



JÖNKÖPING UNIVERSITY

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Impact of Artificial Intelligence on Customer Experience

A mixed-methods approach to study the impact of
Artificial Intelligence on Customer Experience with
Voice of Customer as the mediator

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Abstract

Background: In the contemporary world, the emergence of artificial intelligence has brought about a revolutionary change in customer experiences. Businesses, in analyzing numerous data observations, are aiming to improve customer journeys, from the point of purchase until after the product is used, by making the entire process convenient, satisfactory, and efficient. Due to increasing competition, customer satisfaction has become the utmost priority for businesses; hence, businesses are striving to capture the voice of customers to increase customer satisfaction using artificial intelligence. Therefore, the intersection of artificial intelligence, voice of customer, and customer experience has emerged as a domain that has gained widespread popularity in the last decade.

Purpose: To examine, analyze, and evaluate the effect of artificial intelligence on customer experience with the voice of the customer as the mediator.

Method: The primary instruments of data collection were structured questionnaires and semi-structured interviews. The sample constituted 197 respondents – customers of a technology-driven company, *Daraz*, located in the city of Lahore in Pakistan. Direct and Indirect relationships between artificial intelligence, voice of customer, and customer experience were measured using correlational and mediation analysis.

Conclusion: In the quantitative analysis, artificial intelligence was found to correlate statistically to customer experience. The voice of customer was discovered to have a partial mediation effect on the relationship between artificial intelligence and customer experience. In the qualitative analysis, it was discovered that artificial intelligence could become a significant part of business strategy to improve customer experience only if the costs associated with it are minimized.

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1. Introduction

1.1 Background

The business paradigm has changed dramatically in the last few years, courtesy of the emergence of digital transformation. Revolutionary technological change constitutes the development of a variety of tools, including but not limited to artificial intelligence. Tools like artificial intelligence have helped businesses engage more customers, thereby increasing their profits substantially. For instance, large-scale businesses have developed complex artificial intelligence centers for a variety of purposes: data sourcing, data exploration, and data utilization for making accurate predictions. Small-scale businesses have engaged with artificial intelligence to indulge in technological leapfrogging – bypassing the traditional stages of development towards sustainable development. Artificial intelligence is emerging as a tool to rely on for all departments of any business, especially marketing. Especially in the last few years, artificial intelligence has been implemented in differing aspects of marketing to deliver better value to customers (Jarek & Mazurek, 2019). With the increasing competition, customer utility has become a goal for every business strategy. It is hypothesized that, by 2025, 95 percent of all interactions with customers will occur through mediums supported by artificial intelligence (*How AI Is Powering the Future of the Customer Experience*, 2017). Artificial intelligence assists businesses in providing a convenient, interactive, and friendly experience to customers, driving customer loyalty, and improving customer utility. In doing so, businesses have started implementing artificial intelligence in various aspects of their

operations. Billions of data entries are exploited, and relationships are drawn between variables to predict driving forces behind customers' choices. When done adequately and accurately, customers began to experience an enhanced customer experience. As artificial intelligence emerges as a key driver in improving the customer experience, studies in this domain have attracted widespread popularity in the last decade. Among all these studies, there are only a few studies that emphasize the key elements that result in a change in the customer experience. Hence, this study aims to bridge the gap in academic literature by focusing on how artificial intelligence provides an improved customer experience through capturing the needs and wants of the customers. Before doing so, it is important to understand the definitions behind the key terms in our study.

1.2 Customer Experience

"Customer Experience" is the customer's internal and subjective response to indirect or direct contact with a business. Indirect contact constitutes impromptu encounters with a business's products/services through word-of-mouth criticisms, recommendations, advertisements, recommendations, and news reports. Direct contact often occurs during the purchase or use of a product/service and is usually initiated by the customer (Schwager & Meyer, 2007).

Customer experience was first introduced in the 1960s and gained prominence in the 1970s. Rogers Research – a consultancy – was the early pioneer of customer experience that focused on customer satisfaction scores so that it would translate to improvement in the performance of its employees. With time, customer experience began to gain momentum, and businesses started to adopt customer-focused initiatives, and the mid-1990s became what is described as the 'Golden Age' of

customer experience (Väänänen, 2022). Early on, the customer experience campaigns primarily focused on generalized and observational customer reactions gathered through rudimentary marketing tools and technology like phones. At the time, the 'four Ps' (place, promotion, product, price) were considered as the most significant factors in influencing customers; however, with time, customer experience has emerged as an extraordinarily complex process that can significantly influence customers.

In the contemporary world, data processing and technological innovation have allowed companies to develop systems and tools to gather more accurate and bespoke data, simultaneously increasing customer satisfaction and revenue. Brands have started utilizing customer experience as their unique selling point; thus, they have started to offer customer support and gold-standard service to the customers. In science, experts have begun to contribute to developing customer experience. For instance, psychologists have begun to share the aspects linked with customer engagement and behavior. In fact, in 2002, Daniel Kahneman was awarded the Nobel Prize for his research on how sociological and psychological factors can significantly affect business strategy (Väänänen, 2022). People seem to chase more personal and emotional relationships with their choices of products or services rather than seeking value from them. Many brands, like Rolls Royce or Apple, have become so synonymous with their customer experience that it is hard to imagine their existence without it. Building an adequate ecosystem is a tedious task as it requires collaboration on all fronts – prices, product description, and social media presence are just a few examples to ensure the desired customer experience.

The future age of customer experience entails a plethora of exciting domains and innovations in which customer experience has yet to be applied. For instance, facial

recognition technology has yet to be fully optimized despite being used widely for smartphone features. With these developments, businesses could achieve greater levels of improved customer sensitivity and understanding of customer experience. During Covid-19, people had to suffer hardships, and while it has finally begun to wear off, the diplomatic conflicts and financial hardships have replaced the challenges of the virus outbreak. Hence, customer experience has emerged with a new role - shouldering the emotional trauma of customers and creating services and ecosystems that reflect the external circumstances customers feel.

Additionally, customer experience could utilize the emerging domain of the Metaverse as significant conversations are happening between customer experience and marketing experts on the opportunities presented. For instance, the experts are discussing how brands could, one day, design stores in the virtual world catering to the specifications of individual shoppers of the virtual world (Väänänen, 2022). The ability to control variables, such as lighting and music, particular to the nature of the customer, will increase customer experience standards and open new doors. Finally, businesses have started to perceive customer experience as a crystal ball device as they can gather in-moment omnichannel feedback from customers by utilizing data-based trends and algorithms to keep the customers of tomorrow happy. The foresight approach is a significant part of the following age of customer experience – The Platinum Age.

As customer experience evolves, so does another modern-day invention – artificial intelligence.

1.3 Artificial Intelligence

In the contemporary world, an increasing dependence on artificial intelligent practices exists. Albeit being introduced 60 years ago, it is only recently that we have started to fully appreciate how valuable artificial intelligence, machine learning, and deep learning are in our daily lives. It is evident in our daily lives, and examples of this can be found all around the business world. Before diving deeper into the depths of artificial intelligence, it is imperative to understand what the term 'artificial intelligence' entails. Broadly, the term 'artificial intelligence' would apply to any machine with features or characteristics like the human mind, such as critical thinking, learning, problem-solving, and strategic analysis. Narrowly, 'artificial intelligence' refers to algorithms, programs, machines, and systems that demonstrate intelligence (Vlačić et al., 2021). Considering both definitions, we could derive our definition of 'artificial intelligence' as the replication of human intelligence functions by machines or computer systems.

Artificial intelligence programming focuses on cognitive skills that include the following: learning is concerned with gathering data and formulating the rules necessary to transform it into helpful knowledge where the guidelines, also known as algorithms, give computing equipment detailed instructions on how to carry out a particular activity (Burns et al., 2023); reasoning is concerned with selecting the best algorithm to achieve a particular result (Mulla, 2021); self-correction is concerned with continuously improving algorithms and making sure they deliver the most precise results (Burns et al., 2023); creativity is concerned with new ideas, texts, images, and music, which are created using neural networks, rules-based systems, statistical techniques, and other artificially intelligent tools (Mulla, 2021). There are many types of artificial intelligence: reactive machines, being the most fundamental forms, are reactive robots that do not retain memories or past experiences for future

use as they are only focused on the present, and they respond in the best way they can (e.g., IBM's Deep Blue System); limited memory machines have a small amount of memory to temporarily store little data and memories of the past which can only be accessed for a short period (e.g., self-driving vehicles); theory of mind machines do not exist yet, but they will be able to connect socially with humans and comprehend people's emotions and opinions; self-aware machines, being the future of artificial intelligence, will possess consciousness, feelings, and self-awareness. Businesses and customers are exploiting the usefulness of artificial intelligence to the full extent.

Businesses are integrating artificial intelligence into their business models for: processes are being automated to increase efficiency, thus increasing the speed and reliability of the service; effective decision-making is undertaken using insights that were previously unreachable; tone detection and natural language processing (NLP) allows chatbots improve accessibilities, thus enlarging the market for the product or service. Additionally, businesses use artificial intelligence for product optimization, inventory management, and shipping (Burns et al., 2023). Artificial intelligence has also seeped into customers' lives when they are routinely given personalized suggestions based on their previous searches, purchases, and other online behavior. Other possible artificial intelligence uses include machine learning, cybersecurity, customer relationship management (CRM), internet searches, and personal assistants.

The implementation of artificial intelligence has brought with itself the capability of capturing wants, needs, and desires of customers.

