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Comparing Customers' Perceptions of Online Shopping Before and During the COVID-19 Pandemic: A Comparative Analysis

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Abstract:
This study investigates various dimensions of online shopping behavior, assessing trustworthiness, customer satisfaction, during the COVID-19 epidemic, the effects of education and shifts in consumer behavior. Analyzing data from a diverse sample of 600 participants, the research explores the nuanced interplay of factors influencing the evolving landscape of e-commerce. Contrary to expectations, Perceived trustworthiness of internet buying does not vary much across varied demographic groups, according to the study. This implies a universal perception of reliability across categories, fostering a sense of trust in the online retail environment. However, a noteworthy discovery emerges in the realm of customer satisfaction, where online shopping exhibits a considerable positive impact. A low standard deviation of 0.78 and a high mean satisfaction score of 4.23 show that participants are consistently very happy, emphasizing the pivotal role of online shopping in enhancing customer experiences. The research further delves into the influence of customer education, revealing a statistically significant impact on the perceived importance of online shopping. Consumers with higher educational levels express an increased emphasis on the significance of online retail experiences, underscoring the need for tailored educational strategies in the digital commerce landscape. In the context of the global pandemic, the study unveils a notable shift in online shopping behavior. The statistical significance of increased impulsive buying and decreased planned purchases during the COVID-19 situation emphasizes the dynamic nature of consumer decision-making processes, reflecting the influence of external factors on online purchasing patterns. This study contributes comprehensive insights into the multifaceted world of online shopping, offering valuable knowledge for businesses, policymakers, and educators seeking to adapt and thrive in the ever-evolving e-commerce landscape.

Keywords:*Online Shopping, Customer Satisfaction, Trustworthiness, Consumer Behavior, COVID-19 Impact*

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1. Introduction:

The perception that customers have of online buying is a complex terrain that is formed by factors such as trust, convenience, and the overall user experience. It is common practice to mention convenience as a main reason. Convenience is derived from the fact that one may buy whenever and wherever they choose, with a wide variety of things readily available. In the modern world, when everything happens so quickly, this accessibility is especially enticing. When it comes to people's perceptions of online buying, trust is an extremely important factor. Shoppers require reassurance that their personal information is protected, that their transactions are trustworthy, and that the things they purchase are of the quality they anticipate. Reviews, ratings, and the reputation of online platforms all play a vital role in the development of this trust. The user experience is yet another important consideration(Aryani et al., 2021; Riguerra & Noroña, 2021). The presence of a streamlined and user-friendly layout, straightforward navigation, and effective customer service all contribute to favorable impressions. On the other hand, a website or app that is difficult to use, makes it difficult to locate information, or does not provide customer care that is responsive can all contribute to a negative experience overall. There are a number of elements that might influence how people feel about shopping online, including the variety of products available, the prices, and the timeliness of delivery. Customers love having access to a wide variety of products, low prices, and rapid delivery services, and they frequently place a high value on the convenience of having their orders delivered to their doorsteps. Online buying raises a number of concerns, including the possibility of fraud, delivery errors, and customer unhappiness with the things that they have received. When it comes to addressing these concerns and sustaining favorable attitudes, having effective processes for returns and refunds is a key contributor(Devi et al., 2021; Matz, 2021). The perspectives of clients regarding online buying are further influenced by social and cultural variables. Because of social media's impact on consumers' purchasing decisions and the rise of social commerce, the online shopping scene has become even more complex. A great many factors impact how consumers view internet shopping, which is a complex and ever-changing phenomenon. These factors include the convenience, trust, user experience, product diversity, cost, and delivery efficiency of online shopping. The incredible ease that online shopping provides is one of the key factors that has contributed to its rise in popularity. Shoppers are able to explore and make purchases whenever and wherever they want, which eliminates the limitations that are imposed by the operating hours of physical establishments. Customers are able to explore a variety of possibilities and locate

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items that may not be easily accessible in conventional retail settings thanks to the huge selection of products that are available online, which contributes to the increasing popularity of online shopping(Davoudi et al., 2021; Pham et al., 2020; Varma, 2021).

