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Reassessing customer trust and privacy concerns in omnichannel customer experience

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ABSTRACT

In today's retail landscape, omnichannel customer experience plays a crucial role in fostering long-term customer trust and satisfaction. However, there remains a gap in understanding the precise impact of omnichannel experiences on these key factors. This research addresses this gap by examining how each dimension of the omnichannel customer experience influences customer trust and satisfaction. Additionally, it investigates the mediating role of customer trust in the relationship between omnichannel experience and satisfaction. Moreover, considering the growing concerns surrounding privacy in the context of retail technology, this study explored the moderating effect of privacy concerns on these relationships. Data from 300 omnichannel customers were collected using purposive sampling and analyzed using partial least squares structural equation modeling (PLS-SEM). The findings support previous conceptualizations, indicating that all dimensions of omnichannel customer experience, except connectivity, positively impact customer trust. Furthermore, customer trust was found to mediate the relationship between omnichannel experience and satisfaction, with the exception of connectivity. Additionally, the study reveals that customer privacy concerns moderate the relationship between connectivity and trust as well as between channel integration and trust. These findings offer practical insights for omnichannel retailers to enhance channel management, thus improving the overall shopping experience and customer satisfaction. Moreover, this research underscores the importance of addressing privacy concerns to bolster customer trust. By shedding light on these dynamics, this study contributes to the existing literature and provides guidance for retailers aiming to cultivate a loyal and satisfying customer base in the omnichannel era.

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Introduction

The rapid advancement of digitalization has fundamentally altered the retail sector, reshaping the conventional multichannel shopping model into an all-encompassing, seamless omnichannel experience (Muthaffar & Vilches-Montero, 2023). Omnichannel shopping involves the effortless utilization of numerous channels and interaction points throughout every phase of the customer's journey (Rahman et al., 2022). The concept of omnichannel customer experience has now become commonplace. Rather than operating various sales platforms in isolation, retailers now acknowledge the significance of integrating information and services across multiple touchpoints to optimize customer experience across channels is optimized (Mori & Mlambiti, 2020). As noted by Gahler et al. (2023), modern customers seek to use complementary channels as an essential part of their shopping journey. Consequently, retailers face mounting pressure to reconfigure their touchpoints in alignment with consumer preferences and behaviors to establish a seamless integrated and cohesive customer experience (Tueanrat et al., 2021). Recently, customer satisfaction has relied

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on the quality of the omnichannel customer experience as it must meet the growing expectations of customers for a shopping experience that is seamless, consistent, and personalized, necessitating the integration of various channels and touchpoints (Rodríguez-Torrico et al., 2020). Practically, a genuine omnichannel approach helps retailers reap a diverse range of benefits such as customer trust (Rahman et al., 2022), retention (Gao & Fan, 2021) satisfaction (Moliner & Tortosa-Edo, 2023) and enhanced perceived value (Hamouda, 2019).

Despite retailers committing significant resources to optimize channel integration, a pressing issue emerges, as more retailers meticulously plan their comprehensive retailing initiatives and endeavor to enhance all facets of customer interaction. This concern pertains to consumer apprehensions regarding data privacy and security (Mishra et al., 2023). While omnichannel retailing undeniably enhances shopping convenience for customers, privacy-related concerns could potentially foster distrust, resulting in consumers deferring their purchases or even opting to terminate their shopping with retailers (Cheah et al., 2022). To nurture customer trust, retailers must ensure that trust is cultivated throughout the entire customer journey rather than being limited to isolated interactions. Each touchpoint within a customer's omnichannel experience should be used as an opportunity to deliver customer value and satisfaction (Le & Nguyen-Le, 2020). Many retailers encounter significant challenges in establishing a foundation for customer trust. As highlighted by Cui et al. (2021), customers tend to avoid omnichannel platforms that demand excessive personal information due to privacy and security considerations. If a touchpoint requests more data than comfortable sharing does, customers may choose not to use it. In contrast, Freedman (2023) found that an integrated channel strategy enables retailers to access extensive data related to customer personal information, buying behaviors, and preferences, which is further utilized to optimize the omnichannel customer experience and build customer trust. Omnichannel retailers must ensure ethical and responsible data management to alleviate consumer concerns. In today's digital age, including emerging markets, consumers remain wary of privacy violations and data vulnerabilities as they lack the same level of confidence in physical stores (Chang et al., 2023). Without robust privacy protection and regulations, omnichannel retailers may struggle to translate consumer interactions into sales and long-stream effects such as customer satisfaction (Kazancoglu & Aydin, 2018). Despite the reasonable literature on omnichannel customer experience (Gahler et al., 2023; Rahman et al., 2022; Shi et al., 2020), empirical evidence that comprehensively assesses the influence of each aspect of the omnichannel customer experience on the establishment of customer trust and satisfaction is currently limited.

Prior studies examined the relationship between channel integration and customer patronage intention through customer empowerment (Le & Nguyen-Le, 2020) and trust (Rahman et al., 2022). Other scholars have addressed customer privacy concerns that could limit trust and purchase intentions (Cheah et al., 2022). Despite retailers' increased investment in omnichannel customer experience and privacy assurance, there remains a lack of empirical research examining how various dimensions of customer experience affect customer satisfaction. To fill this research gap, the current study attempts to investigate how different dimensions of omnichannel customer experience affect omnichannel customer satisfaction as well as through the mediating role of customer trust. Specifically, we propose that customer privacy concerns moderate the relationship between omnichannel customer experience and customer trust. There is evidence in the literature related to the relationship between omnichannel customer experience, perceived privacy, trust, and satisfaction (Cheah et al., 2022; Shi et al., 2020). However, inconsistent findings posit a significant literature gap in understanding the unequivocal nature of these relationships. This research relies on the Innovation Diffusion Theory (IDT) to explore how the omnichannel experience affects customer satisfaction through the lens of customer trust. Through empirical investigation, the study seeks to understand the mechanisms underlying this relationship. By utilizing the IDT framework, the research aims to uncover how various characteristics of omnichannel innovations contribute to customer satisfaction. Examining these aspects from the perspective of customer trust offers deeper insights into the impact of omnichannel experience factors on customer satisfaction. Additionally, the study recognizes the moderating role of privacy concerns, which may influence the level of trust customers place in omnichannel experiences and consequently affect their adoption. Ultimately, by applying the IDT framework, the study aims to provide strategic insights for effectively managing omnichannel innovations to enhance customer trust, address privacy concerns, and improve overall customer satisfaction, thereby fostering stronger customer relationships and organizational performance. Similar applications of

the IDT framework have been employed by Shi et al. (2020) to evaluate how omnichannel experiences influence customers' intentions to shop across various channels.

In conclusion, the purpose of the current study is to answer the following questions:

RQ1: How does each dimension of omnichannel customer experience affect customer trust

RQ2: What is the role of customer trust between omnichannel customer experience and customer satisfaction?

RQ3: What is the strength of the relationship between omnichannel customer experience and customer trust, and how is this relationship moderated by customer privacy concerns?

By answering the above-stated research questions, this study provides valuable insights for retailers seeking to enhance the efficient design of the omnichannel customer experience, offering practical implications that can significantly contribute to this improvement.

Literature review & hypotheses development

Relationship between omnichannel customer experience dimensions and customer trust

Rahman et al. (2022) defined omnichannel customer experience as an approach that focuses on providing an integrated and consistent experience across all sales channels that a customer may interact with when engaging with a company. Numerous studies (Gahler et al., 2023; Gerea et al., 2021; Rahman et al., 2022) have been conducted to conceptualize the omnichannel customer experience within diverse retail contexts. In a mixed-method approach, Shi et al. (2020) introduced a comprehensive model that outlines a unified structure for the omnichannel customer experience. This model consists of five key dimensions: Connectivity, Flexibility, Consistency, Integration, and Personalization. All dimensions are theoretically distinct and collectively encompass customers' expectations in their shopping journey. To enhance the credibility of our findings, the current study adopted Shi et al. (2020) dimensions of omnichannel customer experience to validate the impact of customer experience on customer trust and subsequently on customer satisfaction. The subsequent literature examines the link between each dimension of the omnichannel customer experience in building customer trust. Furthermore, it presents literature support for the mediating influence of customer trust and the moderating effect of customer privacy concerns.

Connectivity and customer trust

Connectivity refers to the degree of integration and interconnectivity between content and information provided across various sales channels (Shi et al., 2020). In omnichannel retail, customers frequently shift between different channels, with the expectation that retailers will ensure a seamless transition and provide personalized content. For instance, when a customer searches for a product on a mobile device or online store, they or should receive recommendations for nearby physical stores (Gasparin et al., 2022). As an increasing number of people become technologically savvy, the demand for products and devices to be digitally connected to their handheld devices is on the rise. These connections simplify the process for customers to find their preferred method for completing specific tasks, such as checking customer reviews while engaging in omnichannel shopping (Saghiri & Mirzabeiki, 2021). Calvo et al. (2023) found that in the omnichannel environment, it is challenging for firms to ensure there is connectivity across touchpoints, but it is important to do this in order to provide a better experience. Customers with higher connected experience tend to be more knowledgeable and well-informed about omnichannel service, and thus can better judge the fluency of a focal technology in integrating multiple channels and have high trust.

