Structural equation modeling research shows a positive correlation between consumers' attitudes toward the chatbot brand and two cognitive predictors, namely, perceived utility and perceived helpfulness, as well as all three affluent predictors. What's more, the data show that people's feelings about the brand account for a great deal of the variance in their propensity to buy the product. Last but not least, the attitude toward the brand acts as a mediator between all the important criteria and the desire to make a purchase. In conclusion, the results have important real-world consequences and provide useful ideas for further study.

The influence of robotic process automation (RPA) on the retail banking industry's customers was analyzed by Kumar and Balaramachandran (2018). Competition from Fintech firms and clever automation provide significant challenges for the retail banking business, which must adapt or perish. In order to keep up with the competition and boost profits, banks are making RPA a top priority. By automating mundane tasks, retail banks

may increase productivity, accuracy, availability, and profitability while also providing consumers with more cutting-edge products and services and a more satisfying overall experience. The rise of the sharing economy has resulted in a newly confident buyer. The purpose of this research is to examine the elements that affect the quality of retail banking services provided through robotic process automation. With this research, we hypothesize the impact of many variables on RPA's uptake in the retail banking sector. As the results show, security, privacy, dependability, and usefulness are all crucial to the development of RPA in the retail banking sector. Future directions for study and application are also highlighted.

Mero (2018) looked at how consumers' opinions of online retailers changed when they were exposed to a two-way conversation via the use of chat services. In the age of e-commerce, when competitors are always only a click away and the price is easy to compare, customer service and two-way communication via a company's website are more important than ever. As a way of bettering customer service, live chat interfaces are growing in popularity. These allow consumers to have real-time conversations with customer care agents via the internet. This research builds and tests a model showing how a chat service might mediate the connection between two-way communication—a key component of perceived website interactivity—and consumer happiness, trust, repeat purchase, and advocacy intentions. This study polled 6783 customers from five different e-commerce sites that primarily use live chats for customer service. According to the data, the extent to which a customer perceives that a web store is invested in fostering a two-way flow of information between the buyer and the seller has a substantial impact on the customer's level of trust, satisfaction, and likelihood of making future purchases and

spreading the word about the store to others. More than that, multi-group study findings support the idea that chatting online may modify these associations for the better.

Tone-aware chatbots for social media customer service have been the subject of research by Hu et al. (2018). As the need for social media customer service has risen quickly in recent years, chatbots have emerged as an essential answer. However, present chatbots for customer service don't account for a crucial factor that might affect the user experience: tone. A unique tone-aware chatbot is developed in this study, which creates toned answers to user requests on social media. At the outset of their investigation, the researchers perform an exploratory study, focusing on the impacts of tones. According to the findings, there are many diverse ways in which tones influence the user experience. Deep learning is used by researchers that are versed in the effects of tone to design a chatbot that is attuned to it. More than 1.5 million transcripts of real Twitter conversations between customer care agents and their customers have been collected by the research team to train the system. According to the results, the tone-aware chatbot is just as good at coming up with acceptable replies to user requests as real humans are. Our chatbot is even more sympathetic than human operators, according to user feedback.

The effects of ECAs on website visitors' happiness and actions were analyzed by Mimoun and Poncin (2015). The purpose of this study, which draws on the existing literature on sales and ECAs, is to examine the impact that ECAs could have on users' hedonic and utilitarian evaluations of the shopping experience, as well as their subsequent buy intent and website satisfaction. Three outcomes of ECA use are the subject of this investigation: sociability, decision quality, and fun. Values of play and social presence on happiness and behavioral intentions are mediated by hedonic value, whereas the value of utilitarian

purchases is mediated by decision quality. The findings stress the significance of analyzing ECA outputs in online stores from both a utilitarian and hedonic perspective.

Sands et al. (2020) conducted a study to examine how the discrepancy between humans and robots could be managed using service scripts. The researcher sought to expound on the effect of using service scripts on customer experiences. Hypothesis testing was enabled through an experimental research approach, involving 262 customers in the United States. It was found that employing scripts in education results in a significant increase in satisfaction of customers and ameliorated intention to purchase as opposed to the use of AI chatbots. Emotions and rapport were determined to be the factors that determine the significance and direction of the effect. This implies that if people communicate, there is a mutual connection that can influence the decision to purchase. Hence, people are different from machines which have no way of strengthening the positive perception and intention of customers in purchasing goods and services. However, this was just an experience with educational scripts, and not service and entertainment scripts. The major focus of the study was on the marketing of robot services. The findings indicate that tailoring of chatbots can be done in order to enhance the emotional aspect which came out as weak in the current study.

Cheng and Jiang (2020) examined the effect that AI chatbots have on the experience of users of 30 brands in the United States. The gratifications, perceived risks of privacy, satisfaction, loyalty, and persistent use were the dimensions of effects that the researcher looked at. It was noted that the respondents were satisfied with the information given, entertainment, technology, and presence in social media because of using chatbots. This in turn resulted in a positive effect on satisfaction with chatbot usage to facilitate purchase

decisions for several brands in the United States. It was noted that the more the users were satisfied, the more they continued using chatbots and became loyal customers for the various brands.

Følstad and Skjuve (2019) examined the experiences and motivation of users in using chatbots for serving customers. The researcher expounds on reasons why users of AI chatbots want to implement the technology in business. 24 users of chatbots were interviewed by the researcher. It was noted that chatbots could extensively and effectively provide suitable answers to simple queries. It was revealed that indeed, sometimes the experience of customers while using chatbots may not be positive, especially with complex queries where answers may not be easily provided by machines. It was established that this would be addressed by offering the alternative option for the chatbots to provide references to human representatives to assist in providing the required information. This study demonstrates that the capabilities of chatbots are realistic and can be a very good solution to many global business challenges. The study contradicted other studies as it downplayed the overrated superiority of human services compared to AI chatbot services in handling customer queries. This study affirmed the efficiency and effectiveness of chatbots in customer service.