1.4 Voice of Customer

The voice of the customer, also known as the customer's voice, is the data gathered from customers regarding their likes and dislikes, behaviors and interests, opinions,

and demographics. The customers' feelings, expectations, and remarks about the brand can be recorded, studied, and made public. This data enables effective customer communication and enables businesses to provide the appropriate information, goods, and services.

Voice of customer can be found in several places, including but not limited to face-to-face meetings; focus sessions; surveys for market research; observational data (following and shadowing customers); customer advisory boards role-playing; collection of environmental and landscape data; trade exhibitions and conferences; UI/UX data gathering.

The significance of the voice of the customer can be determined by its entailed advantages. Consistently sourcing customers and potential customers' preferences will enable businesses to: increase their revenue due to the improvements in the quality of their products or services using the suggestions and opinions of its customers, improve customer satisfaction rates, meaning high customer retention rates and client acquisition rates, as customers will be satisfied when their preferences will be heeded and acted upon by businesses to improve their services (e.g., online reviews affecting customer purchases); gain a competitive edge in the market because competitors might not have integrated voice of customer into their business models; identify potential brand crises and early warning signs because businesses will uncover insights that will allow them to prevent disasters or crises that might lead to more significant problems if not addressed quickly.

Louis (2020) claims that the value voice of customer programs provide is an accurate outside-in view from the perspective of the customer with the top ones offering data to inform strategy as he explained many ways that artificial intelligence can boost

customer voice programs: An artificial intelligence-based study of the journey of the customer helps create new campaigns to retain consumers by identifying the factors that drive some customers to churn more quickly than others; using algorithms to do text mining across all sources of unstructured and textual data to assess the sentiment of customers; speech analytics may now incorporate text-based consumer feedback, contact center conversations, and operational data from all customer touch points; cloud-based speech analytics platforms, such as Amazon Connect, can be used to get rid of the challenges associated with starting and optimizing voice of customer programs across many regions and languages; call centers are changing from being first-line service providers to strategic differentiators that significantly boost customer satisfaction and financial performance using artificial intelligence; a real-time multidimensional picture of caller and agent-based intonation, sentiment, and performance-based attitude, as well as the relative changes in each, can now be found on a single integrated dashboard using machine learning techniques; with setting customer risk thresholds before they defect to a competitor, Net Promoter Score (NPS), data is being combined with artificial intelligence-driven insights obtained from real-time customer behavioral and operational data; high cost of customer churn is decreased and retention rates are increased when service recovery techniques are personalized for each client using artificial intelligence; using an automated six sigma-based quality strategy, troubleshooting consumer onboarding to streamline and enhance initial client encounters; learning how brand reputation and consumer loyalty are affected by upsell, cross-sell, campaigns, and promotions, especially in light of new channels like e-commerce and mobile platforms.

With regards to all the points mentioned before, capturing the voice of customer remains a noteworthy aim for many organizations around the world.

1.5 Customer Experience (CX), Artificial Intelligence (AI), Voice of Customer (VoC)

The intersection between customer experience, artificial intelligence, and the voice of customer can be interpreted as artificially intelligent tools capturing the voice of customers to improve the customer experience. Statistically, this is represented as the impact of artificial intelligence on customer experience with the voice of customer as the mediator. The purpose of this study is to examine, analyze and evaluate the domain where these three variables intersect.

In the past, significant literature has been published with regards to how artificial intelligence is used to capture the voice of the customer and how it improves customer experience. For instance, it has been established that one of the ways that this could occur is when real-time customer engagement, made possible by artificial intelligence-integrated CRM, aids in developing contextually relevant customer interactions, leading to the identification of the precise solution and good/service that the customer seeks. Another example is artificially intelligent assistants who can forecast and offer items and services to clients based on their preferences for quality, price, features, and other factors. Artificially intelligent tools and assistants could dominate all kinds of markets soon as businesses seek to utilize the benefits provided by artificial intelligence to capture the voice of customer to improve customer experience. These benefits are significant for marketers who aim to increase the revenue brought in by the product or service through advertising and promotions. Research suggests that artificial intelligence is also a helpful tool that can increase the effectiveness and productivity of marketers through lead scoring, automated email conversations, predictive analytics, customer insights, and personalized customer experiences. Additionally, Syam and Sharma (2018) emphasize how using machine

learning and artificially intelligent tools gives marketers more statistical power, vastly increasing their productivity when performing tasks like market segmentation, more precise demand and sales forecasting, and target market identification. Regarding all these points, a statistically significant impact of voice of customer, captured through artificially intelligent tools, might exist on customer experience. Therefore, this study aims to gauge if such a relationship exists and quantify the relationship in terms of direction and strength through quantitative analysis techniques.

2. Literature Review

Islam and Rima (2013) conducted a comprehensive study on customer experience. The study aimed to determine the factors that statistically influence customer experience in telecommunications services and brand equity industries. The primary instrument of data collection was telephone and online surveys. The authors recruited a sample of 100 respondents. To analyze the data, the authors employed three quantitative techniques: reliability testing, hypothesis testing, and multiple linear regression. The authors focused on five independent variables as factors: value-added services, promotional activities, product variations, customer service, and core service. Only three factors, namely product variations, promotional activities, and core service, significantly influenced customer experience. The other two factors, value-added services, and customer service were found to have no statistically significant influence on customer experience. The study focused on customer experience as the primary variable of interest. Despite being a comprehensive study, it was performed on respondents with a minimal idea about customer experience. Additionally, the respondents were only limited to Dhaka in Bangladesh. Therefore, the study's results could not be generalized to people elsewhere. Hence, while this study provides enough justification to use customer experience as a

variable, it has limitations that provide us with more justification to research the variable of customer experience in Pakistan.

Banik and Gao (2023) also conducted a detailed study on customer experience. The study aimed to observe the impact of the hedonic factors (e.g., entertainment, aesthetics, mental imagery) affecting customer experiences. For the study, the authors recruited a sample of 237 customers who had purchased from phygital retail outlets in China. Phygital retail outlets constitute phygital features in terms of physical (hardware, product, interior design, sales associates, inventory system) and digital (smart mirror, kiosk, digital screen, service robots). The authors included only those phygital retail outlets which sold apparel, shoes, and accessories. The authors analyzed the data using a structural equation model based on partial least squares. The study's results indicated that the above-mentioned hedonic factors have a statistically significant impact on customer experiences, affecting customer decision satisfaction. This study used customer experience as the primary variable of interest, which forms the justification for using this variable in our study. Although comprehensive, one limitation was that the study was conducted in China, where the socio-demographic factors differ significantly from the Pakistani population.

Chen et al. (2022) conducted a detailed study on artificial intelligence (AI). The study aimed to investigate the internal components of artificial intelligence capability (AIC). The study listed the independent variables of AIC, driving decision-making, firm creativity, environmental dynamism, innovation culture, and artificial intelligence management (AIM). The study aimed to investigate the impact of these variables on an e-commerce firm performance – dependent variable. The primary data collection instrument was a scaled questionnaire translated into Chinese and cross-checked by a third party to ensure accuracy. The sample consisted of 441 responses, of which 394 were valid. The authors employed the PLS structural equation modeling (SEM) to examine the

interrelationships between multiple independent variables and one or more dependent variables. The study indicated that AIC indirectly impacts firm performance through AI-driven decision-making, artificial intelligence management (AIM), and creativity. The study provides evidence that AI could be leveraged to improve firm performance, acquire a competitive advantage and contribute to management and theory practice. One limitation of the study was that it solely focused on e-commerce firms in China. Secondly, the variable of firm performance was evaluated through subjective evaluations of the respondents and did not cover the financial data of the relevant firms. Thirdly, the study was cross-sectional and did not consider longitudinal changes in AIC and firm performance.

Arutgeevitha et al. (2023) conducted an elaborate study on artificial intelligence (AI). The purpose of the study was to analyze how artificial intelligence is affecting digital marketing. Another purpose of the study was to analyze the strategies used in digital marketing. Finally, it also aimed to predict the customer's needs and wants. The primary instrument of data collection was questionnaires. The authors used the sampling technique of convenience sampling to recruit 122 respondents from Coimbatore cities. The methodology used in the study focused on descriptive analysis and correlational analysis. The study's results indicated a positive and significant relationship of positive 0.8 between AI in digital marketing and customer sales and profits. There were many limitations to the study. Firstly, the study should have mentioned how implementing AI in digital marketing would transform companies. Secondly, it is not easy to believe that a correlation of a positive 0.8 exists between AI in digital marketing and customer sales and profits. A high positive number like this indicates possible bias in the study.

Obradović et al. (2020) realized the significance of the Voice of Customer (VoC) for an organization's success. It focused on the demotivating and motivating factors influencing

a customer's decision to provide or not provide feedback on an organization's service quality. The study aimed to observe how personal beliefs on the impact of feedback, the awareness of the issue of providing feedback, expectations from the relevant organization, and the organization's culture influence the customer's decision to give feedback. The study used a questionnaire as its primary instrument of data collection. The authors employed the sampling method of convenience sampling to recruit 471 respondents. The study used structural equation modeling (SEM) analysis to analyze the data. The study's results indicated that organizational culture and awareness positively impact the customer's choice to provide feedback, and the expectations from the relevant company would negatively impact the customer's choice to provide feedback. Additionally, according to the study's results, personal beliefs did not directly influence a customer's willingness to leave feedback. The first limitation of the study is that it is a cross-sectional study. Secondly, a better sampling method could have been used as an alternative to convenient sampling. Overall, the study recognized the significance of the Voice of the Customer (VoC) in an organization's success, making it a significantly worthy variable to study.