Additionally, Butkouskaya et al. (2023) inferred that the connected shopping experience will enhance the customer trust of omni channel shopping in a way that customers are able to freely choose a channel that is most reliable with their habits or preferences during cross-channel shopping. Moreover, research indicates that omnichannel customer experience demands interconnectivity with other touchpoints in order to enhance customer trust. The integration of cross-channel services and information empowers companies to use multiple channels to shape their customers' experiences (Rahman et al.,

2022). Consequently, a well-connected experience optimizes the perceived potential of omnichannel shopping, giving customers the freedom to choose a channel that aligns with their preferences, ultimately leading to increased customer trust. Thus, we propose the following hypothesis:

H1: There is a relationship between connectivity and customer trust.

Channel integration and customer trust

Channel integration is recognized as an essential element in assessing omnichannel retailers' capacity to effectively oversee customer interactions across various channels and provide customers with a consistent experience throughout their shopping journey (W. Gao & Fan, 2021). According to Shi et al. (2020), integration refers to the degree to which retailers offer unified and standard process attributes and service content across multiple sales channels. By employing a completely unified data management system, retailers can maintain a consistent and consolidated record of customers' personal preferences and shopping history across each touchpoint (Gerea et al., 2021). In a conventional retail setting, where customers typically engage with a single platform, there is a high level of integration between customer and product information. Consequently, within the context of omnichannel retail, it becomes imperative to emphasize integration to align with customers' shopping expectations (Li et al., 2023; Saghiri & Mirzabeiki, 2021). As highlighted by Chen et al. (2022), maintaining uniformity across various touchpoints throughout a customer's journey significantly contributes to building customer trust in retailers. When retailers provide a greater degree of consistency in their content, encompassing aspects such as pricing, product information, and promotions across available channels, it leads to less uncertainty and confusion for customers during their multiple interactions. Standard communication across channels eliminates duplication of tasks by comparing products and prices, which in turn fosters a more trusting relationship with the omnichannel retailer (Cheah et al., 2022). Considering the literature, the following hypothesis is postulated:

H2: There is a relationship between Channel Integration and customer trust.

Consistency and customer trust

Consistency is the practice of offering uniform and standardized processes and content across multiple channels. This ensures that the pricing and sales details of the products remain consistent across all touchpoints (Shi et al., 2020). This means that at all possible points of interaction, a state of perfect cohesion should prevail, with no data variations, glitches, or discrepancies between online and offline transactions (Gao & Fan, 2021). In the present study, we expect that the consistency of the omnichannel experience reduces privacy concerns and builds trust with customers. To elaborate, the consistent provision of services and information across various touchpoints enhances the transparency and credibility of these channels (Hickman et al., 2020; Moliner & Tortosa-Edo, 2023). As users transition across different channels to accomplish a specific shopping task or series of tasks over time, they encounter various channel experiences. These experiences are shaped by factors such as the visual display, content details, communication style, and functionality (Akter et al., 2021). Establishing uniformity in these elements across all channels not only enhances the customer's overall experience but also reinforces brand trust. Therefore, we postulate the following hypothesis.

H3: There is a relationship between consistency and customer trust.

Fulfillment and customer trust

Fulfillment is defined as the degree to which customers are offered flexible choices and experience a seamless transition when transferring tasks from one channel to another (Shi et al., 2020). In an omnichannel setting, customers can simultaneously utilize all the available touchpoints. The flexibility of interactions enables customers to engage in online shopping and opt for in-store pickups, or they may engage in online shopping and opt for physical stores for return (Mahadevan & Joshi, 2021). Furthermore, customers might browse different websites and consumer reviews to verify their behavioral intentions before ultimately making purchases at brick-and-mortar stores (Song et al., 2020). However, when

customers transition between channels, they may be concerned about the security of their payments, product availability, and reliability of the delivery process (Asmare & Zewdie, 2022). In a recent study, Fan et al. (2022) identified that the level of transparency felt by customers during a channel transition enhances customer trust and decreases the possibility of low conversion rates. Omnichannel retailers unify customer experience across all channels and enable customers to check product information online and assess the quality of products by visiting physical stores before placing orders and opting for pickup through a different channel (Larke et al., 2018). Thus, the perceived fluency between channels helps to optimize the omnichannel experience and increase customer trust in the retailer. Therefore, it is reasonable to hypothesize the following:

H4: There is a relationship between omnichannel flexibility and customer trust.

Personalization and customer trust

Personalization is the practice of offering customized attention and services based on individual customer behaviors and preferences across all channels (Shi et al., 2020). In the omnichannel context, personalization is the most significant parameter when assessing the quality of customer experience (Yan et al., 2019). As the omnichannel approach continues to facilitate the seamless integration of information across various platforms, retailers are increasingly equipped to conduct in-depth analyses of customer buying behaviors (Pappas, 2018). Retailers are now able to use interest-based algorithms to track customer information such as shopping history, search patterns, and preferences. This, in turn, is used to provide tailor-made purchase recommendations, rewards, and promotions, based on customer personal records across different channels (Cheah et al., 2022). In the context of omnichannel retailing, customers discern retailer uncertainty as a significant risk. However, the implementation of personalized services can mitigate this uncertainty effectively by helping customers make informed purchasing decisions (Wetzlinger et al., 2017). Personalization also nurtures the perception that the retailer values customer preferences and characteristics, thereby building trust and reducing perceived risks. In the omnichannel setting, effective personalization is crucial, as it can provide a seamless shopping experience and increase customer trust in the retailer (Hsia et al., 2020). Therefore, it can be proposed that

H5: There is a relationship between personalization and customer trust.

Customer trust and satisfaction

In the omnichannel context, customer satisfaction pertains to the extent to which an omnichannel retailer effectively meets the needs and expectations of its customers. According to Islam et al. (2021) customer trust plays a pivotal role in fostering loyalty. Previous studies (Cheah et al., 2022; Kim et al., 2011) have underscored the significance of customer trust as a fundamental determinant of customer satisfaction. When customers derive satisfaction from performance across various channels, they tend to extend that satisfaction to encompass the omnichannel retailer as a whole. Additionally, Dehghanpouri et al. (2020) indicated that individuals engaged in omnichannel shopping are more inclined to utilize multiple channels when they have a high level of trust and experience positive interactions within the omnichannel setting. Trust has also been postulated to exhibit a direct and positive correlation with satisfaction, a notion that has garnered substantial support (Mishra et al., 2023). Considering the literature, the following hypothesis is proposed:

H6: There is a relationship between customer trust and satisfaction.

The mediating role of customer trust between different dimensions of omnichannel customer experience and satisfaction

Customer trust entails the faith and assurance that customers place in a company or a brand's ability to fulfill its promises and expected omnichannel experience (Dehghanpouri et al., 2020). According to Zhang et al. (2018), in the omnichannel context, customer trust, in conjunction with customer

satisfaction, is a value-added process that matures gradually, ultimately enhancing satisfaction in ways that extend beyond channel integration. Trust plays a pivotal role in maintaining a satisfactory customer base (Le & Nguyen-Le, 2020). As emphasized by Rajaobelina et al. (2018), trust is a fundamental element in establishing long-term relationships between customers and omnichannel retailers. For instance, when customers have a seamless and integrated omnichannel experience, they place their trust in a retailer, which serves as a catalyst for them to invest more time and money in their interactions with that retailer (Cheah et al., 2022). Similarly, studies conducted by Pagani et al. (2019) and Le and Nguyen-Le (2020) underscore the critical role of building consumer trust in influencing the quality of the omnichannel experience and satisfaction in the context of omnichannel retailing. Specifically, implementing integrated strategies, seamless channel transitions, and consistent marketing communication across various channels reduces consumers' apprehensions and enhances their confidence (Gao & Fan, 2021). Consequently, consumers are more likely to develop trust and become satisfied with a retailer if the retailer can effectively provide an overall connected, seamless, and well-integrated omnichannel experience. Thus, we hypothesize as follows:

H7: Connectivity has an indirect effect on customer satisfaction, mediated by customer trust.

H8: Integration has an indirect effect on customer satisfaction, mediated by customer trust.

H9: Consistency has an indirect effect on customer satisfaction, mediated by customer trust.

H10: Flexibility has an indirect effect on customer satisfaction, mediated by customer trust.

H11: Personalization has an indirect effect on customer satisfaction, mediated by customer trust.

The moderating role of privacy concern between omnichannel customer experience dimensions and customer trust

Omnichannel is a highly convenient shopping solution for modern technology. For those seeking to avoid the inconvenience of navigating crowded stores or enduring long wait times, the omnichannel experience offers a compelling alternative to traditional shopping malls and single-channel shopping (Gao & Huang, 2021). In recent years, with ongoing news coverage emphasizing online security breaches, privacy has gained substantial prominence and evolved into a paramount concern for a number of omnichannel customers (Gao & Fan, 2021). Privacy concerns refer to the psychological state of unease resulting from adverse outcomes of privacy infringement (Cheah et al., 2022). The rapid advancement of omnichannel technology, particularly the widespread use of the Internet, has increased customer concerns regarding the potential misuse of information, consequently impacting customer trust of the customer (Cattapan & Pongsakornrungsilp, 2022). In the omnichannel context, customer satisfaction is typically perceived as the ultimate outcome of customer experience (Blom et al., 2021). Omnichannel approach serves as the foundation for delivering consistent, connected, and integrated customer experiences (Le & Nguyen-Le, 2020). However, a challenge arises in the form of privacy concerns, as omnichannel retailers require access to personal customer information to offer tailored and personalized shopping experiences that may affect customer trust in retailers (Dehghanpouri et al., 2020). These concerns mitigate consumers' trust and willingness to proceed with a transaction, ultimately resulting in dissatisfaction (Pagani et al., 2019). However, omnichannel retailers who create a secure and comfortable environment for their customers, ensuring that their data are stored, accessed, and utilized in a trustworthy manner, ultimately build customer trust instead of testing it, all in the pursuit of delivering a personalized and seamless omnichannel experience (Cui et al., 2021). Previous studies (Cheah et al., 2022; Gao & Huang, 2021) also consider privacy concerns as a moderator between channel integration and customer trust, thus justifying our preposition to test privacy concerns as a moderator between different dimensions of omnichannel customer experience and customer trust. Consequently, we propose the following hypothesis:

H12: The relationship between connectivity and customer trust is moderated by privacy concerns.