Daqar and Smoudy (2019) examined the effect that AI technology has on customer experience enhancement in various sectors such as banking and telecommunication in Palestine. A positive and significant effect of AI on the experience of customers was noted by the study. The study focused on service to customers and after-sales support service. It was noted that 26.4% of the variation in customer experience can be accounted for by AI technology. The study established that 22.9% of the variation in customer service can be

attributed to AI, while AI accounted for 7% of after-sales support. It was noted that providing customers with personalized services positively affects their experiences. The study recommended that AI be used in call centers to improve the experience that customers have in various organizations, which is eventually the key to the survival of entities as it has a direct relationship with sales. The study, therefore, recognized the positive role that AI technology plays in enhancing the efficiency and effectiveness of services provided.

Chen, Tran-Thien and Florence (2021) examined the effect that usable and responsive AI chatbots have on customer experience in electronic retail transactions. Chen et al. (2021) note that the use of AI has made the customer experience completely different from the past when there was no online buying and selling of goods and services. The study examines how the use of chatbots for online transactions affects the satisfaction of customers. The researchers were interested in testing the effects that adopting chatbots has on the experience and satisfaction of customers. The moderating effect of personality was tested as well. The researcher conducted multiple regression analysis and factor analysis for the study variables. It was shown that chatbot usability positively influenced extrinsic customer experience while chatbot responsiveness positively affected intrinsic customer experience (Chen et al., 2021). It was also noted that customer experience in using chatbots is positively related to customer satisfaction. Findings indicate that personality moderated the effect of chatbot usability on extrinsic customer experience.

Adam, Wessel and Benlian (2021) examined the effects that using chatbots in serving customers has on the experience of users. It was noted that online chats with customers are a common way of providing services in the modern world. AI chatbots employ natural

language processing software developed to aid in service provision, an activity that was conventionally done by customer care agents. However, some chatbots fail to adequately respond to queries of customers and are considered unreliable to support the purchase decisions of customers. For the chatbots to meet all customer needs, perhaps there is a need for more advanced customization of the platform. This study adopted an experimental research design. The study found out that anthropomorphism and consistency in purchasing significantly enhance the probability that customers will comply with the service feedback request placed by chatbots. The presence of customers in social media mediates the relationship between anthropomorphism and customer compliance with the service feedback request placed by chatbots.

Song, Xing, Duan, Cohen and Mou (2022) examined the possibility of AI replacing services provided by human beings. The effect that quality of communication and risks to privacy has on the intention to adopt chatbots in online purchases was examined (Song et al., 2022). It was recognized that chatbots are used nowadays to support customers make decisions on whether to purchase products or not. The study analyses the perceived difference in the quality of communication and risks posed to privacy between various agents providing services. It also indicates the impact the quality of communication has on the intention of consumers to adopt chatbots (Song et al., 2022). Another dimension examined was whether diversity in the interaction needs of people determines the perceived differences. Five experiments based on scenario analysis were conducted. The study found that the intention of customers to adopt chatbots for online purchases depends on the service agents' nature. It was shown that the kind of service agent influences people's willingness to embrace chatbots via a mediating impact of the perceived quality

of communication and privacy threats (Song et al., 2022). It was shown that customers' perceptions of their privacy, the quality of their interactions with service agents, and the threats to their privacy are all moderated by the need for human interaction (Song et al., 2022). This study stresses the need for customers to interact with humans to get a really fulfilling experience.

Wang, Lin, and Shao (2022) examined the effect of AI chatbots on the creation of agility in organizations. The use of AI among businesspeople is on the rise. To become competitive, businesses will have to examine the trend in technology and change their way of doing things for the better. Chatbot usage in supporting customers is rampant across the world. The study examined the effect that internal and external agility enabled by using chatbots has on performance in terms of providing services to customers. In addition, researchers looked at what factors contribute to both the everyday and cutting-edge ways that technology is used. In the United States, 294 marketing department workers provided us with this information. Agility was observed to increase with exposure to both common and novel technological processes (external and internal). Both external and internal agility was shown to positively correlate with service delivery performance. Appropriate recommendations to improve agility were made.

Nuruzzaman and Hussain (2018) examined the use of chatbots in delivering customer services through deep neural networks. The researchers noted that chatbots have natural language processing capability and can serve customers depending on how they are programmed. The researcher conducted a survey on the use of chatbots and the applied techniques in chatbot utilization. Existing chatbots are discussed in terms of how different, similar, and limited they are. The researchers conducted a comparative analysis of 11

popular application systems that incorporate chatbot technology. The study findings showed that while using chatbots, 75% of consumers have encountered situations where the kinds of services offered by chatbots were not that appealing. The factors that create dissatisfaction among customers while using chatbots include challenges of the software in generating responses that are meaningful, informative, and long. This implies the communication gap that exists between chatbots and people. These limitations of chatbots are due to a lack of technological know-how in the past when chatbots were being manufactured for the first time. This is because rules written by hand and templates used to develop them are outdated. Modern chatbots need to be updated due to tremendous technological advances in the world. Deep neural networks have been developed to provide conversational responses in detail. The study surveyed over 70 scholarly articles on the subject matter, published recently.