Bae et al. (2005) conducted a study on the voice of customers (VoC). The study aimed to develop a web-based system to analyze the voices of call center customers of a life insurance company. It would ultimately lead to a greater understanding of customer needs and consistent decisions relating to customer support. The study was conducted on a sample of customer complaints from the service operation of a target company. Data mining and statistical techniques were employed to determine the effectiveness of the web-based system. The study results indicated specific problematic areas where complaints occurred using one-dimensional analysis. The study's results also determined the relationship between the problems using two-dimensional analysis. Finally, the study's

results indicated the root cause of all the problems using failure mode and effects analysis. The most significant limitation of the study was that it needed to provide the audience with adequate details of the web-based system. However, it did demonstrate how capturing the voice of customers (VoC) could lead firms to identify significant problems in their operations.

Goorha and Iyengar (2021) published a white paper on the relationship between artificial intelligence (AI) and voice of customer (VoC) programs—the paper aimed to discuss the future of voice analytics and artificial intelligence in the post-Covid world. The paper discusses the rapid adoption of the Internet of Things (IoT) and voice-based AI. The authors argue that while data becomes the new currency, voice-based AI will raise concerns based on an opted-in use case of consumers relying on IoT devices in personal spaces (e.g., cars or home offices). The authors clarify that they intend to shed light on why AI and voice analytics matter and the potential for significant shifts in the ecosystem of voice-enabled technologies for consumers and businesses. The authors argue that there are two core trends at the core of disruption around voice analytics: adoption of cloud technologies and IoT that utilize machine learning (ML) and AI; advancements in psycholinguistic data analytics and affective computing that allow for inferring attitude, intent and emotions with data-driven modeling of voice. The study shows how Google has adopted a speech analytics framework within Google Cloud to create a data pipeline workflow to display analytics of transcribed audio files and visually represent the data. After giving other relevant examples, the authors conclude that voice-based AI can offer many potential advantages to humanity in the future but requires careful attention to the risks associated with it. In a broader sense, perception AI, which includes the sensory inputs of smell, vision, touch, and voice, can lead to relatively more humanized technology that significantly changes how customers and businesses interact.

Daqar and Smoudy (2019) conducted a study on artificial intelligence (AI). The study aimed to determine the role of artificial intelligence (AI) in enhancing customer experience (CX) through various industries, such as telecommunication companies and banks, in Palestine. The primary instruments of data collection were structured questionnaires and interviews. A sample of two companies was taken, and employees of these companies were interviewed to investigate how the implementation of AI could benefit companies. The primary data collection instrument was a close-ended questionnaire that examined internet users' behavior toward AI. The authors utilized both quantitative and qualitative techniques to analyze the data. The results of the study indicated that there is a positive significant relationship between customer experience and AI. Albeit it is a comprehensive study, the authors rightly pointed out one huge limitation of the study: the population in these two sample companies was low in Palestine, resulting in a small sample size. A small sample size may lead to bias. Additionally, both companies in the study only planned to implement AI into their operations, meaning that all of the data was based on projections and hypotheses.

Li et al. (2023) conducted a study on artificial intelligence (AI), the voice of the customer (VoC), and customer experience (CX). The study aimed to test the hypothesis that negative customer experience has a significant relationship with voice AI failure. This study defines voice AI as conversational agents conducting tasks for or with humans. The authors used data from a telecommunications firm to evaluate the hypothesis. The independent variable was voice AI service failure. The dependent variable was customer complaint behavior. Customer emotion was tested to mediate the relationship between the independent and dependent variables. The authors used various econometric models to test the primary and mediation effects, primarily focusing on logit models. The study's results indicated that customer complaint behavior is significantly influenced by voice AI

failure, such that AI services failure increases the likelihood of complaints to a customer in a call center. More importantly, customer emotion plays a significant mediating role. These findings have implications for customer relationship management (CRM). One limitation of the study was that the constants in the regression models were statistically significant, meaning that customers might complain even if there is no voice AI service failure. Secondly, the research needs to focus on the causes of customer complaints.

2.1 Research Gaps

Most literature on the relationship between artificial intelligence, the voice of customer, and customer experience has contributed much information on the strengths and associations between these variables. However, there are some significant gaps in some of the literature. This study will account for some of those gaps. The strengths and weaknesses of the literature reviewed is shown in Table 1.

Table 1: *Comparative Literature*

Author/s	Research Design	Methodology	Strength	Weakness
Islam and Rima (2013)	Quantitative	MLR	Usage of Multiple Linear Regression; Population is Bangladesh; CEX as DV	Gap in Analysis
Banik and Gao (2023)	Quantitative	SEM	Population is China; CEX as DV	Gap in Method
Chen et al. (2022)	Quantitative	SEM	Population is China; AI as IV	Gap in Method
Arutgeevitha et al. (2023)	Quantitative	Correlational Analysis	Population is India; AI as IV	Gap in Analysis
Obradovic et al. (2020)	Quantitative	SEM	Allowed for variable development of Voice of Customer; VoC as DV	Gap in Population

Bae et al. (2005)	Quantitative	Data Mining	VoC as DV	Gap in Analysis
Goorha and Iyengar (2021)	Qualitative	Secondary Research	Relationship between AI and VoC	Gap in Population
Daqar and Smoudy (2019)	Quantitative and Qualitative	MLR	Quantitative and Qualitative; Relationship between AI and CEX; usage of Multiple Linear Regression	Gap in Analysis
Li et al. (2023)	Quantitative	Logit Regression	Relationship between AI, VoC, and CEX	Gap in Method

Note. AI refers to artificial intelligence; VoC refers to voice of customer; CEX refers to customer experience; DV refers to dependent variable; IV refers to independent variable; MLR refers to Multiple Linear Regression; SEM refers to structured equation modeling.

Firstly, there is a gap in analysis among the various literature reviewed (Islam & Rima, 2013; Arutgeevitha et al., 2023; Bae et al., 2005; Daqar & Smoudy, 2019). For instance, Islam and Rima (2013) does not incorporate artificial intelligence in their study; Arutgeevitha et al. (2023) used customer sales and profits as the dependent variable rather than customer experience; Bae et al. (2005) does not incorporate customer experience or artificial intelligence in their study; Daqar and Smoudy (2019) does not incorporate voice of customer in their study. It is worth noting that none of these studies analyze or evaluate the relationship between all three concerned variables – artificial intelligence, voice of customer, and customer experience. Therefore, the gap in analysis in these studies call for a comprehensive study on all concerned above-mentioned variables.

Secondly, there is a gap in population among the various literature reviewed (Goorha & Iyengar, 2021; Obradović et al., 2020). It must be noted that the findings of some literature reviewed are still somewhat generalizable to Pakistan since they have been performed on similar countries like China, India, Bangladesh, and Palestine.

However, there are two studies that have been performed on vastly different regions. Goorha and Iyengar (2021) conducted their study through secondary research that originated in United States of America. Similarly, Obradović et al. (2020) conducted their study in Serbia. Both of these countries have drastically different identities, cultures, religions, and geographies, consequently raising an alarm on the generalizability of their findings. This gap in population calls for a comprehensive study on all above-mentioned concerned variables in Pakistan.

Thirdly, there is a gap in methods among the various literature reviewed (Banik & Gao, 2023; Chen et al., 2022; Li et al., 2023). For instance, Banik & Gao (2023) and Chen et al. (2022) both use structured equation modeling (SEM) for their analysis. While it entails many advantages, including but not limited to controlling measurement error and estimation of latent variables, it is worth noting that, in the context of this study, it is not a preferred method. It is because the examination of multiple variables in SEM requires very large sample sizes (Beran & Violato, 2010). It is not possible to have a large sample size. It is because the sample consists of customers of businesses, and businesses are very hesitant to reveal the details of their customers. Therefore, using SEM as a method will lead to misleading results. Similarly, Li et al. (2023) employs logistic regression to study the relationship between artificial intelligence, voice of customer, and customer experience. The logistic regression also may not be accurate when the sample size is too small, consequently leading to biased results. This gap calls for another quantitative

technique that can be used for analysis. Furthermore, incorporating qualitative analysis with the quantitative one will comprehensively add detail to the study itself.

This study will focus on artificial intelligence, voice of customer, and customer experience in the context of Pakistan. It will produce results that are either similar or different relative to previous studies in the west. If the results are similar, it will enhance the external validity of the results. If the results are different, it will entail new insights which would help inform businesses and customers on the strengths and limitations associated with the implementation of artificial intelligence. It would also inform them about how the voice of customer mediates the association between artificial intelligence and customer experience. On a larger scale, this study would likely benefit social aspects as understanding of these relationships would increase the utility of the population and make their lives relatively more convenient. The advent of the age of digital transformation, particularly artificial intelligence, has created more opportunities for businesses to transform their business models such that they can directly cater to the wants, needs, and desires of their customers. This study will engage in quantitative and qualitative techniques to evaluate the relationships between artificial intelligence, voice of customer, and customer experiences. The study's results will prove to be significant for businesses and customers alike. It is because businesses will be better able to gauge how the implementation of artificial intelligence can affect customer experiences. It will allow customers to gain knowledge and awareness of how artificial intelligence is being used to capture their voices.