H13: The relationship between integration and customer trust is moderated by privacy concerns.

H14: The relationship between consistency and customer trust is moderated by privacy concerns.

H15: The relationship between flexibility and customer trust is moderated by privacy concerns.

H16: The relationship between personalization and customer trust is moderated by privacy concerns.

Based on the hypotheses derived from prior research, this study proposes a conceptual model, as illustrated in Figure 1.

Research methodology

Determination of sample size and sampling Technique

Hair et al. (2016) provided power tables that assist in determining the appropriate sample sizes for various measurement and structural model characteristics. These tables indicate the minimum sample sizes necessary to achieve minimum R^2 values for endogenous constructs within a structural model at significance levels of 1%, 5%, and 10%, with a statistical power of 80%. Therefore, to determine the appropriate sample size, the current study conducted a power analysis based on Cohen (1998) and the statistical power tables adapted by Hair et al. (2016) For a medium effect size (d = 0.5), a power level of 0.80, and an alpha level of 0.05, the required sample size for a two-sample *t*-test is 128 participants (64 per group). However, the study aims to recruit 300 participants to enhance the precision of our estimates, allow for subgroup analyses, account for potential non-response or dropout, and ensure the generalizability of our findings. Consequently, a sample of 300 omnichannel shoppers was considered sufficient to conduct statistical analyses and obtain statistically meaningful results.

Given a thorough examination of population dynamics and existing research, the criteria for selecting respondents in the online survey were designed to ensure the probability of selection within the sample. In particular, participants needed to have experience with multiple sales channels, such as online shopping through a desktop or mobile device, or making purchases in a physical brick-and-mortar store. In light of the challenges in constructing a complete sampling frame for omnichannel customers, a judgmental cum-purposive sampling technique was used to distribute questionnaires. According to Alamoudi et al. (2023) Judgmental cum-purposive sampling is a method used in research to select participants based on the judgment of the researcher combined with specific criteria or purposes of the study. In the current study we used filtering questions to ensure only those participants who had made at least one purchase in the last six months using more than one sales channel (website, store, mobile app) were surveyed to gather information on study constructs.

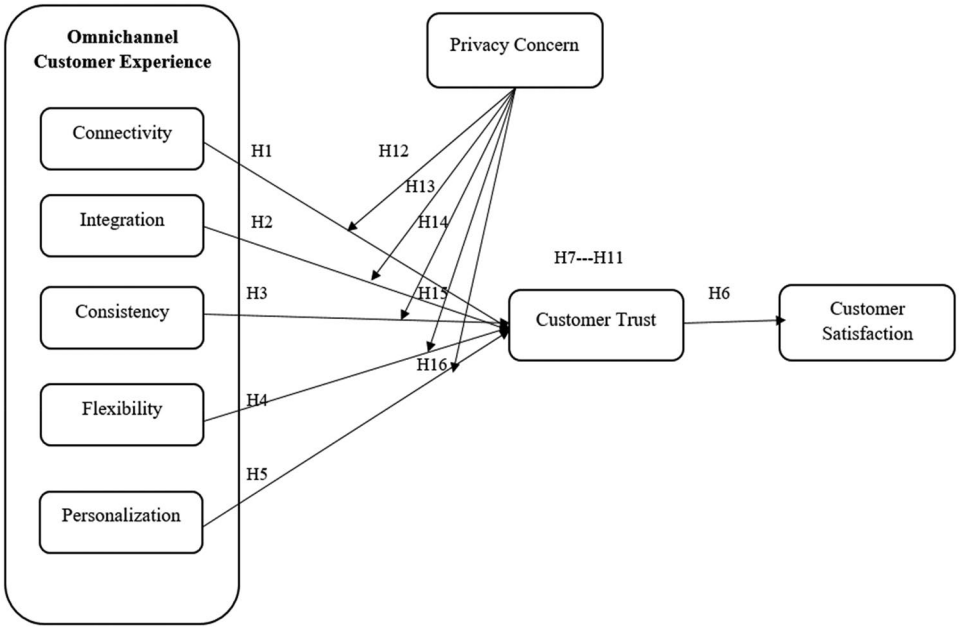

Figure 1. Conceptual framework.

Research instrument and data collection details

In this study, a well-structured five-point Likert scale questionnaire was used for data collection. The primary objective was to investigate the effectiveness of the omnichannel customer experience and its long-term impact on customer satisfaction through the mediating role of customer trust and the moderating role of privacy concerns. We distributed 660 survey questionnaires, of which 300 were completed and subjected to a thorough analysis. To measure the constructs relevant to our study, we drew on established scholarly research. Specifically, 20 items designed to measure the dimensions of omnichannel customer experience, such as connectivity, integration, consistency, fulfillment, and personalization, were adapted from a study conducted by Shi et al. (2020). In assessing omnichannel customer trust and privacy concerns, we incorporated 10 items from a study conducted by Cheah et al. (2022). To measure omnichannel customer satisfaction, we utilized five questions from the research conducted by Mishra et al. (2023). All items were marginally modified to better align with the context of our study.

Data analysis Technique

The current study used partial least squares structural equation Modeling (PLS-SEM) to evaluate both the accuracy of the measurement model and the statistical significance of the proposed hypotheses. PLS-SEM was selected for this study due to its suitability for handling complex models with multiple independent variables, mediators, and moderators, as found in our research framework. The primary purpose of the PLS approach is to predict key target constructs and identify intricate relationships between constructs. Additionally, PLS-SEM was chosen because it provides fewer contradictory results than regression when testing mediation effects (Dash & Paul, 2021). CB-SEM was not used because our objective is not theory testing and confirmation, which typically requires a focus on model fit, larger sample sizes, and normally distributed data (Hair et al., 2016). This method provides a robust framework for conducting a thorough analysis, enabling us to quantitatively assess the influence of omnichannel customer experience on customer satisfaction through the mediated moderated role of customer trust and privacy concerns.

Statement of informed consent to participate and publication of the study

Prior to the field data collection, ethical approval was obtained from the ethics committee of the Faculty of Management Science, Bahria University, Karachi, Pakistan. Specifically, it was signed by Dr. Mubashir Ali khan (Chair of the Department Ethical Review Board), to undertake this research project. The approved consent letter number is ID: BUKC/BBS/2024/L/01. The consent issuing committee is Prof. Dr. Muhammad Zahid (Dean, Faculty of Management Science, Bahria University) and Dr. Mubashir Ali Khan (Head of Business Studies department) (all from the aforementioned Institution) and evidence of the consent letter is available upon reasonable request.

Again, the survey participants' consent for participation in the study had been obtained. Thus, 'ethics approval' committee letter was made available to these participants before agreeing to participate in the survey. Thus, a written consent form was made available to these participants before agreeing to participate in the study. All participants agreed and signed a form to indicate their consent to participate in the survey and subsequent publication of the report after seeing the study objective(s). The authors declare that this manuscript has not been sent anywhere or been considered in other outlets for publication.

Findings & results

Demographic characteristics of respondents

In the initial section of the questionnaire, a filtering question was included to ensure that participants had engaged with various sales channels in their recent purchases. Among the 300 individuals surveyed who were omnichannel customerscorrelated, 47.7% were male and 52.3% were female. Notably, the majority of survey respondents fell within the age bracket of 21 to 30 years, constituting 59.3% of the total sample size. Additionally, 44.7% of the respondents did not adhere to a specific shopping pattern.

Conversely, the remaining participants shared diverse buying behaviors when using multiple sales channels (see in Table 1).

Evaluation of measurement model and common method bias

The data analysis process involved several stages. Initially, we focused on assessing the reliability of the indicators and convergent validity of our proposed model. For indicator reliability, we examined the individual indicator outer loadings. To determine convergent validity, we calculated the average variance extracted (AVE). The outcomes are summarized in Table 2, which provides the results related to indicator reliability, Cronbach's alpha, composite reliability (CR), and AVE values. The findings indicate that the factor loadings of the indicators met the established criterion of > 0.70, as stipulated by Hair et al. (2013). This implies that each item significantly contributes to its respective construct and explains a substantial portion of the variance within the related latent variables. According to Lai (2021), the minimum suggested threshold for all reliability measures should be greater than 0.7. The values in the Table confirm this recommended principle, affirming the internal consistency of the data. Furthermore, the convergent validity values, indicating a positive correlation among items within the same construct, exceeded the AVE of > 0.5, in accordance with the criteria set by Hair et al. (2013). Notably, it is important to mention that, following an evaluation of their limited impact on composite reliability and average variance extracted, nine items were excluded from the analysis due to their lower factor loadings (< 0.7), in line with (Hair et al., 2013). To assess the presence of a common method bias, we conducted Harman's single-factor test. The results of this test revealed that the proportion of variance attributed to a potential common method bias was 33.7%, which fell notably below the widely accepted criterion of 50%, as suggested (Chin et al., 2012). Additionally, VIF results also confirm the absence of multicollinearity-related common method bias (CMB), as all VIF values are less than 5, with the highest value recorded at 2.153. This implies that the model is free of CMB, as indicated by the VIF values falling within acceptable ranges. Hence, the assessment concludes that multicollinearity is not a concern, and the variables are not strongly correlted.