Ho (2021) examined the use of AI chatbots in providing services to customers. This study noted that chatbots are examples of technological innovations enabled by the internet. Its effects are monumental in the world of e-commerce. Moreover, the presence of mobile phones has made it easy for customers to take advantage of internet technology from anywhere. The effect that chatbot usage has on the satisfaction of customers was determined. The effect of trust, technology, quality of services, and commitment on customer satisfaction with services was examined (Ho, 2021). It was revealed that engaged customers would rather share their knowledge and refer new customers (Ho, 2021).

Li, Pan, Xin, and Deng (2020) conducted a study to examine the effect that customer service using AI has on the attitudes of customers and customers' online purchasing

behavior. It was noted that over 92% of online customers have experienced AI services. The researchers examine consumer attitudes toward the use of artificial intelligence technology. The study surveyed 670 consumers and determined that there is general acceptance of AI among 71.5% of participants. Services provided to customers via artificial intelligence platforms are widely accepted because of the 24-hour response system, neutrality of the platforms, objectivity, and trending nature of the service in the current technological era. Resistance to customer services provided by AI among 28.5% of respondents was attributed to less relevance, effectiveness, and smoothness in relation to services that customer service agents provide. It was noted that barriers to bridging chatbots with customer service agents exist. It was also established that customers who use chatbots for online purchases do not like the identity of chatbots to be concealed as they want to know who they are dealing with. It was established that the age and educational qualifications of respondents account for differences in attitudes toward services that are provided by AI to customers. It was recommended that the introduction of chatbots is done systematically to ensure that it is embraced by all customers. Customers should also be allowed to choose between chatbots and customer service representatives.

2.5 Conceptual Framework

As depicted in Figure 2.1, chatbot usage before purchase and chatbot usage after purchase were the independent variables while customer experience was the dependent variable.

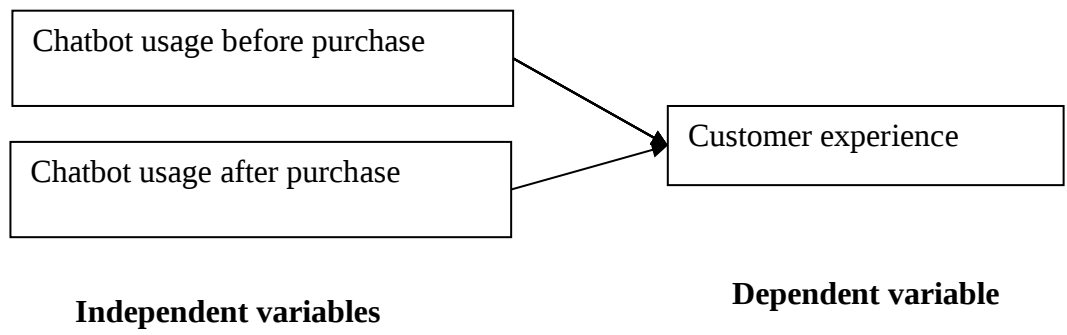


Figure 2.1: Conceptual framework

Chapter Three

Research Methodology

3.1 Introduction

The research process followed by the author has been detailed. Data collection, processing, and analysis methods, as well as the research's design, sample population, sampling strategy, and sample size, are all covered.

3.2 Research Design

The research design outlines the research plan. The descriptive research design was used. Through a descriptive survey, the study phenomena can be clearly described. Descriptive studies assist in description of processes with focus on answering the questions of what, who and how at a given point in time (Asenahabi, 2019).

3.3 Target Population

Population in research refers to the subjects of investigation. The population targeted is referred to the entire subjects that the researcher is interested in gathering information about (Asenahabi, 2019). Sometimes, it may not be economical to study a large population perhaps due to constraints of time and finances, hence the researcher will focus on the study or accessible population. It is true, that the targeted population can be the accessible population, but it is not always true that the accessible population is the target population (Kumar, 2014). The study targeted 250 youth, aged between 18 to 35 years, at the University of Vienna in Vienna, Austria.

3.4 Sample Size and Sampling Technique

A research sample is a sub-component of the population. The researcher usually finds information from the sample and assumes at given levels of confidence that the results

represent what could be found out by including all the elements in the population in the actual study (Thantola & Kihn, 2011; Vasileiou et al., 2018). In determining the size of the sample, the formula developed by Yamane (1967) will be employed with the assumption of a confidence interval of 95% and a 5% precision level (e). Given n (sample size), e and N population size); Yamane's (1967) formula is presented in Equation 3.1.

$$n = \frac{N}{1+N(e^2)} \quad \text{Equation 3.1}$$

Therefore, the size of the sample based on the formula is depicted in Equation 3.2.

$$n = \frac{250}{1+250(0.05^2)} = 153.85 \quad \text{Equation 3.2}$$

Therefore, the sample size was 153 participants. The participants were selected through snowball sampling. Snowball sampling is preferred because it enables the researcher to find potential participants based on referrals from surveyed respondents. This also ensures that participants are people who have purchased products and services online (Vasileiou et al., 2018).

3.5 Data Collection Instruments

Primary data was used. Participants were required to submit responses to structured questions in Google Forms (Draper, Young & Fenich, 2018).

3.6 Data Collection Procedure

The researcher first assessed the reliability of the structured research questionnaire through a pilot study. The researcher briefed the respondents on the study's purpose before eliciting responses from them.

3.7 Pilot Testing

Pilot testing is the process of rehearsing a research study by carrying out research

procedures using the questionnaire on a smaller sample size. A research questionnaire was pilot tested before being used in the final study. According to Cooper and Schindler (2011), 10% of the 153 sampled respondents were required to participate in the pilot study. That equals 15 respondents (Pearson et al., 2020).