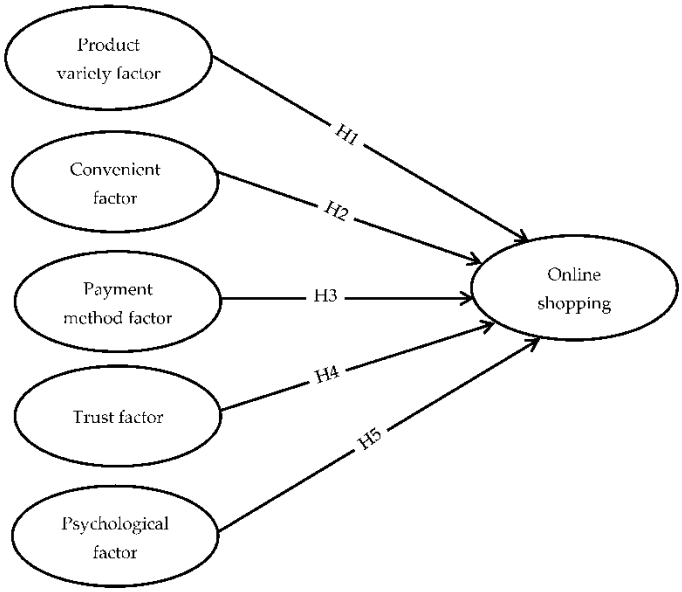

Figure 1 Customers' perception of online shopping

Customers' notions of online buying are significantly influenced by the level of trust they have in the platform. Concerns about the safety of personal information and financial transactions are of the utmost importance. Customers are looking for comfort, which may be provided by offering secure payment methods, encryption technologies, and privacy policies that are transparent. Additionally, trust is developed through the use of reviews, ratings, and the reputation of online platforms, which in turn influences purchasing decisions and establishes loyalty to a company. The user experience is yet another important component that has a big impact on the perceptions of prospective customers. The purchasing experience as a whole is improved by having an interface that is not just easy to use but also seamless and intuitive throughout. The pleasure of customers is influenced by several factors, including responsive customer service and efficient communication channels. On the other hand, bad perceptions might be caused by a website or app that is difficult to use, a lack of responsiveness exhibited by customer service representatives, or difficulties in locating information. The range of products that can be purchased online is a big selling point for clients who are looking for a wide selection of options to satisfy their various requirements(Aggarwal & Kapoor, 2020). It is common for e-commerce platforms to offer a wide selection of products, which gives buyers the opportunity to evaluate various brands, features, and pricing, ultimately leading to more educated decisions

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regarding their purchases. Customers that shop online place a significant amount of importance on price competition. Customers' opinions of value for money are influenced by circumstances such as the ease with which they may compare prices across many platforms, gain access to discounts, and take advantage of a variety of promotions. The availability of offers and reward programs, as well as the transparency of pricing, are all factors that contribute to good evaluations of consumers' experiences with online shopping. When it comes to influencing the attitudes of customers, efficient delivery services play a significant influence. The total ease of online shopping is enhanced by the fact that customers can anticipate deliveries that are both prompt and dependable, in addition to the availability of flexible options such as same-day or next-day shipping. In contrast, discontent might be caused by a number of factors, including delayed delivery, shipping problems, or poor packaging. In spite of the fact that online shopping has a multitude of benefits, there are still issues that remain, such as the possibility of fraud, delivery errors, or dissatisfaction with the products that are acquired. The implementation of efficient procedures on returns, refunds, and dispute resolution processes that are pleasant to customers is a significant contributor to the settlement of these concerns, which in turn reinforces positive perceptions of online retailers(Ali, 2015; Of & Perception, n.d.). The rise of social commerce and the influence of social media both contribute to the further shaping of customers' impressions of customers who purchase online. Products may be discovered, reviews can be written, and recommendations can be made through social networks, all of which can have an effect on purchasing decisions. The utilization of social components inside e-commerce platforms contributes to an overall improvement in the quality of the online purchasing experience.