3. Hypotheses Development

In recent decades, customer relationship management (CRM) has experienced significant developments. It includes the expanding adoption of automated mediums of interactivity between businesses and their customers (Bitner et al., 2000; Ostrom et al., 2015). For instance, some of the initial types of automated customer relationship management systems were automatic notifications and automated responders (Dysart, 1999). With the increasing adoption of artificial intelligence, these systems have become more complex in nature (Van Doorn et al., 2016). It is argued that customer relationships and interactions are set to become much more complex for businesses as automated mediums are set to increase in the future since the goal is to make machines replicate human functions (Boden, 1977). The crux of the customer relationship management is the database of customers that may constitute information about socio-demographics (age, gender, income level, education), previous interactions with customers (complaints and services, offers made and their respective responses), and the purchase history of customers (Wiernega & Van Bruggen, 2009). The data is used for a variety of purposes, including but not limited to prediction of the responses of customers to new offers and prediction of the retention of customers. However, there is only a limited literature available on the impact of artificial intelligence on marketing, which also reflects the necessity of this topic. For instance, Parise et al. (2016) conducted a study over solving the ‘crisis of immediacy’ through use of real-time servicing and virtual assistants. Bradlow et al. (2017) conducted a study over the use of data to conduct predictive analysis for optimization of pricing and to improve measure and target outcomes. In order to test this, we develop our first hypothesis:

H1: There is a statistically significant relationship between artificial intelligence and customer experience.

Our first hypothesis stems from earlier studies on customer relationship management. Most notably, early definitions of customer relationship management (Gronroos, 1990; Berry,

1983) and subsequent customer relationship management frameworks have established that management of customer relationships can be divided over a series of stages to the relationship lifecycle (Dwyer, 1987). These stages were termed as ‘CRM house elements’ with their respective artificial intelligence applications (Hopskin, 2018): attract/acquire, retain/maintain, enhance/develop, and terminate. The significance of these ‘CRM house elements’ lies in the overall idea they entail – artificial intelligence can improve customer experiences through effective customer relationship management. Dwyer (1987) proposed a general customer relationship framework, supporting H1, that the management of customer relationships can be divided over a series of stages – attract, retain, enhance, and terminate. Hopskin (2018) referred to these stages as the customer relationship management’s house elements. According to the general assumption, using artificial intelligence, in successfully achieving and completing these stages, a business is bound to enhance the customer experience of a customer. Therefore, it is imperative that we test whether artificial intelligence has a statistically significant impact on customer experience as shown in H1.

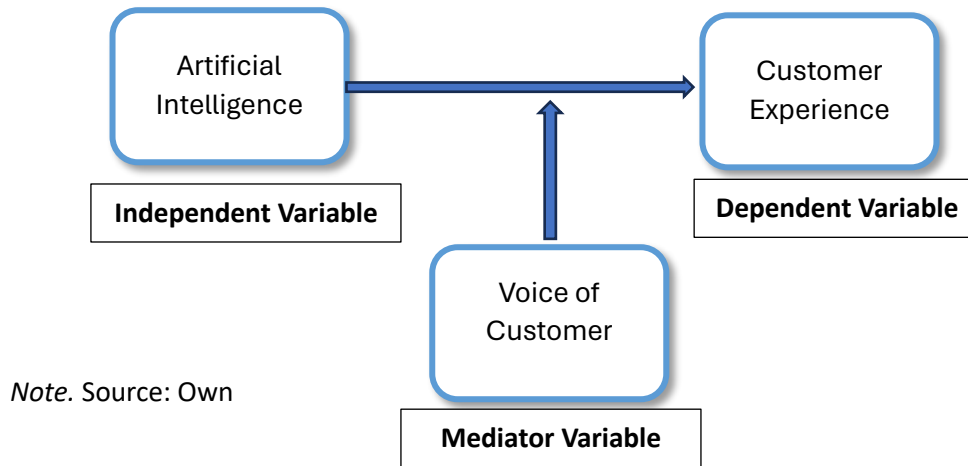
However, among all the literature reviewed, none of the studies incorporated voice of customer as the mediator of the relationship between artificial intelligence and customer experience. This gap in analysis, particularly in Daqar and Smoudy (2019), calls for incorporation of voice of customer as the mediator, which consequently leads to the development of our second hypothesis:

H2: There is mediating impact of the voice of customer on the relationship between artificial intelligence and customer experience.

To test this claim and understand the relationship between artificial intelligence and customer experience, the authors demonstrate Figure 1 that shows the relevant variables used in this study. The authors used these variables to evaluate the study’s hypotheses. From Figure 1, the

authors demonstrate artificial intelligence as the independent variable, voice of customer as the mediator variable, and customer experience as the dependent variable.

Figure 1: *Conceptual Framework*



Both alternative hypotheses are compatible with the existing customer relationship management theories (Dwyer, 1987; Hopskin, 2018) discussed previously. Dwyer (1987) proposed that the customer relationship can be divided into a series of stages – attract/acquire, retain/maintain, enhance/develop, and terminate. Hopskin (2018) built on this idea, termed the stages as ‘CRM house elements’, and proposed that these stages can be achieved through applications of artificial intelligence. Keeping this in mind, it is worth understanding the overall idea proposed by both authors is such that artificial intelligence can achieve the ‘CRM house elements’, consequently improving the customer experiences of the customers. Deriving this understanding, the above-mentioned alternative hypotheses are compatible with the existing customer relationship management theories proposed.

To test these hypotheses, we must carefully construct our research design.

4. Methodology

4.1. Deductive Approach

For our research, we have adopted a deductive research approach such that we will develop a research design to test out the articulated hypotheses. The hypotheses will be based on the existing theories explained in the following paragraphs. In this way, we will narrow information from a general to a more specific level (Pellissier, 2008). The reason for choosing a deductive approach is to test out whether the theories implying the causal relationships or links between our concerned variables exist or not (Gulati, 2009). In context, this means that deductive approach is suitable when testing out the causal relationships between artificial intelligence, voice of customer, and customer experience. Finally, we will be able to confirm or reject the developed hypotheses based on the results of the study. It will also allow us to modify the theory for a specific set of circumstances if the hypotheses are not confirmed.

4.2. Research Design

To test these hypotheses, the study must incorporate both quantitative and qualitative analysis. On top of the quantitative analysis, the qualitative analysis is added for several reasons. The mixed methods approach became imperative for the purposes of this study.

The quantitative analysis is justified based on the importance of understanding the relationship between artificial intelligence, the voice of the customer, and customer experience. However, it is also important to understand the detailed perspectives of businesses in relation to the factors of artificial intelligence, the voice of the customer, and customer experience. The qualitative analysis is implemented to reveal insights into the minds of the businesses as to how they apply artificial intelligence, what constraints they face in the application of the technology, and how does it lead them to capture the voice of the customer that would subsequently enhance the customer experience.

Moreover, it became necessary to use qualitative analysis to explore the relationship between the concerned variables as the concept is immature due to lack of previous research and knowledge. As already established before, there is absence of any research that shows whether the voice of the customer has any mediating impact on the relationship between artificial intelligence and customer experience. This is supported by Morse (1991) who claimed that the “characteristics of a qualitative research problem are: (a) the concept is “immature” due to a conspicuous lack of theory and previous research; (b) a notion that the available theory may be inaccurate, inappropriate, incorrect, or biased; (c) a need exists to explore and describe the phenomena and to develop theory; or (d) the nature of the phenomenon may not be suited to quantitative measures (p. 120). Therefore, it is useful to incorporate a mixed methods design because the quantitative and qualitative approach, on their own, are inadequate to better understand the research problem (Creswell, 1994).

Finally, to determine the impact of artificial intelligence on customer experience with the voice of customer as the mediator, it is vital to get insights from both consumers and business owners. Insights from consumers will allow us to gauge their behavior towards artificial intelligence. Insights from business owners will allow us to investigate how businesses benefit from implementing artificial intelligence. Hence, this study will implement a mixed methods approach to paint a clearer picture of the impact of artificial intelligence on customer experience with the voice of customer as the mediator.

The objective was to test out H1 and H2. The first step was to select a well-established technology-driven company in Pakistan. The decision to conduct the research in Pakistan was because of a variety of reasons:

1. Relevance to the research topic: Pakistan, being the author's birth region, allowed for unique access to local businesses and organizations, where the practical implementation of artificial intelligence in a diverse market could be explored.
2. Access to the local expertise: the author was able to tap into the local expertise of companies and professionals familiar with the region's business landscape and customer dynamics.
3. Practical application: the findings and recommendations of the research would have potential implications for businesses operating in Pakistan and similar markets. The findings would allow the research to offer practical insights and solutions that could benefit local companies.
4. Personal connection: the author's personal connection to the region facilitated networking and data collection efforts. The connection also piqued the author's interest in exploring the impact of artificial intelligence on customer experience in the region of author's birth.

After carrying out extensive research, it was discovered that *Daraz*, an e-commerce giant, has a significant footprint in Pakistan. There were a variety of reasons for choosing *Daraz*, most importantly because the company had been a front-runner in the artificial intelligence race in the region. Recently, the company has launched its own chatbot by integrating Microsoft Azure OpenAI service into its model to provide better customer experience to its South-Asian customers (Correspondent, 2023).

Additionally, the company has been recognized for empowering local businesses and uplifting local communities through its logistics marketplace (LMP) (Desk, 2023). It was discovered that they had already established their artificial intelligence department, which was working to implement chatbots, digital IVR, and voice

analytics to enhance the customer experience. Hence, it only became logical and apparent to the author that *Daraz* would fit in as the subject of the research. After coming to an agreement with the company, it was agreed that 300 customers of the company would be selected and contacted through random sampling. Upon emailing these randomly selected sample of 300 customers, we encountered some challenges:

1. Non-response: out of the 300 customers initially approached via email, 100 customers did not respond to the initial contact. Non-response is a common challenge in survey-based research, and various factors such as busy schedules or email delivery issues, can contribute to it.
2. Incomplete responses: of the 200 customers who did respond, 3 customers did not fill out the questionnaire correctly, rendering their responses unusable for analysis.