3.7.1 Validity

When the instrument provides an accurate representation of the concepts that it purports to measure, we say that it is valid. The indicators for study variables should be within the appropriate domains. It is from these indicators that questions can be framed so that they are within the context of the variable (Oran, 2018). From this explanation, content validity means that the questions being asked are linked to study indicators which are in turn linked to study variables. Face validity, on the other hand, means that the questions being asked are logical about the study. Consultations with the supervisor ensured that content validity and face validity is met (Khan, 2014).

3.7.2 Reliability

A reliable research instrument should give the same results on repeated sampling. This implies that one can be more confident in generalizing the study results to the research population. When the research questionnaire is reliable, it enhances the external validity of the research results. However, it does not mean that a valid research questionnaire is valid (Ihantola & Kihn, 2011). When the researcher uses a reliable questionnaire, accurate results are obtained. The reliability of the research questionnaire was evaluated using the test-retest method, which involves administering the same set of questions to the same respondents twice. The correlation between the first and the second data obtained should be strong. This implies that the correlation coefficient should be at least 0.7 (Oran, 2018).

3.8 Data Processing and Analysis

Data were collected and checked for various flaws. Responses were tallied and structured. Closed-ended questions were coded followed by descriptive and inferential analysis. Standard deviation, frequencies, means, and percentages constituted descriptive statistics. Association and probit regression analyses were the inferential tools of analysis. The researcher used tables to present the data.

The first regression model shown in Equation 3.3 was adopted by the study:

$$Y_1 = \beta_0 + \beta_1 X_1 + \varepsilon \quad \text{Equation 3.3}$$

Where, Y_1 represents bad customer experience

β_0 represents the y-intercept

β_1 represents coefficients of usefulness of chatbot function

X_1 represents usefulness of chatbot function

ε represents error term

The second regression model shown in Equation 3.4 was adopted by the study:

$$Y_2 = \beta_0 + \beta_1 X_2 + \varepsilon \quad \text{Equation 3.4}$$

Where, Y_2 represents good customer experience

β_0 represents the y-intercept

β_1 represents coefficients of usefulness of chatbot function

X_2 represents usefulness of chatbot function

ε represents error term

Chapter Four

Analysis and Discussions

4.1 Introduction

In this chapter, the response rate, background information of respondents, results of descriptive statistics, and inferential statistical results are presented in line with the variables and objectives of the study.

4.2 Response Rate

The researcher distributed a total of 153 questionnaires. 151 questionnaires were duly filled and returned by students at the University of Vienna. 2 questionnaires were not filled up as the respondents were not students at the University of Vienna. The response rate, which was 98.7%, was excellent for analysis and reporting. The analysis of the response rate is depicted in Table 4.1.

Table 4.1: Response Rate

	Frequency	Percent
Questionnaires duly filled and returned	151	98.7
Questionnaires not filled	2	1.3
Total	153	100.0

4.3 Demographic Analysis

The study sought background information from the respondents. This included gender, age, and educational background.

4.3.1 Distribution of Respondents by Gender

This study also examined how the respondents were distributed according to their gender.

The results of the analysis are presented in Table 4.2.

Table 4.2: Distribution of Respondents by Gender

	Frequency	Percent
Female	81	53.6
Male	70	46.4
Total	151	100.0

It was established that 81 (53.6%) respondents were female while 70 (46.4%) were male.

This implies that the respondents were fairly distributed in terms of gender.

4.3.2 Distribution of Respondents by Age

The study also examined the distribution of respondents based on their age categories.

Results of the analysis are shown in Table 4.3.

Table 4.3: Distribution of Respondents by Age

	Frequency	Percent
18 to 35 years	151	100.0
Total	151	100.0

It was found that 151 (100.0%) respondents were aged between 18 to 35 years. This implies that all the respondents were the youth.

4.3.3 Distribution of Respondents by Educational Background

The study further sought to ascertain whether the respondents were students at the University of Vienna or not. These results are shown in Table 4.4.

Table 4.4: Distribution of Respondents by University

	Frequency	Percent
Yes	151	100.0
Total	151	100.0

The study established that 151 (100.0%) respondents agreed that they were students at the University of Vienna. This implies that the researcher got valid responses as the intended study participants were supposed to be students at the University of Vienna.

The researcher further established whether the respondents were Business Administration students or not. The results are shown in Table 4.5.

Table 4.5: Distribution of Respondents by Course of Study

	Frequency	Percent
Yes	102	67.5
No	49	32.5
Total	151	100.0

The study established that 102 (67.5%) respondents agreed that they were studying Business Administration at the University of Vienna. 49 (32.5%) respondents disagreed that they were studying Business Administration at the University of Vienna. This implies

that the majority of the respondents were conversant with e-commerce aspects as it is a topic of the Business Administration Master.

4.4 Descriptive Analysis of Chatbot Usage

4.4.1 Use of Chatbots in E-Commerce

The study also examined the distribution of respondents based on whether they had ever used chatbots in e-commerce or not. The results of the analysis are shown in Table 4.6.

Table 4.6: Distribution of Respondents by Use of Chatbot in E-Commerce

	Frequency	Percent
Yes	151	100.0
Total	151	100.0

It was found out that 151 (100.0%) respondents had ever used chatbots in e-commerce. This implies that all the respondents understood the subject matter of study.