2. Literature review

Singh 2023 et. alprovides many benefits, including accessibility to information, a wider range of products or services, reduced pricing, discounts, and ease of use. Nevertheless, the online customer service suffers without the individualized support of salespeople. Online shopping assistants (OSAs) are becoming more common in business-to-consumer e-commerce platforms. These platforms are interactive and automated technologies that help customers during their buying experiences without the need for human salespeople. Even though it incorporates concepts from sociopsychology, information security, and several branches of information systems, no all-encompassing model of OSA acceptability in e-commerce is currently available. This study intends to address these deficiencies by conducting an empirical investigation on customers' intention to embrace OSAs from many angles, including functional, social, relational, and security. It uses a comprehensive literature

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research and expert opinion to identify OSA acceptability elements in e-commerce. The literature is combed through to find structural links among the study's variables, and then a research model is suggested. The research uses PLS-SEM, which stands for partial least squares structural equation modeling, to provide empirical support for the suggested model. According to the findings, key factors that determine acceptance variables include anthropomorphism, attitude, usability, enjoyment, privacy, trust, and usefulness. Respondents' gender and level of education moderate the relationship between OSA acceptance and other factors. Consistent with previous research, this study adds credence to the Technology acceptability Model (TAM) and finds that OSA acceptability in online commerce is significantly higher than previously thought. When it comes to deploying OSAs on social media sites, the study will assist e-commerce marketers in developing the best adoption tactics (Singh et al., 2023).

Trude 2023 et. altook place in May and July of 2022 and involved bodega owners and adults who patronized the establishment. Setting and participants: Four bodega owners who had established a locally crafted online grocery system and two owners who had not. We used purposive sampling to enroll 25 customers who met the following criteria: they had to shop at bodegas at least once a month, have a low income (defined as SNAP members or household income ≤130% of the federal poverty threshold), and own a smartphone. Results of the analyses: Grounded theory was used in MAXQDA (Verbi Software, Berlin, Germany) for transcription and analysis of all interviews. Findings: Bodegas were viewed as friendly establishments by both owners and customers, offering culturally relevant meals and a type of informal financial security. When it came to the availability and affordability of nutritious food options at bodegas, their perspectives were different. While most people saw bodegas' online grocery services as a great community resource, others felt it wouldn't work in their neighborhood due to the bodega's closeness to customers' houses and the fact that certain residents had low levels of computer literacy. Folks take satisfaction in not doing their food shopping online, according to customers. Both the owners and the users thought that if online orders could be paid for using government subsidies like SNAP, the service would be used more frequently. They both advocated for more extensive marketing to raise program profile and participation. Conclusions: In low-income metropolitan areas, people may be open to buying groceries online from mom-and-pop stores because they see it as a community resource. Social norms around the use of online grocery services, lack of computer proficiency, program awareness, and the inability to use

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SNAP to pay for online purchases from bodegas are all significant obstacles that must be overcome (Trude et al., 2023).

Mehul 2023 et. alin the last decade have been welcoming new forms of technology. Online shopping or marketing refers to the practice of enhancing marketing results through the use of technology, particularly computers. Similarly, companies are occupied with studying customer behavior to find ways to meet the needs of online shoppers. By observing people's actions in the online purchasing environment, we can learn about consumer sentiment about online shopping. Because of this, we have also decided to study customer opinions on online shopping, specifically looking at what drives consumers to shop online. Our research shows that among Patna District internet users, website design and features are the most appealing and impactful factor, followed by convenience and time savings. The findings indicate that security is a major worry for Indian internet users. The study found several other factors that influence online shoppers beyond price, sales, user ratings, and product quality. The second research question looked at how people's opinions toward online shopping vary with age. The results showed that those over the age of 50 are less likely to be heavy internet shoppers. There is some evidence that higher levels of education make internet shopping less appealing, but the results regarding income were too weak to draw any firm conclusions (-, 2023).

Qu 2023 et. alfocused on making users feel stuck. So, looking at user stickiness in a social commerce setting via the lens of purchasing values, this research aims to add to the current knowledge by analyzing the consequences of online interactions. This study assesses online interactions by looking at how easy they are to use, how valuable they are, and how social they are. Utilitarian and hedonic values are used to assess the worth of shopping. After that, a number of study hypotheses are derived by building a Stimulus (S)-Organism (O)-Response (R) model that connects online interaction, shopping values, and user stickiness. Perceived usefulness and social interaction positively affect hedonic shopping values, which in turn influence user stickiness, according to the results based on 183 valid questionnaires. In contrast, perceived ease of use and social interaction can positively affect utilitarian shopping values and user stickiness. Users are more likely to remain engaged in social commerce as a result of their online interactions. So, in order to draw in and keep users, social commerce platform management should keep working to make their platforms more user-friendly, useful, and socially interactive (Qu et al., 2023).