Discriminant validity of the model

Discriminant validity is a measure of how distinct one construct is from another within a model. To evaluate discriminant validity, this study employed the Fornell and Larcker criteria (1981). This involved

Table 1. Demographic profile of respondents.

Items	Category	Frequency	Percentage
Gender	Male	143	47.7%
	Female	157	52.3%
Age	16–20	22	7.3%
	21–30	178	59.3%
	31–40	78	26%
	41–50	18	6%
	51–60	3	1%
	61 or above	1	0.3%
Education level	Intermediate/A Levels	18	6%
	Undergraduate	121	40.3%
	Graduate	133	44.3%
	Master or Above	28	9.3%
Profession	Employee/ Professionals	145	48.3%
	Business Person	29	9.7%
	Student	93	31%
	Housewife	23	7.7%
	Unemployed/Retired	10	3.3%
Monthly Income (Rs.)	Less than 50,000	79	26.3%
	51,000–100,000	120	40%
	101,000–150,000	43	14.3%
	151,000–250,000	32	10.7%
	251,000 & Above	26	8.7%
Shopping Frequency	Once to three times a year	87	29%
	Four to five times a year	43	14.3%
	Seven to ten times a year	36	12%
	I do not follow a specific purchasing pattern	143	44.7%

Table 2. Outer loadings & convergent validity.

Constructs	Indicators	Factor Loading	Cronbach Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)	VIF Outer Model
Connectivity	The brand that I purchased most recently enabled me to check available stock across online and physical store.	0.817	0.727	0.748	0.554	1.596
	The brand that I purchased most recently enabled me to query product information across online and physical store.	0.803				1.564
	The brand that I purchased most recently have continuous and connected information across online and physical store.	0.607				1.205
	The brand that I purchased most recently have connected profile accounts across online and physical store.	0.709				1.360
Integration	The that I purchased most recently provided integrated interactions across online and physical store.	0.692	0.691	0.718	0.617	1.617
	The that I purchased most recently provided integrated descriptions of fashion products across online and physical store.	0.811				1.547
	The that I purchased most recently launch of new products at the same time across online and physical store.	0.846				1.467
Consistency	The brand provided consistent brand names, and slogans across online and physical store.	0.854	0.760	0.767	0.675	1.814
	The brand provided consistent service feelings across online and physical store.	0.819				1.836
	The brand provided consistent product inventory across online and physical store.	0.791				1.256
Flexibility	The brand that I purchased most recently enabled me try on products in physical stores and order them online.	0.792	0.771	0.730	0.649	1.191
	The brand that I purchased most recently enabled me try order online and make payment and pick-up from physical store.	0.817				1.540
	The brand that I purchased most recently enabled me to buy products online and return/exchange through physical store.	0.807				2.121
Personalization	The brand used my prior purchase records and personal information across different channels to give shopping recommendations.	0.794	0.808	0.818	0.634	2.153
	The brand used my prior purchase records and personal information across different channels to offer shopping discounts and privileges.	0.739				1.394
	The brand used my prior purchase records and personal information across different channels to customize online browsing pages.	0.814				1.546
	The brand used my prior purchase records and personal information across different channels to offer client-specific rewards or member points.	0.834				1.421
Customer Trust	This brand is trustworthy.	0.619	0.771	0.781	0.601	1.228
	It is unnecessary to be cautious with this brand.	0.774				1.490
	This brand provides secure online transactions.	0.834				1.440
	This brand claims are reliable.	0.851				1.689
Privacy Concern	I would not be comfortable sharing my information with this brand.	0.716	0.828	0.829	0.539	1.761
	All things considered, this retailer causes serious privacy problems.	0.741				1.780

(*Continued*)

Table 2. Continued.

Constructs	Indicators	Factor Loading	Cronbach Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)	VIF Outer Model
	I am sensitive about the way this retailer handles my personal information.	0.769				1.876
	To me, it is the most important thing to keep my personal information intact from this retailer.	0.765				1.709
	I am concerned about threats to my privacy.	0.725				1.512
Customer Satisfaction	This brand always meets my requirements.	0.833	0.743	0.663	0.632	1.712
	I am happy with the shopping experience with this brand.	0.863				1.544
	I am pleased with the quality of the service this brand provides.	0.675				1.869

Table 3. Discriminant validity of the model (Fornell and Larcker criteria).

	CONN	CONS	CS	CT	FLEX	INT	PC	PERS
Connectivity	0.744							
Consistency	0.551	0.822						
Customer Satisfaction	0.489	0.707	0.814					
Customer Trust	0.480	0.739	0.771	0.775				
Flexibility	0.502	0.571	0.586	0.584	0.806			
Integration	0.567	0.546	0.552	0.546	0.497	0.786		
Privacy Concern	0.588	0.557	0.625	0.581	0.587	0.555	0.734	
Personalization	0.512	0.621	0.610	0.679	0.578	0.521	0.675	0.796

Table 4. Discriminant validity of the model (Heterotrait-monotrait ratio (HTMT) - Matrix.

	CONN	CONS	CS	CT	FLEX	INT	PC	PERS
Connectivity								
Consistency	0.540							
Customer Satisfaction	0.669	0.634						
Customer trust	0.544	0.561	0.461					
Flexibility	0.593	0.677	0.632	0.362				
Integration	0.346	0.741	0.661	0.679	0.688			
Privacy concern	0.423	0.706	0.563	0.472	0.381	0.374		
Personalization	0.477	0.587	0.585	0.566	0.468	0.698	0.633	

comparing the square root of the average variance extracted with the highest correlation of the respective constructs in the model.

Table 3 outlines the results related to discriminant validity and presents the correlations among the constructs under investigation. When the diagonal values, showing the square root of the average variance extracted, exceed the highest correlation with any other construct in the study, it signifies that the constructs are distinct from one another. The results in Table 3 confirm the discriminant validity of the variables.

Table 4 presents the results of discriminant validity using Heterotrait-monotrait ratio. All HTMT values are well below the threshold of 0.85, indicating good discriminant validity. This means that each construct is sufficiently different from the others, and they are measuring distinct concepts rather than being highly correlated duplicates. Therefore, based on these HTMT validity results, it can be concluded that the variables demonstrate good discriminant validity, supporting the idea that they measure distinct constructs within the context they are being studied.

Evaluation of coefficient of determination

Table 5 presents the coefficient of determination (R2) for the endogenous variables, including omnichannel customer trust and customer satisfaction. The coefficient of determination identifies how much of the variance in an endogenous variable is associated with associated exogenous latent variables. According

Table 5. Coefficient of determination.

	R2
Customer Trust	0.593
Customer Satisfaction	0.645

Table 6. Evaluation of model fitness.

	Model	Threshold
SRMR	0.077	< 0.1
NFI	0.987	> 0.9

to Cohen (1998), values of 0.25, 0.50, and 0.70 indicates weak, moderate, and substantial variance, respectively. As seen in Table 5, the values of R2 were 0.593 and 0.645, indicating significant variance for our study constructs.

A substantial portion of the variation in customer trust (R2 = 0.593) was accounted for by various dimensions of the omnichannel customer experience. In the case of customer satisfaction (R2 = 0.645), an even larger proportion of the variance was associated with trust in the omnichannel retailer.

Evaluation of model fitness

To assess the fitness of the path model, two key indices, the Normed Fit Index (NFI) and the Standardized Root Mean Square Residual (SRMR), were employed. The NFI was used to gauge how well the proposed model aligns with the hypothesized model in this study. An NFI value exceeding 0.9 is considered indicative of a well-fitting model. In addition, SRMR was used to determine the average level of disagreement between the observed and expected correlations, serving as a standard measure for assessing the fitness of the model. The SRMR value should be less than 0.1 (Henseler, 2017). The assessment of path model fitness is presented in Table 6.

The SRMR and NFI indices of the structural model were both within the acceptable range, at 0.077 and 0.987, respectively. This suggests that the standardized root mean square residual and normed fit index align with the expected thresholds, affirming the model's fitness. The observed and predicted measures are notably consistent, validating the study model's overall goodness of fit (GoF).

Evaluation of structural model

After establishing the reliability and validity of our constructs and confirming the fitness of our model, we explored the structural relationships between these variables. A t-test was conducted using the results of a bootstrapping procedure that involved 5,000 samples to assess the direct effects in the research model. The path analysis was performed in three distinct steps. Initially, the direct impact of omnichannel customer experience dimensions on customer trust was examined. Subsequently, the mediating role of customer trust in connecting various omnichannel customer experience dimensions with customer satisfaction is tested. Finally, we investigated how privacy concerns may act as a moderator in the relationship between different dimensions of omnichannel customer experience and customer trust. Tables 7, 8, and 9 present the findings and results of the analysis.