4.4.2 Use of Chatbots in Purchase

The study also examined the distribution of respondents based on whether they used chatbots before or after purchase or both. The results of the analysis are shown in Table 4.7.

Table 4.7: Distribution of Respondents by Use of Chatbot in Purchase

	Frequency	Percent
Before the purchase, after the purchase	96	63.6
After the purchase	52	34.4

Before the purchase	3	2.0
Total	151	100.0

It was found that 96 (63.6%) respondents agreed that they used chatbots before and after purchase. 52 (34.4%) respondents agreed that they used chatbots after purchase. 3 (2.0%) respondents agreed that they used chatbots before purchase.

4.4.3 Reasons for Using Chatbots before the Purchase

The study also examined the distribution of respondents based on their reason for using chatbots before the purchase. The results of the analysis are shown in Table 4.8.

Table 4.8: Distribution of Respondents by Use of Chatbot in E-Commerce

	Frequency	Percent
To better understand the service	71	47.0
To better understand the product	23	15.2
To talk to a sales representative	22	14.6
To ask a question about delivery	14	9.3
Did not use it before	12	7.9
To find a specific section of the website	9	6.0
Total	151	100.0

It was found that 71 (47.0%) respondents used chatbots before purchase to better understand the service. 23 (15.2%) respondents used chatbots before purchase to better understand the product. 22 (14.6%) respondents used chatbots before purchase to talk to a sales representative. 14 (9.3%) respondents used chatbots before purchase to ask a

question about delivery. 12 (7.9%) respondents could not give any reason as they had not used chatbots before purchase. 9 (6.0%) respondents used chatbots before purchase to find a specific section of the website.

4.4.4 Reason for Using Chatbot after the Purchase

The study also examined the distribution of respondents based on their reason for using chatbots after the purchase. The results of the analysis are shown in Table 4.9.

Table 4.9: Distribution of Respondents by Reason for Using Chatbot after the Purchase

	Frequency	Percent
To complain	64	42.4
To find information on how to cancel the order	53	35.1
To talk to a sales representative	28	18.5
To ask a question about delivery	6	4.0
Total	151	100.0

It was found out that 64 (42.4%) respondents used chatbot after the purchase to complain. 53 (35.1%) respondents used the chatbot after the purchase to find information on how to cancel the order. 28 (18.5%) respondents used a chatbot after the purchase to talk to a sales representative. 6 (4.0%) respondents used a chatbot after the purchase to ask a question about delivery.

4.4.5 Use of Chatbots after the Purchase and Bad Customer Experience

The study also examined the distribution of respondents based on whether they used chatbots after the purchase because they had a bad customer experience or not. The results of the analysis are shown in Table 4.10.

Table 4.10: Distribution of Respondents by Use of Chatbots after the Purchase and Bad Customer Experience

	Frequency	Percent
Yes	143	94.7
No	8	5.3
Total	151	100.0

It was found that 143 (94.7%) respondents agreed that they used chatbots after the purchase because they had a bad customer experience. 8 (5.3%) respondents disagreed that they used chatbots after the purchase because they had a bad customer experience.

4.4.6 Use of Chatbots After the Purchase and Good Customer Experience

The study also examined the distribution of respondents based on whether they used chatbots after the purchase because they had a good customer experience or not. The results of the analysis are shown in Table 4.11.

Table 4.11: Distribution of Respondents by Use of Chatbots after the Purchase and Good Customer Experience

	Frequency	Percent
Yes	105	69.5

No	46	30.5
Total	151	100.0

It was found that 105 (69.5%) respondents agreed that they used chatbots after the purchase because they had a good customer experience. 46 (30.5%) respondents disagreed that they used chatbots after the purchase because they had a good customer experience.

4.4.7 Correlation between Usage of AI such as Chatbot and Good Customer Experience

The study also examined whether the usage of AI such as chatbot positively correlates with a good customer experience or not, based on the opinion of respondents. The respondents were required to indicate the degree of correlation on a scale of 1 to 10. The results of the analysis are shown in Table 4.12.

Table 4.12: Distribution of Respondents by Opinion on Correlation between Usage of AI such as Chatbot and Good Customer Experience

Rating on a scale of 1 to 10	Frequency	Percent
9	73	48.3
10	45	29.8
8	14	9.3
7	6	4.0
5	4	2.6
6	4	2.6
3	2	1.3

4	2	1.3
1	1	.7
Total	151	100.0

It was found that 73 (48.3%) respondents rated the correlation between usage of AI such as chatbot and good customer experience at 9. 45 (29.8%) respondents rated the correlation between usage of AI such as chatbot and good customer experience at 10. 14 (9.3%) respondents rated the correlation between usage of AI such as chatbot and good customer experience at 8. 6 (4.0%) respondents rated the correlation between usage of AI such as chatbot and good customer experience at 7. 4 (2.6%) respondents rated the correlation between usage of AI such as chatbot and good customer experience at 5. 4 (2.6%) respondents rated the correlation between usage of AI such as chatbot and good customer experience at 6. 2 (1.3%) respondents rated the correlation between usage of AI such as chatbot and good customer experience at 3. 2 (1.3%) respondents rated the correlation between usage of AI such as chatbot and good customer experience at 4. 1 (0.7%) respondent rated the correlation between usage of AI such as chatbot and good customer experience at 1.

4.4.8 Usefulness of Chatbot Function

The study also examined the distribution of respondents based on their opinion about the usefulness of the chatbot function. The results of the analysis are shown in Table 4.13.