Despite these challenges, the final sample of 197 respondents provided valuable information for this research. While the sample size was slightly smaller than the initial target of 300, it was still statistically robust. It is worth noting that non-responses and data quality issues are a common occurrence in survey research, and we had anticipated it. Therefore, we took the steps to mitigate these challenges by sending follow-up reminders to non-respondents and carefully drafting the questionnaire to minimize errors in responses. The final sample, although slightly smaller, remained representative and suitable for research purposes.

4.2.1 Research Design – Quantitative Analysis

4.2.1.1 Time Horizon

This study wants to analyze the data from a population, or a representative subset, at a specific point in time. Therefore, this study will be a cross-sectional study.

4.2.1.2 Setting

The authors will conduct the study in a natural environment. However, the author will ensure that the participants do not engage in discussions with each other. This is to limit the transfer of ideas between the participants.

4.2.1.3 Population

For the quantitative approach, the population will include all users of the internet from the city of Lahore in Pakistan.

3.3.1.4 Sample Size

In the quantitative approach, the population consists of all customers of Daraz in Pakistan. The authors will select the customers randomly because of the large population size. Three hundred customers will fill in a questionnaire that will allow us to analyze and evaluate their behavior towards artificial intelligence. Out of these three hundred customers, 100 customers did not respond, and 3 customers did not fill out the questionnaire correctly, subsequently rendering the sample size to 197 respondents.

4.2.1.5 Source of Data

4.2.1.5.1 Primary Data – Questionnaires

The authors will collect the data first-hand at the time of the research, and its usability lies in its ability to give us basic knowledge of the

impact of artificial intelligence on customer experience with voice of customer as the mediator. The authors of this study will collect the data using questionnaires. The questionnaire will be close ended in nature except for the variable of age. The aim of the questionnaire will be to allow us to examine the behavior of customers towards artificial intelligence. It will consist of four sections. Apart from the demographic section, the authors will dedicate the other three sections to each of our variables – artificial intelligence, voice of customer, and customer experience. It is worth noting that the constructs of the questionnaire have been tested and used before (Table 1) (Daqar & Smoudy, 2019; Dutta & Saxena, 2020; Obradović et al., 2020, Xie et al., 2022).

4.2.1.5.2 Secondary Data – Literature Review

This data will consist of information that has already been studied, analyzed, and evaluated by other researchers. The author has already fulfilled the conditions of the secondary data through the in-depth literature review in the previous sections that shows the relationship between artificial intelligence and customer experience.

4.2.2 Research Design – Qualitative Analysis

4.2.2.1 Time Horizon

This study wants to analyze the data from a population, or a representative subset, at a specific point in time. Therefore, this study will be a cross-sectional study.

4.2.2.2 Setting

The authors will conduct the study in a natural environment. However, the author will ensure that the participants do not engage in discussions with each other. This is to limit the transfer of ideas between the participants.

4.2.2.3 Population

For the qualitative approach, the population will include all IT specialists and CEOs from the city of Lahore in Pakistan, especially those businesses that are technology driven.

4.2.2.4 Sample Size

In the qualitative approach, the authors will interview one technology driven service provider that will allow them to investigate how businesses are benefiting from implementing artificial intelligence. It is worth noting that the number of technology-driven service providers is low in the specified region, consequently explaining the reason for the small sample size.

4.2.2.5 Source of Data

4.2.2.5.1 Primary Data – Interviews

The interviews will be semi-structured in nature. The authors will conduct an interview with an IT specialist at Daraz which has implemented artificial intelligence into their business model. The authors will conduct the interview online on video call.

4.2.2.5.2 Secondary Data – Literature Review

This data will consist of information that has already been studied, analyzed, and evaluated by other researchers. The author has already fulfilled the conditions of the secondary data through the in-depth

literature review in the previous sections that shows the relationship between artificial intelligence and customer experience.

4.3 Variables

Table 1 shows the *variables* we intend to study. These authors used past literature to divide these variables into *sub-variables*. Questionnaires, constituting *items*, are used to gather information on all the *sub-variables*.

4.3.1. Dependent Variable – Customer Experience

For customer experience, the study chooses two sub-variables: personalized customer service and after-sales customer support (Daqar & Smoudy, 2019). Personalized customer service and after-sales support constitute two items (Xie et al., 2022) each as mentioned in Table 1. Personalized customer service is the process of helping customers who are willing and able to buy a certain product or service. The business assists the customer in deciding which product or service is the most suitable for them or even teaches the customer in how to make use of the product or service. Therefore, personalized customer service is used to deliver better quality and attract new customers. After-sales customer support is defined as providing the customer with the information required by them after the product or service has been purchased. It can include the installation, maintenance, and use of the product or service. After-sales customer support is used to establish long-term relationships with customers and buy their loyalty.

4.3.2. Independent Variable – Artificial Intelligence

For artificial intelligence, the study chooses three sub-variables: agent/bot messaging, digital IVR, and voice analytics (Dutta & Saxena, 2020). All

these sub-variables are composed of two items each as mentioned in Table 1. Agent/bot messaging refers to an AI program that augments conversations. The program is a human-like bot that will pop up at the right time to ask the appropriate questions. Most of the time, the bot can solve the customer's query but where it cannot, customers are passed onto agents that are best suited to help them. It is to dampen the frustration some customers feel when dealing with a bot-only solution. Bot/agent messaging is hypothesized to help customers be delivered right solutions as efficiently as possible. Digital IVR refers to an artificially intelligent solution where customers are encouraged to choose self-service rather than needing agent assistance. For instance, customers will observe visual cues on their phones and rather than holding their phone, they are transferred to self-service options or live digital agents. It is hypothesized that digital IVR will reduce mid-call drop-out rates and improve customer loyalty and satisfaction. Voice analytics refers to artificial intelligence analyzing real-time conversations to assist with customer service. The artificial intelligence program listens to the conversations and records the tone and the content of the conversation. It is to analyze the potential emotional state of the customers from how they speak. The agents are then provided with guidelines on how to deal with the customer. Human, an insurance company, finds that voice analytics as agents can handle calls much better than humans since they observed an increase of 28 percent in their net promoter score since implementing voice analytics. Therefore, voice analytics is hypothesized to improve customer service significantly well.

4.3.3. Mediator Variable – Voice of Customer

For the voice of customer, the study chooses five sub-variables: awareness, personal beliefs, organizational culture, expectations from a company, and decision (Obradović et al., 2020). All these sub-variables compose of one item each as mentioned in Table 2. Awareness refers to the awareness of the respondent about the procedure of the feedback, how had felt after leaving feedback, and their customer rights. Personal beliefs refer to beliefs of the respondent relevant to their customer rights to leave feedback and the consequences that could be triggered by the feedback (both negative and positive). Organizational culture refers to the business’s desire for feedback, the behavior of the employee during the service, and atmosphere. Expectations from the company refer to the expectations of the respondents from the company, whether there is a response from the business for the feedback, and the extent to which the response is elaborate. Decision refers to the readiness of the respondents to give feedback and if they would encourage their friends to do the same under a diverse set of circumstances.

Table 2: *Variables, Sub-variables, and Items*

Variables	Sub-Variables	Items
Customer Experience	Personalized Customer Service	During the service, I experience pleasant feelings
		Overall, I am satisfied with the service provider
	After-Sales Customer Support	I was provided a timely response on the after-sales support by my service provider
		The after-sales support by the service provider meets my expectations
Artificial Intelligence	Agent/Bot Messaging	It is easy to converse with the artificially intelligent bot used by the service provider

		I am provided the right solutions by the artificially intelligent bot used by the service provider
	Digital IVR	The visual cues on the application interface of the service provider are convenient
		The digital agent of the service provider solves all my queries about the service
	Voice Analytics	I feel pleasant after having a conversation with the live agent of the service provider
		The live agent of the service provider is very empathetic
Voice of Customer	Awareness	We should leave feedback if we are satisfied with the service
	Personal Beliefs	I believe that I will contribute to the quality improvement of the service by leaving feedback
	Organizational Culture	The service provider asserts that they find customers' feedback valuable
	Expectations From the Company	I expect that my feedback is acknowledged by the service provider
	Decision	I will leave feedback if I am satisfied with the service provider

Note: All variables, sub-variables, and items are sourced from reviewed literature (Daqar & Smoudy, 2019; Dutta & Saxena, 2020; Obradović et al., 2020, Xie et al., 2022).

4.4. Quantitative Analysis

4.4.1. Reliability and Validity

Cronbach alpha (α) is used as a coefficient to measure how closely related are a set of items – internal consistency. It has values ranging from 0 to 1.

The minimum acceptable value for Cronbach alpha (α) is 0.6. Values greater than 0.6 indicate greater reliability. It is worth noting that Cronbach alpha (α) is a function of average inter-correlation among the items and the number of test items. This study tests the Cronbach alpha (α) on each of our variables:

customer experience, artificial intelligence, voice of customer. Each of these variables constitutes a set of differing number of items mentioned in Table 2.