Table 7 presents the results of the structural model tests. A set of hypotheses (H1, H2, H3, H4, H5, and H6) was established to assess the direct relationships between various dimensions of omnichannel customer experience (i.e. connectivity, integration, consistency, flexibility, and personalization) and customer trust, as well as the direct link between customer trust and satisfaction. As shown in Table 6, integration was found to have a positive impact on trust ($\beta = 0.287$, t-value = 2.945, $p < 0.000$), consistency also exhibited a positive effect on trust ($\beta = 0.450$, t-value = 7.640, $p < 0.000$), and flexibility similarly influenced customer trust positively ($\beta = 0.134$, t-value = 2.304, $p < 0.011$). Notably, personalization emerged as the most substantial contributor to customer trust with the highest coefficient value ($\beta = 0.272$, t-value = 4.863, $p < 0.000$). Additionally, a significant positive association was observed between customer trust and customer satisfaction ($\beta = 0.771$, t-value = 22.729, $p < 0.000$). Consequently, the

Table 7. Hypotheses testing (direct effect).

	Hypotheses	Coefficient	T- Value	*p*-Value	Result
H1	Connectivity -> customer trust	0.057	0.995	0.160	Rejected
H2	Integration -> customer trust	0.107	2.945	0.026	Accepted
H3	Consistency -> customer trust	0.450	7.640	0.000	Accepted
H4	Flexibility -> customer trust	0.134	2.304	0.011	Accepted
H5	Personalization-> customer trust	0.272	4.863	0.000	Accepted
H6	Customer trust -> customer satisfaction	0.771	22.792	0.000	Accepted

Table 8. Hypotheses testing (mediation effect).

	Hypotheses	Coefficient	T- Value	*p*-Value	Result
H7	Connectivity -> customer trust -> customer satisfaction	0.044	0.986	0.162	Rejected
H8	Integration -> customer trust -> customer satisfaction	0.083	2.921	0.027	Accepted
H9	Consistency -> customer trust -> customer satisfaction	0.347	6.833	0.000	Accepted
H10	Flexibility -> customer trust -> customer satisfaction	0.104	2.274	0.012	Accepted
H11	Personalization -> customer trust -> customer satisfaction	0.210	5.009	0.000	Accepted

Table 9. Hypotheses testing (moderation effect).

	Hypotheses	Coefficient	T- Value	*p*-Value	Result
H12	Privacy concern x connectivity -> customer trust	0.107	2.844	0.033	Accepted
H13	Privacy concern x integration -> customer trust	0.117	2.136	0.016	Accepted
H14	Privacy concern x consistency -> customer trust	−0.023	0.403	0.344	Rejected
H15	Privacy concern x flexibility-> customer trust	0.069	1.448	0.074	Rejected
H16	Privacy concern x personalization-> customer trust	−0.070	1.143	0.127	Rejected

analysis of the results confirms support for H2, H3, H4, H5, and H6. However, the impact of connectivity (H1) on customer trust was not positive (β = −0.057, t-value = 0.995, $p < 0.160$), thus rejecting H1.

Mediation effect

Table 8 presents the findings of the mediation analysis, indicating the relationship between various dimensions of omnichannel customer experience and customer satisfaction through the mediating role of customer trust. The results of the bootstrapping analysis highlighted that the indirect effects proposed in H8, H9, H10, and H11 were not only positive but also statistically significant. Specifically, the indirect effect of integration on customer satisfaction (via customer trust) was significant (β = 0.083, t-value = 2.921, $p < 0.027$). Similarly, the indirect impact of consistency on customer satisfaction (via customer trust) is also positive and significant (β = 0.347, t-value = 6.833, $p < 0.000$). Furthermore, when customer trust was introduced as a mediator, the indirect relationships between both flexibility and customer satisfaction (β = 0.104, t-value = 2.274, $p < 0.012$) and personalization and customer satisfaction (β = 0.210, t-value = 5.009, $p < 0.000$) were likewise determined to be significant and positive. As a result, it can be concluded that customer trust mediates the relationship between omnichannel customer experience and customer satisfaction. However, customer trust does not have a mediating effect between connectivity and customer satisfaction (β = −0.044, t-value = 0.986, $p < 0.162$), thus rejecting H7.

Moderation effect

Table 9 presents the findings of the moderation analysis. This study employed a two-stage approach to investigate the moderating role of customer privacy concerns, as outlined by Becker et al. (2018), Cheah et al., (2022). The interaction terms, specifically, privacy concern × connectivity (β = 0.107, t-value = 2.844, $p < 0.033$) and privacy concern × integration (β = 0.117, t-value = 2.136, $p < 0.016$), showed significant positive effects. This indicates that privacy concerns effectively moderate the relationship between connectivity and customer trust, as well as between integration and customer trust. Consequently, Hypotheses H12 and H13 support these results. However, the interaction terms privacy concern × consistency (β = −0.023, t-value = 0.403, $p < 0.344$) and privacy concern × personalization (β = −0.070, t-value = 1.143, $p < 0.127$) generated negative and statistically insignificant results. This suggests that privacy concerns do not moderate the relationship between consistency and customer trust, or between personalization and

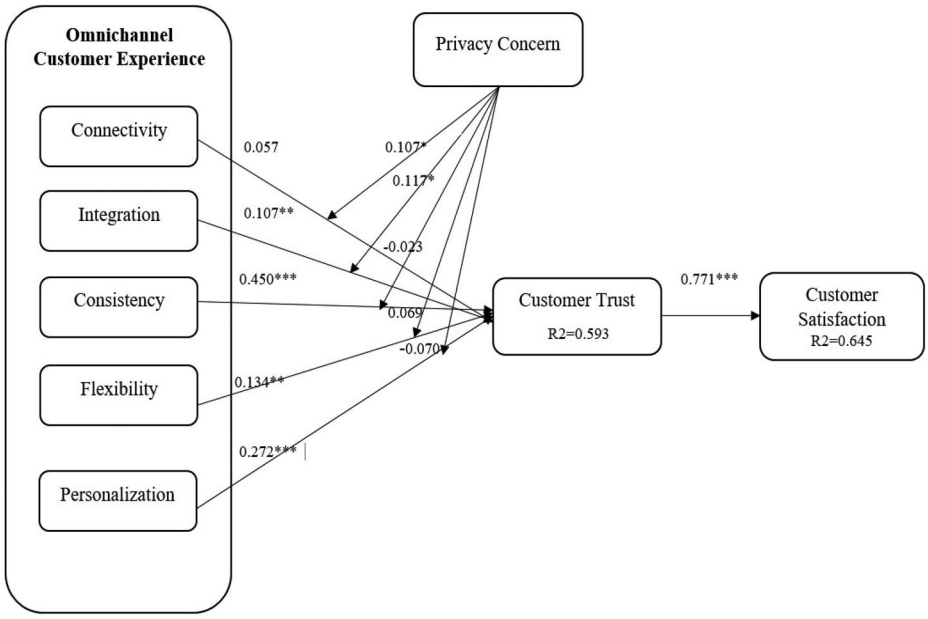

Figure 2. Structural model results.
***$p < 0.001$, **$p < 0.01$, *$p < 0.05$.

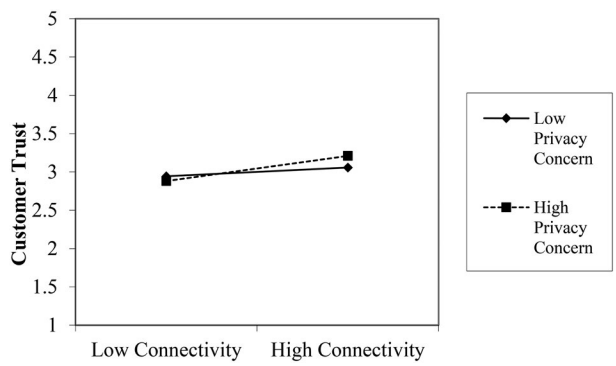

Figure 3. Interaction plot between connectivity and customer trust.

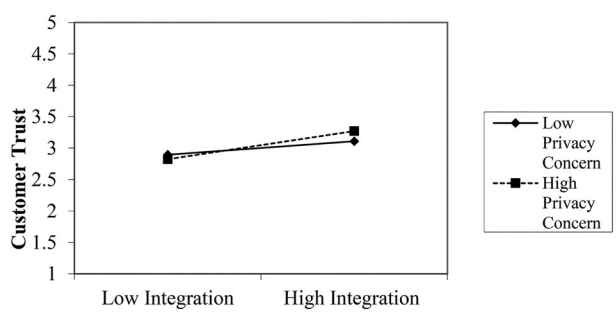

Figure 4. Interaction plot between channel integration and customer trust.

customer trust. Consequently, Hypotheses H14 and H16 are not supported. Finally, the interaction term privacy concern × flexibility displayed an insignificant but positive moderating effect (β = 0.069, t-value = 1.448, $p < 0.074$). However, as the p-value exceeded 0.05, Hypothesis 15 was rejected (see Figure 2).