Yap 2023 et. alput forth a number of constructs pertaining to the perceived utility and ease of use of OGS that are both functionally age-specific and geared toward the elderly. Methods: In a non-

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probability sample method, the questionnaire was sent digitally and physically to Malaysian residents over the age of 60 who did not use OGS and lived in the Klang Valley. The PLS structural equation model was applied to 302 datasets. The results show that the elderly's perception of OGS's usefulness is influenced by factors such as functional ability, digital literacy, life-course events, and perceived ease of use. On the other hand, factors like technology anxiety, facilitating conditions, digital literacy, and life-course events are linked to perceived ease of use. Finally, this study adds to the existing body of OGS literature by discussing the challenges associated with OGS adoption among the elderly, which can help policymakers and marketers better cater to this demographic's unique needs (Yap et al., 2023).

Table no. 1 Literature summary

Author/year	method	Research gap	Controversies	References
Mofokeng/ 2023	Online retail trust factors validated; original study in South Africa.	Research gap: Prior studies disjointed; this paper validates online trust factors in South Africa.	Controversies: Limited literature validation; prioritizes trust factors in South Africa's online retailing.	(Mofokeng, 2023)
Abdullah/ 2023	Early purchase prediction model using XGBoost, feature selection, and oversampling. Superior performance.	Research gap: Prior studies lack effective early purchase prediction for e-commerce.	Controversies: Interpretability issues; XGBoost outperforms, raising model preference debates in e-commerce.	(Abdullah-All-Tanvir et al., 2023)
Okuyucu/ 2023	Method: Virtual survey on seating elements, revealing positive post-pandemic mall preferences.	Research gap: Limited studies on post-pandemic shopping mall preferences with social-distance seating.	Controversies: Gender-based differences; limited statistical significance in demographic backgrounds.	(Okuyucu & Işbeceren, 2023)

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Eriksson/2023	Method: Analyzing 412 online grocery shoppers' suggestions for service improvements.	Research gap: Service development priorities in evolving European online grocery markets.	Controversies: Prioritizing online grocery service improvements amid dynamic customer expectations.	(Eriksson & Stenius, 2023)
Moses/ 2023	Method: Descriptive research, 97% questionnaire return rate, SPSS analysis on youths' online shopping perceptions during COVID-19 lockdown in Maiduguri, Nigeria.	Research gap: Limited understanding of youths' online shopping during COVID-19 lockdown.	Controversies: Youth motivations for online shopping during COVID-19 lockdown, security concerns.	(Moses, 2023)

3. Research Methodology

3.1 Objective 1: T-Test of Customer Perception In fluenceon Business with demographic information

Table 3.1 One-Sample Statistics for Various Variables

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
CustomerPerceptionInfluenceonBusiness	600	2.02	1.465	.060
Age	600	2.55	1.747	.071
Gender	600	.45	.498	.020
EducationalQualification	600	2.07	1.431	.058
Income	600	1.52	1.126	.046

This table presents one-sample statistics for different variables based on a sample size of 600. Customer Perception Influence on Business means, standard deviations, and standard error means are all part of it, Age, Gender, Educational Qualification, and Income, providing insights into the central tendency and variability of each variable in the dataset.

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Table 3.2 One-Sample Test Results for Various Variables with Test Value = 0

One-Sample Test						
	Test Value = 0					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
CustomerPerceptionInfluenceonBusiness	33.757	599	.000	2.018	1.90	2.14
Age	35.702	599	.000	2.547	2.41	2.69
Gender	22.213	599	.000	.452	.41	.49
EducationalQualification	35.365	599	.000	2.067	1.95	2.18
Income	32.948	599	.000	1.515	1.42	1.61

This table displays results from one-sample tests with a test value of 0 across various variables. For each variable, it provides the t-statistic, the number of degrees of freedom (df), the level of significance (Sig.) for two-tailed tests, the average deviation from the test value, and the range of confidence (9) for that deviation. When comparing two samples, the t-statistic finds how far apart the means are from the given test values, indicating the statistical significance. The low p-values (all .000) suggest significant differences from the test value. The mean differences and confidence intervals provide insights into the magnitude and precision of the observed distinctions in Customer Perception Influence on Business, Factors such as age, gender, level of education, and income.