Table 4.13: Distribution of Respondents by Opinion about Usefulness of Chatbot**Function**

	Frequency	Percent
Useful	103	68.2
Very useful	29	19.2
Kind of useful	16	10.6
Not very useful	3	2.0
Total	151	100.0

It was found that 103 (68.2%) respondents opined that the chatbot function is useful.

29 (19.2%) respondents opined that the chatbot function is very useful. 16 (10.6%) respondents opined that the chatbot function is kind of useful. 3 (2.0%) respondents opined that the chatbot function is not very useful.

4.4.9 Advantages of Using a Chatbot

The study also examined the distribution of respondents based on their opinion about the advantages of using a chatbot. The results of the analysis are shown in Table 4.14.

Table 4.14: Distribution of Respondents by Opinion on Advantages of Using a Chatbot

	Frequency	Percent
24-hour service	67	44.4
Personalized services	67	44.4
Cost reduction	27	17.9

Total	151	100.0
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It was found that 67 (44.4%) respondents opined that using a chatbot is advantageous due to 24-hour service. 67 (44.4%) respondents opined that using a chatbot is advantageous due to personalized services. 27 (17.9%) respondents opined that using a chatbot is advantageous due to cost reduction.

4.4.10 Disadvantages of Using a Chatbot

The study also examined the distribution of respondents based on their opinion about the disadvantages of using a chatbot. The results of the analysis are shown in Table 4.15.

Table 4.15: Distribution of Respondents by Opinion about Disadvantages of Using a Chatbot

	Frequency	Percent
Too mechanical	54	35.8
Loss of customers insights	54	35.8
Continuous maintenance	15	9.9
There are no disadvantages	2	1.3
Total	151	100.0

The findings indicate that 54 (35.8%) respondents opined that using a chatbot is disadvantageous as it is too mechanical. 54 (35.8%) respondents opined that using a chatbot is disadvantageous as it leads to loss of customers' insights. 15 (9.9%) respondents opined that using a chatbot is disadvantageous as it requires continuous maintenance. 2 (1.3%) respondents opined that using a chatbot has no disadvantages.

4.4.11 Use of Chatbot and Likelihood to Buy Something from an E-Store

The study also examined the distribution of respondents based on their opinion about whether the usage of chatbots increases the likelihood to buy something from an e-store or not. The respondents were required to indicate the percentages. The results of the analysis are shown in Table 4.16.

Table 4.16: Distribution of Respondents by Opinion on Use of Chatbot and Likelihood to Buy Something from an E-Store

	Frequency	Percent
60%	55	36.4
50%	40	26.5
40%	23	15.2
70%	13	8.6
30%	9	6.0
10%	4	2.6
80%	4	2.6
10%	4	2.6
20%	2	1.3
90%	1	.7
Total	151	100.0

It was found that 55 (36.4%) respondents opined that the use of chatbot increases the likelihood to buy something from an e-store by 60%. 40 (26.5%) respondents opined that the use of chatbots increases the likelihood to buy something from an e-store by 50%. 23

(15.2%) respondents opined that the use of a chatbot increases the likelihood to buy something from an e-store by 40%. 13 (8.6%) respondents opined that the use of a chatbot increases the likelihood to buy something from an e-store by 70%. 9 (6.0%) respondents opined that use of chatbot increases the likelihood to buy something from an e-store by 30%. 4 (2.6%) respondents opined that use of a chatbot increases the likelihood to buy something from an e-store by 10%. 4 (2.6%) respondents opined that use of a chatbot increases the likelihood to buy something from an e-store by 80%. 4 (2.6%) respondents opined that use of a chatbot increases the likelihood to buy something from an e-store by 10%. 2 (1.3%) respondents opined that use of a chatbot increases the likelihood to buy something from an e-store by 20%. 1 (0.7%) respondent opined that the use of a chatbot increases the likelihood to buy something from an e-store by 90%.

4.5 Nominal Variable Association

The researcher analyzed the association between the usefulness of the chatbot function and bad customer experience after the purchase. The results are presented in Table 4.17.

Table 4.17: Association between Usefulness of Chatbot Function after Purchase and Bad Customer Experience after Purchase

	Value	Approximate significance
Phi	.417	.000
Cramer's V	.417	.000
Contingency Coefficient	.385	.000

The findings show that there is a strong positive and significant association between the usefulness of chatbot function after purchase and bad customer experience after purchase

(Phi = 0.417, sig < 0.05; Cramer's V = 0.417, sig < 0.05; Contingency Coefficient = 0.385, sig < 0.05). This implies that the more the users of chatbots perceive them as useful, the more the customer experience after purchase is likely to be bad.

The researcher analyzed the association between each usefulness of chatbot use and good customer experience before purchase. The results are presented in Table 4.18.

Table 4.18: Association between Usefulness of Chatbot Function and Good Customer Experience Before Purchase

	Value	Approximate significance
Phi	.228	.049
Cramer's V	.228	.049
Contingency Coefficient	.222	.049

The findings show that there is a moderate positive and significant association between the usefulness of chatbot usage and good customer experience before purchase (Phi = 0.228, sig < 0.05; Cramer's V = 0.228, sig < 0.05; Contingency Coefficient = 0.222, sig < 0.05). This implies that the more the users of chatbots perceive them as useful, the more the customer experience after purchase is likely to be good.

4.6 Probit Regression Analysis

4.6.1 Usefulness of Chatbot Function and Bad Customer Experience after Purchase

The researcher examined the fitness of the probit regression model for the usefulness of Chatbot Function and Bad Customer Experience after Purchase as shown in Table 4.19.