To provide deeper insights, we created interaction plots presented in Figures 3–7, by considering values one standard deviation below and above the mean of privacy concerns (Dawson, 2014). As shown in Figures 3 and 4, when privacy concern is low (represented by the solid line), connectivity and

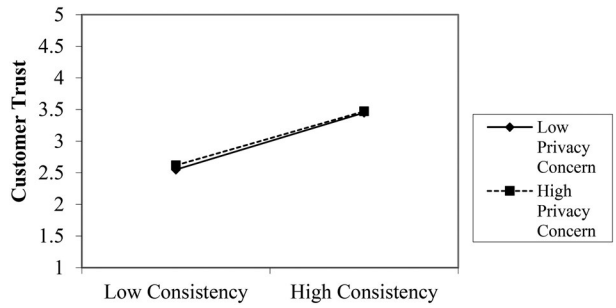

Figure 5. Interaction plot between consistency and customer trust.

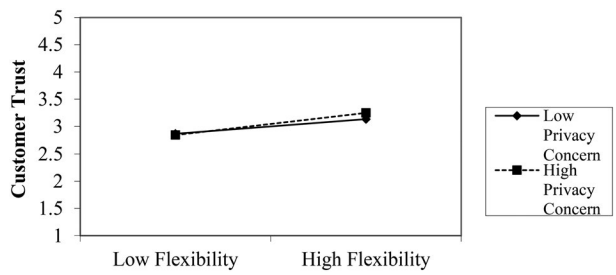

Figure 6. Interaction plot between flexibility and customer trust.

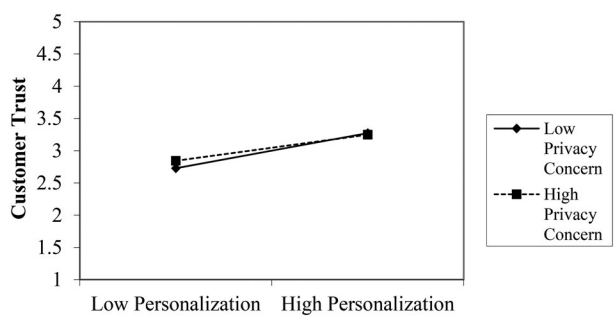

Figure 7. Interaction plot between personalization and customer trust.

integration (on the X-axis) have a gentle slope and positive impact on customer trust (on the Y-axis) compared to a high privacy concern (indicated by the dotted line). This suggests that the impact of omnichannel connectivity and integration is more pronounced when customers have lower levels of privacy concerns than when they have higher levels of privacy concerns. However, in three of the interactions (see Figures 5, 6 and 7), customer trust was not significantly influenced by customer privacy concerns, as indicated by the flat gradient (Dawson, 2014).

Discussion

The findings of the study align with the conceptual model and provide substantial support for most of the hypotheses. The results indicate that various dimensions of omnichannel customer experience, such as integration, consistency, flexibility, and personalization, exert a direct and positive influence on customer trust. Well-integrated channels offer consumers a comprehensive shopping experience, aiding in building trust and ultimately elevating overall customer satisfaction. Effective integration of information across different touchpoints is more likely to reduce consumers' perceived risk and foster trust in the retailer. Additionally, transparent communication across channels empowers customers to become well-informed and acquainted with the services and information available in the omnichannel shopping

environment, aligning with their shopping expectations. Furthermore, the uniformity maintained across channels reduces the effort required when transitioning between them, significantly impacting customer trust and consequently influencing their satisfaction. The flexibility to switch between channels at various stages of the shopping process enhances the perceived control. Moreover, the provision of personalized services and content nurtures the belief that an omnichannel retailer genuinely understands individual customers, thus strengthening trust in the retailer. These results are consistent with earlier studies that underscore the pivotal roles of channel integration, consistency, flexibility, and personalization in fostering customer trust (Li et al., 2023; Moliner & Tortosa-Edo, 2023; Shi et al., 2020).

The findings also identified that customer trust significantly mediates the relationship between the dimensions of omnichannel customers and customer satisfaction. The results show that the omnichannel retailer establishes customer trust by providing consistent, integrated, and personalized customer experience, which in turn influences customer satisfaction. By engaging in personalized communication and offering customized services, an omnichannel retailer fosters emotional trust in multiple sales channels. Moreover, maintaining consistency in the information provided across various touchpoints can have a synergistic effect, streamlining the customer experience and ensuring seamless service when transitioning between different channels. This in turn builds customer trust and cultivates a high level of satisfaction. Furthermore, customers are afforded greater control over their shopping journey within a well-integrated retail environment; they are more inclined to develop a deep sense of trust with that particular omnichannel retailer. This, in all likelihood, significantly impacts their behavioral responses, including overall customer satisfaction. These results are partially consistent with those of Cheah et al. (2022), Mishra et al., (2023) in the context of omnichannel shopping. Finally, the results confirm the moderating role of privacy concerns between connectivity, integration, and customer trust (Mutimukwe et al., 2020). It becomes evident that when consumers perceive that their privacy is not at risk due to the interconnection of cross-channel service content and the quality of channel integration, their trust in the retailer increases. However, high privacy concerns not only reduce their trust but also discourage them from continuing with the transaction, resulting in unfavorable outcomes. These results align with the perspective presented by Cheah et al. (2022), Pagani et al., (2019) in recent studies. Unexpectedly, in the context of both high and low privacy concerns, no significant correlation is observed between consistency, flexibility, and customer trust. Consequently, further research is imperative to gain a more comprehensive understanding of customer trust and the pivotal role of privacy concerns in diverse contexts.

Conclusion

The current research aims to explore how various aspects of the omnichannel customer experience influence customer trust and subsequently impact overall customer satisfaction. Additionally, this study seeks to comprehend the mediating role of customer trust in the relationship between different dimensions of omnichannel customer experience and customer satisfaction. Furthermore, this study investigates the moderating role of customer privacy concerns (both high and low levels of concern) in the relationship between various dimensions of omnichannel customer experience and customer trust. The proposed conceptual framework is established on the stimulus-organism-response model and adopted (Shi et al., 2020) the conceptualization of omnichannel customer experience. In conclusion, this research underscores the vital role of omnichannel integration, consistency, flexibility, and personalization in shaping a positive omnichannel customer experience. The study confirms that these dimensions directly influence customer trust, which in turn significantly impacts overall customer satisfaction. Additionally, the moderating effect of customer privacy concerns highlights the need for businesses to navigate privacy issues effectively.

The findings provide valuable insights for businesses aiming to optimize their omnichannel strategies, emphasizing the importance of trust-building initiatives. Further research is recommended to explore unexpected correlations and deepen our understanding of customer trust and privacy concerns in diverse contexts.

Theoretical contribution of the study

From a theoretical perspective, this study makes a significant contribution by testing various dimensions of the omnichannel experience in relation to customer trust and satisfaction. Previous studies

have primarily emphasized channel integration, but this study takes a significant step in the literature by exploring how each dimension of the omnichannel experience affects customer trust. Although the relationship between trust and satisfaction is an extremely well-established relationship, this study extends further knowledge in the literature by examining customer trust and satisfaction in the context of the omnichannel customer experience. Some researchers have endeavored to explore customer satisfaction with respect to channel integration (Lazaris et al., 2021), seamlessness (Rodríguez-Torrico et al., 2020), and omnichannel shopping value (Riaz et al., 2021). Additionally, Tueanrat et al. (2021) designed a conceptual framework to predict the antecedents of omnichannel customer satisfaction. Moreover, customer trust has mainly been examined through integration quality (Li et al., 2023) and omnichannel engagement (Akter et al., 2023). Therefore, the current research offers significant contributions to omnichannel-related literature by examining both customer trust and satisfaction from the omnichannel customer experience context. Extant literature has also highlighted the significance of understanding omnichannel privacy concerns and empowerment in a broad context (Lazaris et al., 2021; Li et al., 2023). To bridge this knowledge gap, we empirically developed a research model that fully captures customer privacy concerns across multiple dimensions of the omnichannel customer experience. Additionally, this study investigates the moderating role of customer privacy, which was previously tested mainly in the context of channel integration, customer empowerment, and patronage intention. Finally, most of the study's results are consistent with those of prior research, reinforcing the overall implications of the study.

Practical and managerial implications

It is widely recognized that customer experience plays a pivotal role in maintaining a strong customer base. Offering the most exceptional omnichannel customer experience is the key to gaining customers' trust and satisfaction. This study offers valuable practical implications that can significantly enhance the efficient design of omnichannel customer experiences. With recent technological advancements and increased interactions between customers and retailers across various channels and touchpoints, retailers can now collect a vast amount of data. Therefore, the study's findings provide new insights into omnichannel retailers on how to leverage this information to provide personalized and trustworthy experiences to their customers. Our results suggest that creating a more integrated, consistent, and personalized customer experience fosters a greater sense of trust among customers. Therefore, omnichannel retailers should strongly emphasize designing seamless interactions and ensuring consistent messaging across all touchpoints. Additionally, omnichannel retailers should introduce features that streamline customer experience, such as enabling customers to bookmark items or create wish lists accessible across various channels. This empowers customers to start their transactions on one channel and seamlessly continue on another channel without losing any information. These practices must be consistently and transparently implemented to bolster customer trust. Furthermore, retailers should be proactive in enhancing consumer trust, primarily by delivering credible and honest information and ensuring fair and high-quality customer service. Our findings also reflect the substantial effect of customer privacy concerns on trust in retailers. Therefore, the effectiveness of omnichannel retailers in cultivating trust hinges on their handling and mitigation of privacy concerns among consumers. For instance, respecting consumers' rights concerning their personal information through a well-defined privacy policy that grants them control over data collection and usage can effectively address privacy apprehensions. Finally, this study not only offers valuable insights for omnichannel retailers, but also provides a significant recommendation for multichannel retailers. In the current competitive market, the adoption of an omnichannel model is crucial for multichannel retailers. This study highlights that customers now expect multiple yet integrated touchpoints for a seamless experience, fostering trust and satisfaction. As technology continues to advance and customer expectations evolve, embracing omnichannel strategies becomes imperative for retailers to thrive in a dynamic and competitive landscape. Therefore, multichannel retailers should consider transitioning towards an omnichannel approach to meet the evolving demands of their customer base and ensure sustained success in the market.