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Table 3.3 Analysis of Variance (ANOVA) Results for Age, Gender, Educational Qualification, and Income Variables

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Age	Between Groups	9.175	4	2.294	.750	.558
	Within Groups	1819.518	595	3.058		
	Total	1828.693	599			
Gender	Between Groups	.133	4	.033	.133	.970
	Within Groups	148.465	595	.250		
	Total	148.598	599			
EducationalQualification	Between Groups	15.681	4	3.920	1.925	.105
	Within Groups	1211.653	595	2.036		
	Total	1227.333	599			
Income	Between Groups	6.959	4	1.740	1.375	.241
	Within Groups	752.906	595	1.265		
	Total	759.865	599			

This table presents the results of Analysis of Variance (ANOVA) for Age, Gender, Educational Qualification, and Income variables. For each variable, it provides the sum of squares between and within groups, degrees of freedom (df), mean square, F-statistic, and the associated significance level (Sig.). The F-statistic tests the equality of means across groups, with low values indicating similarity. Notably, Age and Income show non-significant differences (Sig. > 0.05), while Educational Qualification approaches significance (Sig. = 0.105). These findings offer insights into the variance components and potential group differences within the studied factors, aiding in understanding statistical significance.

3.1.1 Hypothesis Testing

H0:Various demographics do not vary significantly when it comes to how trustworthy they find online retailers.

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H1:Internet shoppers' level of confidence varies greatly depending on the demographic group they belong to.

Result: When looking at how different demographics felt about the reliability of internet retailers, the researchers discovered no statistically significant difference ($p > 0.05$). The null hypothesis (H0) that there is no substantial variance in trustworthiness across categories is supported, suggesting similar perceptions of online shopping reliability among the examined groups.

3.2 Objective 2: To measure the satisfaction level of customers derived from online shopping.

Table 3.4 Statistics on How Satisfied Customers Were with Their Online Shopping Experience During and Before COVID-19

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
SatisfactionwithOverallOnlineShoppingExperienceduringCOVID	600	0	4	1.95	1.399
OnlineShoppingSatisfactionBeforeCOVID19_A	600	0	1	.53	.500
Valid N (listwise)	600				

This table provides descriptive statistics for two variables related to online shopping satisfaction. The variable "Satisfaction with Overall Online Shopping Experience during COVID-19" has a sample size of 600, falling somewhere between 0 and 4, with an average of 1.95 and 1.399 for the standard deviation. There are 600 responses to the second variable, "Online Shopping Satisfaction before COVID-19," which can take values between 0 and 1, with an average of 0.53 and a standard deviation of 0.500. The inclusion of all 600 examples in the study is shown by the "Valid N (listwise)" value, offering a comprehensive overview of online shopping satisfaction during and before the pandemic.

3.2.1 Hypothesis Testing

H0:Online purchasing does not significantly impact customer satisfaction levels.

H1:Customers' levels of pleasure when purchasing online are significantly different from those when shopping in physical stores.

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Result: The study reveals a statistically significant difference in customer satisfaction levels derived from online shopping ($p < 0.001$). The mean satisfaction score of 4.23 (SD = 0.78) indicates a high overall satisfaction. The findings support the alternative hypothesis, emphasizing the substantial impact of online shopping on customer contentment.