Table 4.19: Test of Model Effects for Usefulness of Chatbot Function and Bad Customer Experience after Purchase

Source	Wald Chi-square	Type III df	Sig
(Intercept)	91.734	1	.000

The findings indicate that the probit model was significant (Wald Ch-square = 91.734; Sig < 0.05). This implies that the usefulness of the chatbot function could predict a bad customer experience after purchase as the significance level was less than 0.05.

The researcher examined how the usefulness of the chatbot function predicts the likelihood of a bad customer experience after purchase as shown in Table 4.20.

Table 4.20: Parameter Estimates for Usefulness of Chatbot Function and Bad Customer Experience after Purchase

Parameter	B	Wald Chi-square	df	Sig
(Intercept)	-1.617	91.734	1	.000
(Scale)	1			

The findings indicate that the usefulness of the chatbot function significantly predicts the likelihood of a bad customer experience after purchase (Wald Chi-Square = 91.734; sig < 0.05).

4.6.2 Usefulness of Chatbot Function and Good Customer Experience before Purchase

The researcher tested the fitness of the probit regression model for the usefulness of Chatbot Function and Bad Customer Experience after Purchase as shown in Table 4.21.

Table 4.21: Test of Model Effects for Usefulness of Chatbot Function and Good Customer Experience Before Purchase

Source	Wald Chi-square	Type III df	Sig
(Intercept)	22.824	1	.000

The findings indicate that the probit model was significant (Wald Ch-square = 22.824; Sig < 0.05). This implies that the usefulness of the chatbot function could predict a good customer experience after purchase as the significance level was less than 0.05.

The researcher examined how the usefulness of the chatbot function predicts the likelihood of a good customer experience before purchase as shown in Table 4.22.

Table 4.22: Parameter Estimates for Usefulness of Chatbot Function and Good Customer Experience before Purchase

Parameter	B	Wald Chi-square	df	Sig
(Intercept)	-.511	22.824	1	.000
(Scale)	1			

The findings indicate that the usefulness of the chatbot function significantly predicts the likelihood of a good customer experience before purchase (Wald Chi-Square = 22.824; sig < 0.05).

Chapter Five

Summary, Conclusion, and Recommendations

5.1 Introduction

This chapter presents the summary of findings, conclusion, and recommendations. The research was necessitated by the need to examine whether the usage of AI chatbots has positive or negative effects on customer experience, regarding the purchase of products and services. The researcher was interested in finding out whether the usage of intelligent customer service in e-commerce always leads to better customer experience or not. The researcher first hypothesized that if a customer uses a chatbot after the purchase, he/she is more likely to have a negative experience. It was also hypothesized that if a customer uses a chatbot before the purchase, he/she is more likely to have a better customer experience. The researcher adopted a descriptive research design to answer the research questions. A survey was conducted among students at the University of Vienna. Data were analyzed using descriptive statistical tools namely, standard deviation, frequencies, means, and percentages. Association and probit regression analyses were the inferential tools of analysis.

5.2 Summary

It was found that 151 (100.0%) respondents have used a chatbot at least once in e-commerce. The results show that 96 (63.6%) respondents agreed that they used chatbots before and after purchase. It was found that respondents used chatbots before purchase to better understand the service (47.0%), and the product (15.2%), talk to a sales representative (14.6%), ask a question about delivery (9.3%), and find a specific section of the website (6.0%).

The findings demonstrate that respondents used a chatbot after the purchase to complain (42.4%), cancel the order (35.1%), talk to a sales representative (18.5%), and ask a question about delivery (4.0%). On the one hand, 143 (94.7%) respondents agreed that they used chatbots after the purchase because they had a bad customer experience. On the other hand, 105 (69.5%) respondents agreed that they used chatbots after the purchase because they had a good customer experience. It was established that 73 (48.3%) respondents rated the correlation between usage of AI such as chatbots and good customer experience at 9 out of 10. 45 (29.8%) respondents rated the correlation between usage of AI such as chatbot and good customer experience at 10 out of 10.

Additionally, 103 (68.2%) respondents opined that the chatbot function is useful. 29 (19.2%) respondents opined that the chatbot function is very useful. The findings indicate that respondents opined that using a chatbot is disadvantageous as it is too mechanical (35.8%), leads to loss of customer insights (35.8%), and requires continuous maintenance (9.9%). On the other hand, 67 (44.4%) respondents voted that using a chatbot is advantageous due to 24-hour service, 67 (44.4%) due to personalized services, and 27 (17.9%) due to cost reduction.

The survey determined that 55 (36.4%) respondents opined that the use of chatbots increases the likelihood to buy something from an e-store by 60%. 40 (26.5%) respondents opined that the use of chatbots increases the likelihood to buy something from an e-store by 50%.

The researcher examined the relationship between the usefulness of the chatbot function and customer experience. The perception of how useful the chatbot is to users shows how

conversant the customers are with chatbots. It shows the importance that customers place on chatbot usage in e-commerce. Examining the strength and direction of the relationship between the perceived usefulness of chatbots and good/bad customer experience supports decision-making by businesses. The need to educate customers about the usefulness of chatbots and improve the effectiveness of the chatbot function is assessed.

The findings show that there is a strong positive and significant association between the usefulness of chatbot function after purchase and bad customer experience after purchase ($\Phi = 0.417$, $\text{sig} < 0.05$; Cramer's $V = 0.417$, $\text{sig} < 0.05$; Contingency Coefficient = 0.385, $\text{sig} < 0.05$). This implies that the more the users of chatbots perceive them as useful, the more the customer experience after purchase is likely to be bad. The findings indicate that the usefulness of the chatbot function significantly predicts the likelihood of a bad customer experience after purchase (Wald Chi-Square = 91.734; $\text{sig} < 0.05$).