Limitations and guidelines for future research

This study had certain limitations that should be addressed in future research. Initially, it only examined the influence of omnichannel customer experience on customer trust. Subsequent studies could investigate its effects on other factors such as brand preference, consumer empowerment, and in-store and website traffic. Future research should also consider investigating the direct relationship between omnichannel customer experience dimensions and customer satisfaction to obtain a more comprehensive overview of this interaction. Furthermore, this study lacks a specific industry focus, which may restrict the generalizability of its results. Future research could enhance the relevance of this study by narrowing its focus to a particular industry, such as banking, fashion, or the hospitality industry. Since our findings primarily stem from a survey study that lacks a longitudinal aspect, it does not capture the full dynamics of omnichannel customer experiences. Conducting future research with a longitudinal study design would enable confirmation of causal relationships in the long run. In addition, our purposive sampling method may have generated empirical data that does not entirely reflect the views of all omnichannel customers. Alternative techniques, such as stratified sampling, can be employed to improve the generalizability of our results and enhance their authenticity. Finally, as highlighted by Shi et al. (2020) from a methodological standpoint, this study primarily relied on the survey method with self-reported data. As participants provided survey responses based on their recall of omnichannel shopping experiences, there is a potential for inaccuracy stemming from memory limitations. To enhance the validity of our research model, future studies should explore alternative methods, such as field experiments and focus-group interviews.

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Authors' contributions

Hadiqa Riaz was involved in the conception and design, software, analysis and interpretation of the data; the drafting of the paper, revising it critically for intellectual content; and the final approval of the version to be published.

Hassaan Ahmed was involved in the conception, analysis and interpretation of the data; the drafting of the paper, revising it critically for intellectual content; and the final approval of the version to be published.

Abdul Bashiru Jibril was involved in the data running, software, drafting of the paper, revising it critically for intellectual content, and the final approval of the version to be published.

All authors agree to be accountable for all aspects of this study.

Disclosure statement

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Data availability statement

Data is available to the first author **(*Hadiqa Riaz*)** upon on reasonable request.

References

Akter, S., Hossain, T. M. T., & Strong, C. (2021). What omnichannel really means? *Journal of Strategic Marketing*, *29*(7), 567–573. https://doi.org/10.1080/0965254X.2021.1937284

Akter, S., Mohiuddin Babu, M., Hossain, T. M. T., Dey, B. L., Liu, H., & Singh, P. (2023). Omnichannel management capabilities in international marketing: The effects of word of mouth on customer engagement and customer equity. *International Marketing Review*, *41*(1), 42–73. https://doi.org/10.1108/IMR-09-2022-0203

Alamoudi, H., Shaikh, A. A., Alharthi, M., & Dash, G. (2023). With great power comes great responsibilities – Examining platform-based mechanisms and institutional trust in rideshare services. *Journal of Retailing and Consumer Services*, *73*, 103341. https://doi.org/10.1016/j.jretconser.2023.103341

Asmare, A., & Zewdie, S. (2022). Omnichannel retailing strategy: A systematic review. *The International Review of Retail, Distribution and Consumer Research*, *32*(1), 59–79. https://doi.org/10.1080/09593969.2021.2024447

Becker, J.-M., Ringle, C. M., & Sarstedt, M. (2018). Estimating moderating effects in PLS-SEM and PLSc-SEM: Interaction term generation*Data Treatment (SSRN Scholarly Paper 3223421). *Journal of Applied Structural Equation Modeling*, *2*(2), 1–21. https://papers.ssrn.com/abstract=3223421 https://doi.org/10.47263/JASEM.2(2)01

Blom, A., Lange, F., & Hess, R. L. (2021). Omnichannel promotions and their effect on customer satisfaction. *European Journal of Marketing*, *55*(13), 177–201. https://doi.org/10.1108/EJM-12-2018-0866

Butkouskaya, V., Oyner, O., & Kazakov, S. (2023). The impact of omnichannel integrated marketing communications (IMC) on product and retail service satisfaction. *Journal of Economics, Finance and Administrative Science*, *28*(56), 319–334. https://doi.org/10.1108/JEFAS-09-2022-0237

Calvo, A. V., Franco, A. D., & Frasquet, M. (2023). The role of artificial intelligence in improving the omnichannel customer experience. *International Journal of Retail & Distribution Management*, *51*(9/10), 1174–1194. https://doi.org/10.1108/IJRDM-12-2022-0493

Cattapan, T., & Pongsakornrungsilp, S. (2022). Impact of omnichannel integration on Millennials' purchase intention for fashion retailer. *Cogent Business & Management*, *9*(1), 2087460. https://doi.org/10.1080/23311975.2022.2087460

Chang, V., Doan, L. M. T., Ariel Xu, Q., Hall, K., Anna Wang, Y., & Mustafa Kamal, M. (2023). Digitalization in omnichannel healthcare supply chain businesses: The role of smart wearable devices. *Journal of Business Research*, *156*, 113369. https://doi.org/10.1016/j.jbusres.2022.113369

Cheah, J.-H., Lim, X.-J., Ting, H., Liu, Y., & Quach, S. (2022). Are privacy concerns still relevant? Revisiting consumer behaviour in omnichannel retailing. *Journal of Retailing and Consumer Services*, *65*, 102242. https://doi.org/10.1016/j.jretconser.2020.102242

Chen, T. Y., Yeh, T. L., Wu, H. L., & Deng, S. (2022). Effect of channel integration quality on consumer responses within omni-channel retailing. *Asia Pacific Journal of Marketing and Logistics*, *35*(1), 149–173. https://doi.org/10.1108/APJML-04-2021-0270

Chin, W. W., Thatcher, J. B., & Wright, R. T. (2012). Assessing common method bias: Problems with the ULMC technique. *MIS Quarterly*, *36*(3), 1003–1019. https://doi.org/10.2307/41703491

Cohen, M. P. (1998). *Determining Sample Sizes for Surveys with Data Analyzed by Hierarchical Linear Models*.

Cui, T. H., Ghose, A., Halaburda, H., Iyengar, R., Pauwels, K., Sriram, S., Tucker, C., & Venkataraman, S. (2021). Informational challenges in omnichannel marketing: Remedies and future research. *Journal of Marketing*, *85*(1), 103–120. https://doi.org/10.1177/0022242920968810

Dash, G., & Paul, J. (2021). CB-SEM vs PLS-SEM methods for research in social sciences and technology forecasting. *Technological Forecasting and Social Change*, *173*, 121092. https://doi.org/10.1016/j.techfore.2021.121092

Dawson, J. F. (2014). Moderation in management research: What, why, when, and how. *Journal of Business and Psychology*, *29*(1), 1–19. https://doi.org/10.1007/s10869-013-9308-7

Dehghanpouri, H., Soltani, Z., & Rostamzadeh, R. (2020). The impact of trust, privacy and quality of service on the success of E-CRM: The mediating role of customer satisfaction. *Journal of Business & Industrial Marketing*, *35*(11), 1831–1847. https://doi.org/10.1108/JBIM-07-2019-0325

Fan, X., Tian, L., Wang, C., & Wang, S. (2022). Optimal service decisions in an omni-channel with buy-online-and-pick-up-in-store. *Journal of the Operational Research Society*, *73*(4), 794–810. https://doi.org/10.1080/01605682.2020.1863753

Freedman, M. (2023). *Businesses Are Collecting Data. How Are They Using It?* Business News Daily. https://www.businessnewsdaily.com/10625-businesses-collecting-data.html

Gahler, M., Klein, J. F., & Paul, M. (2023). Customer experience: Conceptualization, measurement, and application in omnichannel environments. *Journal of Service Research*, *26*(2), 191–211. https://doi.org/10.1177/10946705221126590

Gao, M., & Huang, L. (2021). Quality of channel integration and customer loyalty in omnichannel retailing: The mediating role of customer engagement and relationship program receptiveness. *Journal of Retailing and Consumer Services*, *63*, 102688. https://doi.org/10.1016/j.jretconser.2021.102688

Gao, W., & Fan, H. (2021). Omni-channel customer experience (In)consistency and service success: a study based on polynomial regression analysis. *Journal of Theoretical and Applied Electronic Commerce Research*, *16*(6), 1997–2013. https://doi.org/10.3390/jtaer16060112

Gasparin, I., Panina, E., Becker, L., Yrjölä, M., Jaakkola, E., & Pizzutti, C. (2022). Challenging the "integration imperative": A customer perspective on omnichannel journeys. *Journal of Retailing and Consumer Services*, *64*, 102829. https://doi.org/10.1016/j.jretconser.2021.102829

Gerea, C., Gonzalez-Lopez, F., & Herskovic, V. (2021). Omnichannel customer experience and management: An integrative review and research agenda. *Sustainability*, *13*(5), 2824. https://doi.org/10.3390/su13052824

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). *Editorial - Partial Least Squares Structural Equation Modeling: Rigorous Applications, Better Results and Higher Acceptance* (SSRN Scholarly Paper 2233795). https://papers.ssrn.com/abstract=2233795

Hair, J., Ringle, C., & Sarstedt, M. (2016, May). Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 3. In *Academy of Marketing Science (AMS) Annual Conference* (pp. 1-3).