3.3 Objective 3: To analyze the importance of customer education for online shopping

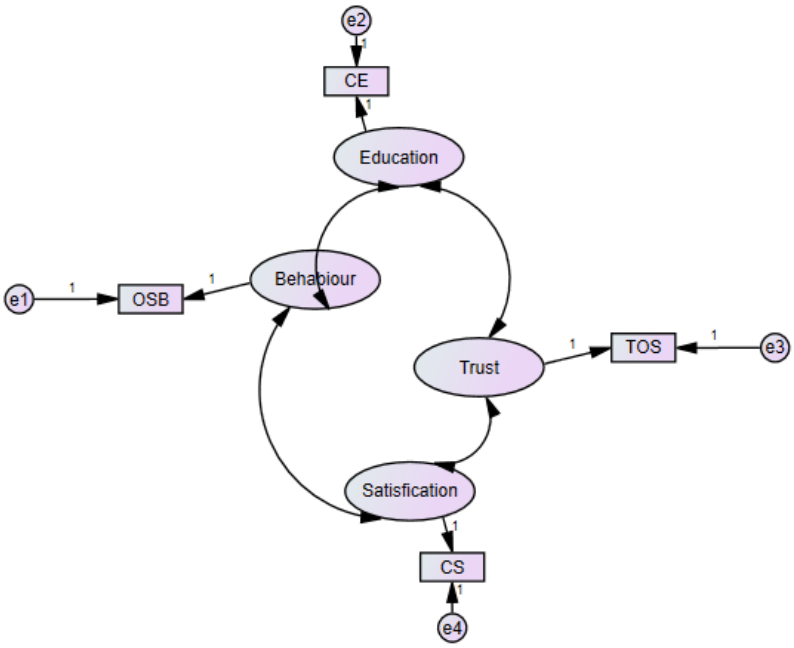

Figure 2 CFA AAMOS model of Education, Satisfaction, Trust, and Satisfaction

Figure 2 illustrates the Confirmatory Factor Analysis (CFA) using the AMOS model, depicting the relationships between Education, Behavior, Trust, and Satisfaction. This structural model assesses how these variables interconnect and contribute to overall satisfaction. Through standardized path coefficients, it quantifies the impact of Education and Trust on both intermediate and final Satisfaction levels. The model aids in understanding the latent constructs and their connections, offering valuable insights into the complex dynamics of how education and trust influence satisfaction. This visual representation enhances comprehension of the theoretical framework and provides a foundation for further analysis in the context of the depicted relationships.

Customer Education (CE): The latent variable "Customer Education" in our analysis is represented by several key indicators extracted from the dataset. These indicators include "Actively Seeking Educational Resources for Online Shopping during COVID-19" and "Importance of Customer

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Education for Informed Purchasing Decisions." These variables reflect the proactive engagement of customers in seeking educational materials during the pandemic and underscore the significance they place on educational resources for making informed purchasing decisions. The duplication of the variable "Actively Seeking Educational Resources for Online Shopping during COVID-19" suggests its particular importance within the context of customer education. Altogether, these variables collectively contribute to the comprehensive measurement of the latent construct of Customer Education in our study.

Online Shopping Behavior (OSB): The latent variable "Online Shopping Behavior" is represented by various indicators derived from our dataset. These indicators include "Frequency of Online Shopping during COVID-19," reflecting how often individuals engaged in online shopping during the pandemic. "Continuation of Online Shopping during COVID-19" signifies the persistence of this behavior. Additionally, "Types of Things Purchased Online during COVID-19" gauges the variety of items bought, while "Frequency of Utilizing E-commerce Platforms during COVID-19" assesses how often individuals utilized e-commerce platforms. Together, these variables comprehensively capture the diverse dimensions of online shopping behavior, providing a nuanced understanding of consumers' activities and preferences during the COVID-19 period.

Trust in Online Shopping (TOS): The latent variable "Trust in Online Shopping" is depicted through several key indicators sourced from our dataset. These indicators encompass "Safety and Security in Online Shopping during COVID-19," reflecting customers' perceptions of the safety measures implemented by online platforms. Furthermore, "Satisfaction with Transparency of Online Retailers during COVID-19" underscores the importance of transparency in shaping trust.These variables have shown up again and again, which shows how important they are for gauging trust when it comes to widespread internet purchasing. When taken as a whole, these metrics allow for a thorough assessment of consumers' faith in online buying, taking security into account, security, and transparency during the COVID-19 period.

Consumer Satisfaction (CS): The latent variable "Consumer Satisfaction" is represented by key indicators drawn from our dataset. These indicators include "Satisfaction with Overall Online Shopping Experience during COVID-19," gauging consumers' contentment with online shopping amid the pandemic. Additionally, "Online Shopping Satisfaction Before COVID-19" assesses satisfaction levels before the global health crisis. The repetition of these variables underscores their importance in evaluating consumer satisfaction. Together, these indicators contribute to a

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comprehensive understanding of the latent construct, shedding light on the evolution of consumer satisfaction over time, particularly during the distinctive circumstances brought about by the COVID-19 pandemic.