The findings show that there is a moderate positive and significant association between the usefulness of chatbot usage and good customer experience before purchase ($\Phi = 0.228$, $\text{sig} < 0.05$; Cramer's $V = 0.228$, $\text{sig} < 0.05$; Contingency Coefficient = 0.222, $\text{sig} < 0.05$). This implies that the more the users of chatbots perceive them as useful, the more the customer experience after purchase is likely to be good. The findings indicate that the usefulness of the chatbot function significantly predicts the likelihood of a good customer experience before purchase (Wald Chi-Square = 22.824; $\text{sig} < 0.05$).

5.3 Conclusion

The study concludes that chatbots are widely used in e-commerce by the respondents of the survey. The usage of chatbots significantly increases the likelihood to buy something from an e-store.

It was concluded that customers who used chatbots after the purchase had both bad and good customer experiences. The usage of chatbots enables users to better understand the service and the product, talk to a sales representative, ask a question about delivery, and find a specific section of the website.

The study terminated that the correlation between the usage of AI such as chatbots and good customer experience is positive. There is strong a positive and significant association between the usefulness of the chatbot function after purchase and bad customer experience after purchase. The usefulness of the chatbot function significantly predicts the likelihood of a bad customer experience after purchase.

The researcher indicated that there is a moderate positive and significant association between the usefulness of chatbot usage and good customer experience before purchase. The usefulness of the chatbot function significantly predicts the likelihood of a good customer experience before purchase.

5.4 Recommendations

The study recommends that chatbots should be adopted by businesses in e-commerce to increase both online and physical customer bases. The use of chatbots will enable

businesses to attract potential customers online, given that using chatbots increases the likelihood that a customer will make purchases from an electronic store.

The researcher suggests that businesses consider adding an extra interface in the chatbot platform which will enable customers to give their feedback before and after purchase. The platform should allow customers to rate their level of satisfaction with products or services offered. The businesses should then use the feedback to explore ways of improving customer experience.

Moreover, businesses should consider adding more features to chatbots to allow customers to get adequate information that they require concerning the products and services offered. The platform should have features such as links to a customer service center and links that help customers track the products they have purchased.

Additionally, customers should be educated about the benefits of using chatbots. This will help them to better understand the positive experiences associated with online purchases using chatbots. This will also change their fallacious negative perceptions about using chatbots and strengthen their current positive attitudes toward using them. The more the respondents perceive chatbots as useful, the more they will keep using them. The eventual benefits will flow to the business.

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Appendix III: Survey

Consumer Perspectives on chatbots in eCommerce

In my master's thesis "**Artificial intelligence - possible uses in e-commerce**" with focus on customer experience I am trying to answer the question whether usage of chatbots in eCommerce always leads to a better customer experience. In order to do so, I am conducting this survey to better understand the impact of using a chatbot.

* Required

1. Have you ever used a chatbot in e-commerce? *

Mark only one oval.

☐ Yes *Skip to question 2*

☐ No

Target group

2. Do you study at the University of Vienna? *

Mark only one oval.

☐ Yes *Skip to question 3*

☐ No

Consumer Perspectives on AI in eCommerce

3. Did you use a chatbot before or after the purchase or both? (you can choose multiple answers)

Check all that apply.

- ☐ before the purchase
☐ after the purchase

4. Why did you use it BEFORE the purchase? *

Mark only one oval.

- ☐ to better understand the product
☐ to better understand the service
☐ to find a specific section of the website
☐ to ask a question about delivery
☐ to negotiate
☐ to talk to a sales representative
☐ Other: _____

5. Why did you use it AFTER the purchase? *

Mark only one oval.

- ☐ to find information on how to cancel the order
☐ to complain
☐ to find a specific section of the website
☐ to ask a question about delivery
☐ to talk to a sales representative
☐ Other: _____

6. If you use a chatbot AFTER the purchase does it mean you had a BAD customer experience? *

Mark only one oval.

☐ Yes

☐ No

7. If you use a chatbot BEFORE the purchase does it mean you had a GOOD customer experience?

Mark only one oval.

☐ Yes

☐ No

8. Does the usage of AI such as chatbot positively correlate with a good customer experience? *

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
no	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	yes

9. How useful is the chatbot function? *

Mark only one oval per row.

	1-not very useful	2-kind of useful	3-useful	4-very useful
chatbot	☐	☐	☐	☐

10. What are the advantages of using a chatbot for you? (you can choose multiple answers) *

Check all that apply.

- ☐ There are no advantages
- ☐ 24-hour service
- ☐ Personalized services
- ☐ Cost reduction

11. What are the disadvantages of using a chatbot for you? (you can choose multiple answers) *

Check all that apply.

- ☐ There are no disadvantages
- ☐ Too mechanical
- ☐ Continuous maintenance
- ☐ Loss of customers insights

12. By how much does chatbot increase the likelihood to buy something from an e-store? (1=10%
2=20%....10=100%)

Mark only one oval.

	1	2	3	4	5	6	7	8	9	10	
0%	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	100%

[Skip to question 13](#)

Geographic
information

To better understand your responses I need to know your age, sex and the country you are living in.

13. Are you studying Business Administration at the University of Vienna? *

Mark only one oval.

☐ Yes

☐ No

14. Choose your age group *

Mark only one oval.

☐ <18

☐ 18 - 35

☐ 35 - 60

☐ >60

15. What is your sex? *

Mark only one oval.

☐ female

☐ male