4.4.2. Correlational Analysis

A correlational analysis is used to observe the strength and direction of the relationships between variables. Here, individual correlations are observed rather than average inter-correlation among items. It has values ranging from -1 to +1 where -1 indicates a perfect negative correlation and +1 indicates a perfect positive correlation. A value of 0 indicates no correlation between variables. It is worth noting that correlation does not establish causality. This study obtains the correlations between all our variables by constructing a correlation matrix. The primary aim of the correlation matrix will be to determine if a statistically significant relationship exists between artificial intelligence and customer experience. To do that, it is worth observing the correlations of the sub-variables of artificial intelligence with the sub-variables of customer experience.

4.4.3. Mediation Analysis

One of the purposes of our study was to examine the effect of the voice of the customer, as a mediator, on the relationship between artificial intelligence and customer experience. Barron and Kenny (1986) proposed a four-step approach to test for mediation: a simple regression analysis is undertaken with artificial intelligence predicting customer experience, $\text{Customer Experience} = B_0 + B_1 \text{Artificial Intelligence} + e$; a simple regression analysis is undertaken with artificial intelligence predicting voice of customer, $\text{Voice of Customer} = B_0 + B_1 \text{Artificial Intelligence} + e$; a simple regression analysis is undertaken with voice of customer predicting

customer experience, $\text{Customer Experience} = B_0 + B_1 \text{ Voice of Customer} + e$; a multiple regression analysis is undertaken with artificial intelligence and voice of customer predicting customer experience, $\text{Customer Experience} = B_0 + B_1 \text{ Artificial Intelligence} + B_2 \text{ Voice of Customer} + e$. The first three steps establish that zero-order relationships between all the relevant variables exist such that if one or more of these relationships are statistically insignificant then mediation is not likely or possible. If all these relationships are statistically significant then we proceed to step four. In step four, some mediation is likely or possible if the effect of voice of customer remains statistically significant after controlling for artificial intelligence. If artificial intelligence is no longer statistically significant after controlling the voice of customer, the finding establishes full mediation. If artificial intelligence is still statistically significant (both artificial intelligence and voice of customer significantly predict customer experience), the finding establishes partial mediation.

5. Results

5.1. Quantitative Analysis

5.1.1. Demographics & Descriptive Analysis

Analysis on demographics is shown in Table 3. It is observed that the data is evenly distributed in terms of gender as it constitutes 53.81 percent males and 46.19 percent females. It is worth noting that the questionnaire constituted only options of male and female because including any other gender might have potentially irked respondents as Pakistan is, fundamentally, an Islamic republic. The mean, median, mode, minimum and maximum age is 50.38, 50, 26, 20 and 85

respectively. The educational category with the highest number of respondents is primary (29.95 percent), followed by secondary (25.38 percent), followed by lower secondary (24.37 percent), followed by tertiary (20.30 percent). In response to the question of how often the respondents shop online; 23.35 percent of the respondents answered that they shop online monthly, 22.34 percent of the respondents answered that they shop weekly, 22.34 percent of the respondents answered that they do not shop online, 18.27 percent of the respondents answered that they shop daily, and 13.71 percent of the respondents answered that they shop occasionally. In response to the question of how often do the respondents use social media; 21.32 percent of the respondents answered that they use social media 3-5 hours a day, 21.32 percent of the respondents answered that they do not use social media, 20.81 percent of the respondents answered that they use social media weekly, 18.78 percent of the respondents answered that they use social media 1-2 hours a day, 17.77 percent of the respondents answered that they use social media once a day. It is observed that the data is evenly distributed for all demographic variables. From the demographic analysis, since the mean age of the customers of the service provider is 50.38, it is inferred that the most customers of the service provider are adults in the later stages of their lives. A large percentage of the sample had only been completed until primary education. Perhaps, this could be the reason why a significant percentage of the respondents, shop online monthly or they do not shop online altogether in contrast to shopping online daily or weekly. It might also explain why a significant percentage of the respondents do not use social media at all or prefer using it weekly or once a day in contrast to using social media 1-2 hours a day or 3-5 hours a day.

Table 3: Demographical Statistics

Gender	Male	106 respondents	53.81%
	Female	91 respondents	46.19%
Age	Mean	50.38	
	Median	50	
	Mode	26	
	Minimum	20	
	Maximum	85	
Education	Primary	59 respondents	29.95%
	Lower Secondary	48 respondents	24.37%
	Secondary	50 respondents	25.38%
	Tertiary	40 respondents	20.30%
How often do you shop online?	Daily	36 respondents	18.27%
	Weekly	44 respondents	22.34%
	Monthly	46 respondents	23.35%
	Occasionally	27 respondents	13.71%
	I do not shop online	44 respondents	22.34%
How often do you use social media?	1-2 hours/Day	37 respondents	18.78%
	3-5 hours/Day	42 respondents	21.32%
	Once a Day	35 respondents	17.77%
	Weekly	41 respondents	20.81%
	I do not use it	42 respondents	21.32%

Note. The demographics' statistics are sourced from data analysis performed on the responses of the questionnaire (see Appendix) on SPSS software.

After analyzing the demographics, it is worth noting whether there any outliers present in the data. To check for outliers, we perform a descriptive analysis on the

data that is shown in Table 4. It is observed that there are a total of 197 respondents for each item, which tells us that there are no missing values in any item. Secondly, apart from the demographics, all items have a minimum of 1 and a maximum of 5, corresponding to our 5-point Likert scale where ‘Strongly Disagree’ is referenced as 1 and ‘Strongly Agree’ is referenced as 5. We also observe similar patterns among our items for summary statistics: mean is centered around 3; standard deviation is centered around 1.4; variance is centered around 2. The skewness and kurtosis metrics are useful to check whether there are any outliers present. Except demographics, the skewness and kurtosis statistic are divided by their respective standard errors for all items. The resulting answers lie in the range of -1.96 and 1.96, subsequently indicating to us that there are no outliers present in the data.

Table 4: Descriptive Statistics

	Min	Max	Sum	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
							Statistic	Std. Err	Statistic	Std. Err
Q1	1	2	288	1.46	.500	.250	.154	.173	-1.997	.345
Q2	20	85	9924	50.38	18.155	329.603	.163	.173	-1.115	.345
Q3	1	4	465	2.36	1.114	1.242	.144	.173	-1.340	.345
Q4	1	5	590	2.99	1.412	1.995	.097	.173	-1.259	.345
Q5	1	5	600	3.05	1.426	2.034	-.028	.173	-1.336	.345
Q6	1	5	633	3.21	1.462	2.138	-.188	.173	-1.373	.345
Q7	1	5	579	2.94	1.517	2.302	.069	.173	-1.477	.345
Q8	1	5	584	2.96	1.476	2.177	.081	.173	-1.396	.345
Q9	1	5	545	2.77	1.449	2.098	.232	.173	-1.289	.345
Q10	1	5	626	3.18	1.455	2.116	-.112	.173	-1.376	.345
Q11	1	5	628	3.19	1.453	2.113	-.080	.173	-1.409	.345
Q12	1	5	615	3.12	1.342	1.801	-.084	.173	-1.147	.345
Q13	1	5	604	3.07	1.404	1.970	-.029	.173	-1.294	.345
Q14	1	5	601	3.05	1.491	2.222	-.060	.173	-1.443	.345
Q15	1	5	616	3.13	1.505	2.264	-.164	.173	-1.418	.345
Q16	1	5	616	3.13	1.460	2.132	-.103	.173	-1.347	.345
Q17	1	5	573	2.91	1.418	2.012	.098	.173	-1.315	.345
Q18	1	5	571	2.90	1.421	2.020	.084	.173	-1.319	.345
Q19	1	5	592	3.01	1.430	2.046	-.062	.173	-1.320	.345
Q20	1	5	587	2.98	1.396	1.949	-.009	.173	-1.289	.345

Note. The descriptive statistics are extracted using data analysis performed on 197 responses of the questionnaire (see Appendix) for each question on SPSS software.

5.1.2. Cronbach Alpha (a)

Table 5 provides the Cronbach alpha (a) statistic for all our sub-variables. Firstly, starting with the bot/agent sub-variable, the Cronbach alpha (a) reported is 0.751 for two items, which falls above the threshold of 0.6. Therefore, the bot/agent sub-variable is reliable and valid. Secondly, the digital IVR sub-variable has a

Cronbach alpha (α) of 0.737 for two items, which also falls above the threshold of 0.6, consequently confirming that digital IVR is reliable and valid. Thirdly, the voice analytics variable has a Cronbach alpha (α) of 0.764 for two items, which falls above the threshold of 0.6, consequently confirming its reliability and validity. Fourthly, the voice of customer variable has 5 items and no sub-variables. It has a Cronbach alpha (α) of 0.717 which is relatively low, but it still falls above the threshold of 0.6, consequently confirming its reliability and validity. The personalized service sub-variable has a Cronbach alpha (α) of 0.838 for two items, which also falls above the threshold value of 0.6, consequently confirming its reliability and validity. Finally, the after-sales support sub-variable has a Cronbach alpha (α) of 0.853 for two items, which also falls above the threshold value of 0.6, consequently confirming that it is reliable and valid. Hence, the results indicate that all our sub-variables and variables are reliable and valid.

Table 5: *Cronbach Alphas (α)*

Variable	No. of Items	Cronbach Alpha (α)
Bot/Agent	2	0.751
Digital IVR	2	0.737
Voice Analytics	2	0.764
Voice of Customer	2	0.717
Personalized Service	2	0.838
After Sales Support	2	0.853

Note. The Cronbach alphas (α) are extracted for each sub-variable using SPSS software.