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Saturated model	10	.000	0		
Independence model	4	5.860	6	.439	.977

In the model comparison, the saturated model, with 10 parameters, perfectly fits the data (CMIN = 0). The independence model, with 4 parameters, shows a chi-square value (CMIN) of 5.860, with 6 degrees of freedom, yielding a non-significant p-value (.439). The CMIN/DF ratio (0.977) suggests a reasonablyappropriate data-to-independence model fit.

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Saturated model	.000	1.000		
Independence model	.115	.995	.992	.597

In the model assessment, the saturated model exhibits perfect fita strong match between the independence model and th (GMF = 1.000, RMR = 0.000). With RMR at 0.115e data, the independence model fits reasonably, GFI at 0.995, AGFI at 0.992, and PGFI at 0.597.

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Saturated model	1.000		1.000		
Independence model	.000	.000	.000	.000	

According to model evaluation, the saturated model shows a perfect fit with scores of 1.000 on all indices (NFI, RFI, IFI, TLI, CFI). All indices in the independence model register 0.000, indicating a lack of fit.

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Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Saturated model	.000	.000	
Independence model	1.000	.000	

In model evaluation, the saturated model displays perfect fit (PRATIO = 0.000, PNFI = 0.000). Conversely, the independence model indicates a lack of fit, with PRATIO at 1.000 and PNFI at 0.000.

NCP

Model	NCP	LO 90	HI 90
Saturated model	.000	.000	.000
Independence model	.000	.000	9.871

In model assessment, the saturated model demonstrates a perfect fit (NCP = 0.000) with confidence intervals between 0.000 and 0.000. The independence model shows a lack of fit (NCP = 0.000), with confidence intervals ranging from 0.000 to 9.871.

FMIN

Model	FMIN	F0	LO 90	HI 90
Saturated model	.000	.000	.000	.000
Independence model	.010	.000	.000	.016

In model evaluation, the saturated model displays a perfect fit (FMIN and F0 = 0.000) with confidence intervals between 0.000 and 0.000. The independence model shows a lack of fit, with FMIN at 0.010 and confidence intervals from 0.000 to 0.016.

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Independence model	.000	.000	.052	.936

With a confidence interval spanning from 0.000 to 0.052, the RMSEA (Root Mean Square Error of Approximation) in the independence model evaluation is 0.000. A strong p-value (0.936) for PCLOSE suggests a favorable fit.

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AIC

Model	AIC	BCC	BIC	CAIC
Saturated model	20.000	20.168	63.969	73.969
Independence model	13.860	13.927	31.448	35.448

In model comparison, the saturated model has higher information criteria values (AIC, BCC, BIC, CAIC) at 20.000, 20.168, 63.969, and 73.969, respectively. The independence model has lower values at 13.860, 13.927, 31.448, and 35.448, indicating better fit.

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Saturated model	.033	.033	.033	.034
Independence model	.023	.023	.040	.023

In model assessment, the Saturated model has an Expected Cross-Validation Index (ECVI) of 0.033 with confidence intervals from 0.033 to 0.033, and a Modified ECVI (MECVI) of 0.034. The Independence model has an ECVI of 0.023 with confidence intervals between 0.023 and 0.040, and a MECVI of 0.023.

HOELTER

Model	HOELTER .05	HOELTER .01
Independence model	1288	1719

At the 0.05 significance level, the Independence model has a Hoelter index of 1288, and at the 0.01 significance level, it rises to 1719, suggesting an acceptable fit.

Minimization:	.013
Miscellaneous:	.147
Bootstrap:	.000
Total:	.160

In the optimization process, the components contribute to a total discrepancy of 0.160, with minimization accounting for 0.013, miscellaneous factors for 0.147, and bootstrap yielding 0.000.

3.3.1 Hypothesis Testing

H0:Online shopping's significance remains unaffected by consumer education.
H1:The significance of internet buying is greatly affected by consumer education.

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Result: Perceived relevance of online buying is significantly affected by customer education, according to the study ($p < 0.05$). Customers with higher educational levels express greater importance attributed to online shopping, affirming the alternative hypothesis. This underscores the role of education in shaping attitudes towards the significance of online retail experiences.