Hamouda, M. (2019). Omni-channel banking integration quality and perceived value as drivers of consumers' satisfaction and loyalty. *Journal of Enterprise Information Management*, *32*(4), 608–625. https://doi.org/10.1108/JEIM-12-2018-0279

Henseler, J. (2017). Partial Least Squares Path Modeling. In P. S. H. Leeflang, J. E. Wieringa, T. H. A. Bijmolt, & K. H. Pauwels (Eds.), *Advanced Methods for Modeling Markets* (pp. 361–381). Springer International Publishing. https://doi.org/10.1007/978-3-319-53469-5_12

Hickman, E., Kharouf, H., & Sekhon, H. (2020). An omnichannel approach to retailing: Demystifying and identifying the factors influencing an omnichannel experience. *The International Review of Retail, Distribution and Consumer Research*, *30*(3), 266–288. https://doi.org/10.1080/09593969.2019.1694562

Hsia, T.-L., Wu, J.-H., Xu, X., Li, Q., Peng, L., & Robinson, S. (2020). Omnichannel retailing: The role of situational involvement in facilitating consumer experiences. *Information & Management*, *57*(8), 103390. https://doi.org/10.1016/j.im.2020.103390

Islam, T., Islam, R., Pitafi, A. H., Xiaobei, L., Rehmani, M., Irfan, M., & Mubarak, M. S. (2021). The impact of corporate social responsibility on customer loyalty: The mediating role of corporate reputation, customer satisfaction, and trust. *Sustainable Production and Consumption*, *25*, 123–135. https://doi.org/10.1016/j.spc.2020.07.019

Kazancoglu, I., & Aydin, H. (2018). An investigation of consumers' purchase intentions towards omni-channel shopping: A qualitative exploratory study. *International Journal of Retail & Distribution Management*, *46*(10), 959–976. https://doi.org/10.1108/IJRDM-04-2018-0074

Kim, M.-J., Chung, N., & Lee, C.-K. (2011). The effect of perceived trust on electronic commerce: Shopping online for tourism products and services in South Korea. *Tourism Management*, *32*(2), 256–265. https://doi.org/10.1016/j.tourman.2010.01.011

Lai, M. H. C. (2021). Composite reliability of multilevel data: It's about observed scores and construct meanings. *Psychological Methods*, *26*(1), 90–102. https://doi.org/10.1037/met0000287

Larke, R., Kilgour, M., & O'Connor, H. (2018). Build touchpoints and they will come: Transitioning to omnichannel retailing. *International Journal of Physical Distribution & Logistics Management*, *48*(4), 465–483. https://doi.org/10.1108/IJPDLM-09-2016-0276

Lazaris, C., Sarantopoulos, P., Vrechopoulos, A., & Doukidis, G. (2021). Effects of increased omnichannel integration on customer satisfaction and loyalty intentions. *International Journal of Electronic Commerce*, *25*(4), 440–468. https://www.tandfonline.com/doi/abs/10.1080/10864415.2021.1967005 https://doi.org/10.1080/10864415.2021.1967005

Le, A. N. H., & Nguyen-Le, X.-D. (2020). A moderated mediating mechanism of omnichannel customer experiences. *International Journal of Retail & Distribution Management*, *49*(5), 595–615. https://doi.org/10.1108/IJRDM-02-2020-0054

Li, Y., Fang, J., Yuan, S., & Cai, Z. (2023). Disentangling the relationship between omnichannel integration and customer trust: A response surface analysis. *Internet Research*, *34* (3), 1077–1103. https://doi.org/10.1108/INTR-03-2022-0222

Mahadevan, K., & Joshi, S. (2021). Omnichannel retailing: A bibliometric and network visualization analysis. *Benchmarking: An International Journal*, *29*(4), 1113–1136. https://doi.org/10.1108/BIJ-12-2020-0622

Mishra, S., Malhotra, G., Chatterjee, R., & Shukla, Y. (2023). Consumer retention through phygital experience in omnichannel retailing: Role of consumer empowerment and satisfaction. *Journal of Strategic Marketing*, *31*(4), 749–766. https://doi.org/10.1080/0965254X.2021.1985594

Moliner, M. A., & Tortosa-Edo, V. (2023). Multirooming: Generating e-satisfaction throughout omnichannel consumer journey design and online customer experience. *Journal of Research in Interactive Marketing*, *18*. (3), 349–369. https://doi.org/10.1108/JRIM-05-2023-0149

Mori, N., & Mlambiti, R. (2020). Determinants of customers' adoption of mobile banking in Tanzania: Further evidence from a diffusion of innovation theory. *Journal of Entrepreneurship, Management and Innovation*, *16*(2), 202–230. https://doi.org/10.7341/20201627

Muthaffar, A., & Vilches-Montero, S. (2023). Empowering retailers: A bounded rationality perspective to enhancing omnichannel journey satisfaction. *Journal of Retailing and Consumer Services*, *75*, 103536. https://doi.org/10.1016/j.jretconser.2023.103536

Mutimukwe, C., Kolkowska, E., & Grönlund, Å. (2020). Information privacy in e-service: Effect of organizational privacy assurances on individual privacy concerns, perceptions, trust and self-disclosure behavior. *Government Information Quarterly*, *37*(1), 101413. https://doi.org/10.1016/j.giq.2019.101413

Pagani, M., Racat, M., & Hofacker, C. F. (2019). Adding voice to the omnichannel and how that affects brand trust. *Journal of Interactive Marketing*, *48*, 89–105. https://doi.org/10.1016/j.intmar.2019.05.002

Pappas, I. O. (2018). User experience in personalized online shopping: A fuzzy-set analysis. *European Journal of Marketing*, *52*(7/8), 1679–1703. https://doi.org/10.1108/EJM-10-2017-0707

Rahman, S. M., Carlson, J., Gudergan, S. P., Wetzels, M., & Grewal, D. (2022). Perceived omnichannel customer experience (OCX): Concept, measurement, and impact. *Journal of Retailing*, *98*(4), 611–632. https://doi.org/10.1016/j.jretai.2022.03.003

Rajaobelina, L., Brun, I., Tep, S. P., & Arcand, M. (2018). Towards a better understanding of mobile banking: The impact of customer experience on trust and commitment. *Journal of Financial Services Marketing*, *23*(3–4), 141–152. https://doi.org/10.1057/s41264-018-0051-z

Riaz, H., Baig, U., Meidute-Kavaliauskiene, I., & Ahmed, H. (2021). Factors effecting omnichannel customer experience: Evidence from fashion retail. *Information*, *13*(1), 12. https://doi.org/10.3390/info13010012

Rodríguez-Torrico, P., Trabold Apadula, L., San-Martín, S., & San José Cabezudo, R. (2020). Have an omnichannel seamless interaction experience! Dimensions and effect on consumer satisfaction. *Journal of Marketing Management*, *36*(17-18), 1731–1761. https://doi.org/10.1080/0267257X.2020.1801798

Saghiri, S., & Mirzabeiki, V. (2021). Omni-channel integration: The matter of information and digital technology. *International Journal of Operations & Production Management*, *41*(11), 1660–1710. https://doi.org/10.1108/IJOPM-04-2021-0262

Shi, S., Wang, Y., Chen, X., & Zhang, Q. (2020). Conceptualization of omnichannel customer experience and its impact on shopping intention: A mixed-method approach. *International Journal of Information Management*, *50*(C), 325–336. https://doi.org/10.1016/j.ijinfomgt.2019.09.001

Song, P., Wang, Q., Liu, H., & Li, Q. (2020). The value of buy-online-and-pickup-in-store in omni-channel: Evidence from customer usage data. *Production and Operations Management*, *29*(4), 995–1010. https://doi.org/10.1111/poms.13146

Tueanrat, Y., Papagiannidis, S., & Alamanos, E. (2021). A conceptual framework of the antecedents of customer journey satisfaction in omnichannel retailing. *Journal of Retailing and Consumer Services*, *61*, 102550. https://doi.org/10.1016/j.jretconser.2021.102550

Wetzlinger, W., Auinger, A., Kindermann, H., & Schönberger, W. (2017). Acceptance of personalization in omnichannel retailing. In: Nah, F. H., Tan, C. H. (Eds.), *HCI in Business, Government and Organizations. Supporting Business*. HCIBGO 2017. Lecture Notes in Computer Science, vol. 10294, 114–129. Cham: Springer. https://doi.org/10.1007/978-3-319-58484-3_10

Yan, B., Chen, Y.-R., Zhou, X.-T., & Fang, J. (2019). Consumer behavior in the omni-channel supply chain under social networking services. *Industrial Management & Data Systems*, *119*(8), 1785–1801. https://doi.org/10.1108/IMDS-03-2019-0111

Zhang, M., Ren, C., Wang, G. A., & He, Z. (2018). The impact of channel integration on consumer responses in omni-channel retailing: The mediating effect of consumer empowerment. *Electronic Commerce Research and Applications*, *28*, 181–193. https://doi.org/10.1016/j.elerap.2018.02.002