5.1.3. Correlational Analysis

Table 6 shows the correlations between the means of all our sub-variables. Most importantly, the correlation between artificial intelligence and customer

experience is observed. It is observed that all sub-variables of artificial intelligence have statistically significant correlations with all sub-variables of customer experience at 0.05 significance level. Hence, we reject the null hypothesis H10 (there is no statistically significant relationship between artificial intelligence and customer experience) in favor of the alternative hypothesis H11 (there is a statistically significant relationship between artificial intelligence and customer experience). Now that it is established that a statistically significant relationship between artificial intelligence and customer experience exists, we can run linear regression to estimate the direction and strength of the relationship. Similarly, the voice of customer has a statistically significant relationship with all sub-variables of artificial intelligence and customer experience at 0.05 significance level. Hence, we reject the null hypothesis H20 (there is no moderator effect of voice of customer on the relationship between artificial intelligence and customer experience) in favor of the alternative hypothesis H21 (there is a moderator effect of voice of customer on the relationship between artificial intelligence and customer experience). Therefore, it is assumed that some mediation effect of voice of customer may exist on the relationship between artificial intelligence and customer experience. We will estimate this effect in mediation analysis.

Table 6: Correlation Matrix

		Mean of Bot/Agent	Mean of Digital IVR	Mean of Voice Analytics	Mean of Voice of Customer	Mean of Personalized Service	Mean of After-Sales Support
Mean of Bot/Agent	Pearson Correlation	1	.417**	.473**	.390**	.348**	.354**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
	N	197	197	197	197	197	197
Mean of Digital IVR	Pearson Correlation	.417**	1	.255**	.412**	.279**	.254**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
	N	197	197	197	197	197	197
Mean of Voice Analytics	Pearson Correlation	.473**	.255**	1	.351**	.289**	.250**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	197	197	197	197	197	197
Mean of Voice of Customer	Pearson Correlation	.390**	.412**	.351**	1	.422**	.348**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	197	197	197	197	197	197
Mean of Personalized Service	Pearson Correlation	.348**	.279**	.289**	.422**	1	.551**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
	N	197	197	197	197	197	197
Mean of After-Sales Support	Pearson Correlation	.354**	.254**	.250**	.348**	.551**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	197	197	197	197	197	197

Note. ** signifies correlation being statistically significant at 0.01 significance level. The correlational analysis has been performed on the means of the sub-variables using SPSS software.

5.1.4. Mediation Analysis

Barron & Kenny (1986) suggests performing four regressions to effectively judge the existence of any mediation effect. The first three regressions are simple linear regressions. The last regression is a multiple linear regression. Firstly, it is worth

noting the overall behavior of our models. We can do that through the regression summary statistics shown in Table 7. Firstly, it is observed that all four models have p-values, located in the last column, less than the established significance level of 0.1. Therefore, we can conclude that all four models are statistically significant overall. Secondly, it is observed that all four models have R-squared values of approximately 20 percent. It means, on average, the models explain approximately 20 percent variation in their respective dependent variables. The R-squared values would have probably been higher for the first three models if they were not simple linear regressions but multiple linear regressions. However, due to restrictions imposed by Barron & Kenny (1986), we must limit our models to simple linear regressions.

Table 7: Regression Summary

Model #	R-squared	Adjusted R-squared	Standard Error of the Estimate	Sig F. Change
#1	0.192	0.188	1.046	0.000
#2	0.251	0.247	0.857	0.000
#3	0.191	0.187	1.047	0.000
#4	0.255	0.247	1.007	0.000

Note. The table 6 depicts the summaries and coefficients of our regression models. The model #1 has customer experience as the dependent variable and artificial intelligence has the independent variable. The model #2 has voice of customer as the dependent variable and artificial intelligence as the independent variable. The model #3 has customer experience as the dependent variable and voice of customer as the independent variable. The model #4 has customer experience as the dependent variable and voice of customer and artificial intelligence as the independent variables. All the analysis are performed on SPSS software.

Now that we know that our models are statistically significant and they explain a significant percentage of variation in the data, we can move onto observing the statistical significance of our independent variables in each of our models. It would allow us to establish zero-order relationships between our variables, and consequently allow us to check whether mediation is possible. Table 8 shows the coefficients and p-values of the independent variables in each of our models.

Table 8: *Regression Coefficients*

Model #	Independent Variable	Unstandardized Coefficient	Standardized Coefficient	Sig.
#1	Artificial Intelligence	0.505	0.438	0.000
#2	Artificial Intelligence	0.491	0.501	0.000
#3	Voice of Customer	0.514	0.437	0.000
#4	Artificial Intelligence	0.341	0.290	0.000
	Voice of Customer	0.337	0.293	0.000

Note. The table 7 depicts the summaries and coefficients of our regression models. The model #1 has customer experience as the dependent variable and artificial intelligence has the independent variable.

The model #2 has voice of customer as the dependent variable and artificial intelligence as the independent variable. The model #3 has customer experience as the dependent variable and voice of customer as the independent variable. The model #4 has customer experience as the dependent variable and voice of customer and artificial intelligence as the independent variables. All the analysis are performed on SPSS software.

In Table 8, It is observed in regression 1 that both the model as a whole and the individual variable of artificial intelligence is statistically significant. It is observed in regression 2 that both the model as a whole and the individual variable of artificial intelligence is statistically significant. It is observed in regression 3 that both the model as a whole and the individual variable of voice of customer is statistically significant. Therefore, we can establish zero-order relationships through these three simple linear regressions. Next, the instructions dictate that a multiple linear regression should be implemented, and the statistical significance of relevant independent variables must be checked to verify partial or full mediation. We observe that both the variables of artificial intelligence and voice of customer are statistically significant at 0.05 significance level in the multiple linear regression (model #4), subsequently indicating to us that voice of customer has a partial mediation effect on the relationship between artificial intelligence and customer experience.

5.2. Qualitative Analysis

The following is the raw script of the interview conducted with the technology-driven service provider, known as Daraz. The authors conducted an interview with an IT specialist at Daraz. The interview was semi-structured in nature, and some leading questions were asked during the interview, and the interviewee elaborated on several topics in a single take. It is worth noting that the questions asked are highlighted in bold to help in differentiating through the script.

Q1: We heard that your company is developing a department of artificial intelligence. What are you going to implement artificial intelligence on?

We have already implemented artificial intelligence in a lot of our departments. For instance, our app provides an AI bot service that solves a lot of user queries efficiently. We are utilizing digital IVR to enrich our customer experiences. We have also started implementing voice analytics to determine the emotions of our customers before they are transferred to a live agent. Now, we are establishing a full-fledged AI department that will not only encompass all of these processes but also predict future demand and supply. It will enable us to cut a lot of costs and increase revenue. It will also allow us to make our application more personalized. For example, one of our aims is to deliver suggestions and recommendations based on geography such that the services we offer might differ for a person from Lahore compared to a person from Karachi.

Q2: So, you want to predict demand and supply using artificial intelligence?

Yes, I believe the benefits of predicting demand and supply will transfer over to customers as well. If you think about it, if we can predict future demand, we can avoid shortages. If we can predict future supply, we can avoid surpluses. At the end of the day, we want to ensure that customers are getting what they want in the right time in the right manner.

Q3: With regards to your previous answer, will a person get recommendations according to the pattern displayed by them through their previous purchases?

That is what we want to do. For example, if a person is interested in buying a certain product, the AI model should display the relevant products first to the person.

Q4: How will your AI department further enrich customer experience?

We want to use AI to analyze customer behavior. Most of our customers are adults over the age of 40. We want to use AI to predict their behavior such as how they think and what they want. We want to get inside their minds to be able to exactly know what they are looking for. Once we know that, we can tweak our services according to the desire of the customers. We can offer them the service before they even ask for it and we will know for sure that they will buy it. One of the things that we are researching on is when a potential customer has a choice of 3000 products and they pick their favorite among them, then we observe the features that attracted them to make their choice and recommend more products that contain the same features without them having to search for it.

Q5: What about the costs?

We are still in the process of studying the department for AI. However, it is obvious to us that establishing an AI department is an uphill and expensive task. For instance, let's talk about the time needed and the skills required. Since there is a lack of skilled labor in Pakistan, we will have to bring people from other areas and train them from scratch. Train them in artificial intelligence. Let me give you an example. For our voice analytics program, we had to hire a foreigner to build the model for us. The cost of that model was around \$30,000 and it was just one model. He offered to train employees and supervise the processes of maintenance for that cost. There are only a handful of companies in Pakistan who are implementing such AI programs. It is important to note that many companies choose to keep their AI programs a secret because they feel as if customers are too sensitive to how much knowledge a company can have about them.

Q6: You do have a valid point but when do you think that AI's benefits will outweigh its costs?

We have calculated the payback period to be at least 3 years. But you should also note that the costs increase with time as well because you have maintenance and the desire to improve the accuracy of your models. Today, a lot of models are readily available on the internet. But the problem with these models is that if we don't consistently update the algorithms, they can become outdated, leading to inaccurate results. For example, the customer of today is very different from the customer of the past due to the prevalence of social media.

Q7: Last question, how much do Pakistanis know about artificial intelligence?

You mean the business sector or in personal capacity?

Q8: I mean business. Tell me what do you think about how Pakistanis will feel about AI bots?