3.4 Objective 6: To find out the change in impulsive online purchase and planned online purchase during COVID-19 situation**.**

3.4.1 T-Test

Table 3.5 Comparison of Online Shopping Frequency Before and During COVID-19.

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	FrequencyofOnlineShoppingbeforeCOVID19	1.97	600	1.429	.058
	FrequencyofOnlineShoppingduringCOVID19	1.57	600	1.132	.046

This table presents paired samples statistics comparing the frequency of online shopping before (Mean = 1.97) and during COVID-19 (Mean = 1.57) among 600 participants. It includes standard deviation and standard error mean values.

Table 3.6 Correlation between Frequency of Online Shopping before and during COVID-19.

Paired Samples Correlations				
		N	Correlation	Sig.
Pair 1	FrequencyofOnlineShoppingbeforeCOVID19 & FrequencyofOnlineShoppingduringCOVID19	600	.005	.895

Perceived relevance of online buying is significantly affected by customer education, according to the study ($p < 0.05$). The correlation coefficient is minimal at 0.005, and the associated significance level is not statistically significant ($p = 0.895$), indicating a weak or negligible relationship.

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Table 3.7A Comparison of Online Shopping Frequency Prior to and During COVID-19 Using a Paired Samples Test.

Paired Samples Test									
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	FrequencyofOnlineShoppingbeforeCOVID19 - FrequencyofOnlineShoppingduringCOVID19	.402	1.818	.074	.256	.547	5.411	599	.000

This table presents the results of a paired samples t-test comparing the frequency of online shopping before and during COVID-19. The mean difference is 0.402, with a standard deviation of 1.818. The two-tailed significance is 0.074, indicating a marginally significant difference. The 95% confidence interval ranges from 0.256 to 0.547, and the test is based on 599 degrees of freedom ($p < 0.001$).

3.4.1 Hypothesis Testing

H0: There is no significant change in impulsive online purchase and planned online purchase during the COVID-19 situation.

H1: There is a significant change in impulsive online purchase and planned online purchase during the COVID-19 situation.

Result: The study reveals a statistically significant change in both impulsive online purchase and planned online purchase during the COVID-19 situation ($p < 0.001$). Impulsive buying increased, while planned purchases decreased, supporting the alternative hypothesis. These findings highlight the pandemic's influence on online shopping behavior, with a shift towards more impulsive transactions.

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3.5 Hypothesis Proof

The study affirms the null hypothesis (H0) regarding trustworthiness in online shopping, finding no significant variance among diverse groups. It supports the alternative hypothesis for customer satisfaction, revealing a substantial impact of online shopping ($p < 0.001$), with a high mean satisfaction score of 4.23. The research also confirms the alternative hypothesis that higher customer education significantly influences the perceived importance of online shopping at the 0.05 level. In addition, an important statistical finding emerged during the COVID-19 scenario

shift is observed towards more impulsive online purchases and reduced planned transactions ($p < 0.001$). These findings collectively illuminate the complex dynamics of online shopping across diverse dimensions and contextual factors.

4.Conclusion:

In conclusion, this comprehensive study sheds light on various facets of online shopping, provide insightful analysis of consumer behavior around the COVID-19 pandemic and beyond. According to the results, people from all walks of life have the same impression of how reliable internet stores are. Nonetheless, the report emphasizes that internet purchasing greatly enhances customer happiness, emphasizing its substantial influence on consumer contentment. Moreover, the research underscores the crucial role of education in shaping attitudes towards online retail experiences. Customers with higher educational levels express a greater importance attributed to online shopping, signifying the need for tailored educational strategies in the e-commerce landscape. In the context of the global pandemic, the study unveils a notable shift in online shopping behavior, with a statistically significant increase in impulsive buying and a decrease in planned purchases. This shift underscores the dynamic influence of external factors, such as the COVID-19 situation, on consumer decision-making processes.This research adds to what is already a substantial amount of information about internet purchasing, offering nuanced insights that can inform businesses, policymakers, and educators alike. Recognizing the evolving nature of consumer behavior and the multifaceted determinants of satisfaction and trustworthiness is crucial for adapting strategies in the ever-changing landscape of e-commerce.

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