AI bots have a problem – the language barrier. This is the reason why we had to establish a digital service center in the beginning where humans were made to answer rather than robots. But in the beginning, we set a goal for accumulating as much data as possible. Our aim was to gather 2-3 million messages so that we could use them to build an AI bot. This is to ensure that the AI bot is not an idiot. The problem with Urdu is that it has a limitation. No developed AI models cater to the Urdu language. We are probably the only company that has a department of digital transformation with the board of directors. When I say digital transformation, I mean four things. The first one is voice analytics. Let me tell you this. More than 50 percent of our customers have answered that they get most of their information from social media that is owned by another business, like Instagram. When I create advertisements, I use

artificial intelligence, but I do not own it. When I distribute a magazine, I do not know who sees it or reads it. How? But when I upload an advertisement, I can specify who sees or reads it. I can also receive feedback on the demographics of the people who opened the advertisement such as age, city, work, etc. This is artificial intelligence. It does belong to us even though we use it. This allows us to enrich the customer experience.

6. Discussion

The findings of this study offer valuable insights into the intricate relationship between artificial intelligence, customer experience, and the mediating role of the voice of the customer within the dynamic landscape of the technology-driven e-commerce industry in Pakistan. These results provide empirical support for Dwyer's (1987) customer relationship management (CRM) framework, which delineates stages of customer interaction as attract, retain, enhance, and terminate.

In the "attract" phase, the implementation of artificial intelligence technologies emerges as a pivotal strategy for capturing and retaining customer attention. Through the deployment of personalized recommendation engines and interactive chatbots, the company effectively tailors its offerings to individual preferences and needs (Smith et al., 2018). The result is a heightened level of customer engagement, as evidenced by the statistically significant relationship between AI and customer experience observed in our quantitative analysis.

Moving on to the "retain" phase, it is evident that artificial intelligence significantly contributes to customer retention. The seamless integration of artificial intelligence-powered solutions streamlines processes, leading to more efficient issue resolution and personalized interactions. This not only bolsters customer satisfaction but also solidifies

brand loyalty. These findings resonate with the work of Smith and colleagues (2018), who highlight the positive impact of artificial intelligence on customer retention rates.

The role of the voice of the customer becomes particularly salient in the "enhance" phase. Our results indicate that the voice of the customer acts as a crucial mediator in the relationship between artificial intelligence and customer experience. Through feedback mechanisms facilitated by artificial intelligence-driven tools, the company gains direct insights into customer preferences, pain points, and expectations (Nambisan & Baron, 2019). This dynamic feedback loop not only enhances the quality of service but also provides fertile ground for ongoing refinement and augmentation of offerings, aligning seamlessly with the principles of Dwyer's CRM framework.

Despite the constraints faced by the company, including high implementation costs and a scarcity of skilled labor, the qualitative findings affirm the transformative impact of artificial intelligence on customer experience. The qualitative data complements and reinforces the quantitative results, underscoring that, even in the face of challenges, investing in artificial intelligence's capabilities remains a strategic imperative.

In conclusion, this study underscores the profound impact of artificial intelligence on customer experience within the e-commerce landscape of Pakistan. We can associate our findings to the comprehensive framework proposed by Dwyer (1987), it becomes evident that artificial intelligence is not only a technological advancement but also a strategic tool that aligns with the attract, retain, enhance, and terminate stages of customer relationship management. These results bear significant implications for businesses seeking to navigate the evolving terrain of customer-centric industries, emphasizing the imperative of continued investment in artificial intelligence's capabilities.

7. Conclusion

This study helps us in improving our understanding of artificial intelligence, the voice of customer, and customer experience, and how all these variables affect the customer, business, and the overall society. The purpose of the study was to examine, analyze, and evaluate the impact of artificial intelligence on customer experience with the voice of customer as the mediator. For this purpose, the study divided the variables into sub-variables. The study employed detailed analysis on both quantitative and qualitative data to measure the relationships between these variables in the best way possible.

After implementing the detailed analysis, we observe that the results affirms our alternative hypotheses. Firstly, we used Cronbach alpha (α) to determine the validity and reliability of our study. The statistics obtained revealed to us that all our sub-variables were reliable and valid. Secondly, the correlational analysis allowed us to determine that there exists a statistically significant relationship between artificial intelligence and customer experience. It also revealed to us that the mediator effect of the voice of the customer on the relationship between artificial intelligence and customer experience is statistically significant. Secondly, the results of the regression analyses showed that the impact of artificial intelligence on customer experience was positive. Therefore, this means that using artificially intelligent bots/agents, digital IVR, and voice analytics, companies can provide personalized customer services to customers which can improve their customer experience significantly. Also, using the same artificially intelligent systems in after-sales support services or call centers can decrease the waiting time for customers significantly, thus improving the customer experience. The qualitative analysis revealed to us insights into the minds of technology-driven companies as to how they intend to implement artificially intelligent machines and systems to improve the customers' experience.

These results are synonymous with the existing customer relationship management theories we have discussed before. It is worth recalling that Dwyer (1987) had proposed that the management of customer relationships can be divided over a series of stages to the relationship lifecycle (Dwyer, 1987), also known as ‘CRM house elements’ with their respective artificial intelligence applications (Hopskin, 2018). These ‘CRM house elements’ are as follows: attract/acquire, retain/maintain, enhance/develop, and terminate. The significance of these ‘CRM house elements’ lies in the overall idea they entail – artificial intelligence can improve customer experiences through effective customer relationship management. Our correlational analysis revealed that artificial intelligence does have a statistically significant impact on the customer experience; therefore, our findings affirm the existing customer relationship management theories. Hence, it is safe to say that that the ‘CRM house elements’ (attract/acquire, retain/maintain, enhance/develop, terminate), through application of artificial intelligence, indeed has a positive and statistically significant impact on customer experience in the context of Pakistan. Also, it is worth noting that since our alternative hypotheses are accepted, it does not require us to alter the existing customer relationship management theories for the specific set of circumstances in which we have conducted our study.

While we have established the importance of artificial intelligence and voice of customer in improving the customer experience, Pakistan still faces a lot of challenges before it can effectively and efficiently implement machines and systems. For instance, the qualitative analysis revealed that companies are concerned about the rising costs of implementing artificial intelligence. It is due to the political, social, and economic turmoil that the currency of Pakistan is depreciating significantly, subsequently resulting in higher costs. Unless the political storm settles down, businesses will have to really think about the payback period and net present value of investing in artificial intelligence. Additionally,

the qualitative analysis revealed that there is a shortage of skilled labor in Pakistan. Perhaps, that is why companies choose to hire foreign skilled labor for the purpose of integrating artificial intelligence into their business models, which can prove quite costly. Finally, the study helps us realize that artificial intelligence is a fast-paced train as it evolves in our working places and homes. Eventually, it is bound to take over the devices we use in our daily lives and become an inevitable part of it. It is our responsibility to ensure that we do not allow it to replace humans.

8. Limitations and Recommendations

The results of the study were satisfactory regarding the formulated hypotheses. Albeit confirming the hypotheses, the study had to encounter multiple limitations. For instance, firstly, the data was gathered from a small sample from the city of Lahore in Pakistan. For qualitative research, the sample consisted of one company and the reason for this was the lack of technology-driven companies in the region. For quantitative research, the sample consisted of 197 respondents.

Secondly, while the study did find statistical significance between artificial intelligence, voice of customer, and customer experience, it is difficult to recommend how artificial intelligence could be used to enrich the customer experience, perhaps due to the lack of awareness of artificial intelligence in Pakistan. Although, it could be recommended that future studies are conducted into the awareness aspect of artificial intelligence in the region before further studies can be conducted.

The qualitative aspect of our study did offer us some insights. The company hoped to implement artificially intelligent models for many purposes: to make their applications more personalized, to predict demand and supply, and to predict customer behavior. It is

arguable that once the company can do that, the customers will have a relatively enriched experience. These claims are backed up by the findings of our quantitative analysis.

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10. Appendix

Q1. Please state your gender.

- a) Male
- b) Female

Q2. Please state your age.

Q3. What is the highest level of education you have completed?

- a) Primary

- b) Lower Secondary
- c) Secondary
- d) Tertiary

Q4. How often do you shop online?

- a) Daily
- b) Weekly
- c) Monthly
- d) Occasionally
- e) I do not shop online

Q5. How often do you use social media?

- a) 1-2 hours/Day
- b) 3-5 hours/Day
- c) Once a day
- d) Occasionally
- e) I do not use social media

Q6. It is easy to converse with the artificially intelligent bot used by the service provider.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q7. I am provided the right solutions by the artificially intelligent bot used by the service provider.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q8. The visual cues on the application interface of the service provider are convenient.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q9. The digital agent of the service provider solves all my queries about the service.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q10. I feel pleasant after having a conversation with the live agent of the service provider.

- a) Strongly Disagree

- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q11. The live agent of the service provider is very empathetic.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q12. We should leave feedback if we are satisfied with the service.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q13. I believe that I will contribute to the quality improvement of the service by leaving feedback.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q14. The service provider asserts that they find customers' feedback valuable.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q15. I expect that my feedback is acknowledged by the service provider.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q16. I will leave feedback if I am satisfied with the service provider.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q17. During the service, I experience pleasant feelings.

- a) Strongly Disagree
- b) Disagree

- c) Neutral
- d) Agree
- e) Strongly Agree

Q18. Overall, I am satisfied with the service provider.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q19. I was provided a timely response on the after-sales support by my service provider.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree

Q20. The after-sales support by the service provider meets my expectations.

- a) Strongly Disagree
- b) Disagree
- c) Neutral
- d) Agree
- e) Strongly Agree