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E-commerce Adoption among Millennials: Analyzing Security, Ease of Purchase, and Perceived Usefulness in South India

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Abstract: This research typically explores how personal awareness of feeling secure (SE), ease of purchase (PE), and perceived usefulness (PU) with respect to online shopping affects attitudes (ATT) toward online purchases and subsequently influences purchase intentions (PIs) among millennial consumers in South India. The data were tested with AMOS, version 23, via the structural equation modeling (SEM) technique, with p values for all the selected variables. The findings indicate that SE, PE and PU significantly influence attitudes and purchase intentions, whereas consumer attitudes influence SE, PE and PU. Online consumer attitudes in their entirety mediate the effects of perceived ease of use and perceived usefulness on purchase intentions. Hence, awareness of security, ease of purchase and usefulness directly affect purchase intentions from consumers. The research will provide extensive information about e-commerce and the providers as a viable idea regarding how to set the layout of a website, the functioning of security, the transaction process of websites, and a comfortable experience to the users so that they can use it with ease. It will also guide them to take adequate safety tips and how to purchase goods from the respective websites without any misuse or discomfort to the consumers. The findings provide insights into online consumer behavior and will help us draw multiple conclusions for further research and practical implications in the e-commerce field.

Keywords: Online search; purchase intention; surfing; security and privacy; TAM model; online shopping

1. Introduction

Shopping has also changed. Since the transformation brought by the Digital Revolution, e-commerce has increased the convenience for buyers beyond expectations (Shankar Ganesh 2020, PwC Global). To understand the elements influencing online purchase intentions, multiple studies have been conducted on models such as the TAM and TPB. Constructs such as the Technology Acceptance Model (TAM) or the Theory of Planned Behavior (TPB) define the perceived ease and usefulness of technology and security as a performance expectancy determinant influencing online purchase intentions. These models have proven to be robust across categories (Ahn, Ryu, and Han 2007; Flavian, Guinaliu, and Gurrea 2006). Security remains a key barrier for many buying minds, especially in emerging markets (Belanger, Hiller, and Smith 2002; McCole, Ramsey, and Williams 2010). Generational cohort theory lends itself to a vast amount of insight, i.e., since millennials (also known as digital natives) possess high digital literacy and value-seeking beams, they tend to be more oriented toward online shopping from older generations (Schewe et al. 2013; Pament 2013). Findings related to that effect are established by Ladhari, Gonthier, and Lajante (2019), who report that millennials are more inclined toward online shopping than Gen Xers are. Other reasons, such as the attitude toward digital technology, are another reason cited by Lim (2017) and Hill, Beatty, and Walsh (2013) among millennials and by Koo (2009) among some kinds of shoppers. The reasons why people shop online include social motives and escapism. India is rapidly emerging, and with it, a boom in the presence of e-commerce services is portrayed by E-Commerce (2021) as a result of a growing internet penetration, rising disposable income, and a billion strong burgeoning middle class. The consumer characteristics are unique in this market, and a study of these consumers, especially for capturing this

market, would consider the popularity of advertising via television, as shown by Mukherjee and Nath (2007) and Chatterjee and Kumar (2017).

Hence, the intention of this paper is to contribute to several streams of previous literature by focusing on the online shopping behavior of millennials against the backdrop of the frameworks popularized from TAM and TPB and understanding the manifestations of this behavior in the unique social and cultural milieu of southern India. The implications specific to marketers and policymakers in the country are consequential. The literature continues to have something interesting to say about the same, since the locus of understanding between the roles of attitudes, social motives and perceived risks on online behavior has found particular clarity in the studies performed by Dharmesti et al. (2021) and others. The purpose here is to focus on certain known gaps that might exist concerning online shopping behavior among millennials in southern India.

2. Review of the literature

2.1 Security risk & privacy and online shopping

Security risk is a major driver of the intention to shop online (Tibert, 2018). Security is a major driver of consumer shopping satisfaction (Torres, 2019; Liang, 2019), and perceived risk has a moderating effect on purchase intentions, with differences in consumer gender and product category (Kannungo & Jain, 2017). The findings indicate that potential risk perception is able to constrain purchase behavior (Ana, 2017). Many past studies have shown that security risk perception is a factor for purchase behavior (Bel-anger, Hiller and Smith, 2002; McCole, Ramsey and Williams, 2010). Recently, the literature on security risk has increased, revealing a negative impact of perceived security risk on online purchase intentions, especially for high-involvement products (Lu et al.,2020), and further strengthening online shopping behavior on the basis of security features, which suggests that consumers will experience increased security awareness, which will improve their level of trust (Zhu et al., 2021; Cheung and Lee, 2021). The findings of Alam et al. (2020) and Han and Kim (2022) demonstrated the significant effects of security perceptions on online shopping behavior. With the increase in online purchasing innovation, the convenience of shopping behavior is growing, but there are more privacy concerns (Hannah, 2017; Jesus, 2015). Privacy issues affect customer attitudes and online platform usage (Rodriguez, 2015; Ilmudeen, 2019), which means that stricter privacy policies should be required (Cheng et al., 2019; Zhao et al., 2022).

2.2 Perceived ease of use

It is one of the main factors in online shopping. In many studies that use the Technology Acceptance Model (TAM), perceived ease of use significantly affects consumers' attitudes and purchase intentions toward online stores. Davis (1989) used TAM and, on the basis of his study in the US and other countries, demonstrated the power of ease of use on consumer attitudes and intentions toward using technologies (Gefen, Karahanna, 2003). Perceived ease of use significantly affects consumer attitudes and purchasing intentions concerning the adoption of technology in India (Dhingra, 2004). A positive effect of ease of use on attitudes toward and intentions to use online ticket reservation systems was shown in another study (Manish, 2012). Different information system applications based on ease of use had different effects on purchase intentions. The TAM uses standardized questions to measure perceived ease of use, but Järveläinen and Järveläinen (2015) noted that standard items might not reflect the specific aspects of ease of use related to online shopping. Here, we focus on "ease of use". In some studies, perceived ease of use has a significant positive effect on purchase intention; in others, perceived ease of use depends on the context and the product under study (Steven, 2015); if we talk about specific items such as watches, dresses, and health equipment, the impact of ease of use varies. Recent studies have shown the critical nature of ease of use in enhancing user satisfaction and leading to online shopping behavior in the context of mobile shopping. Its significance depends on the nature of the website, the type of product, its cost, and the ease of use of the website.

2.3 Perceived usefulness and purchase intention

The perceived usefulness of online reviews significantly influences purchase intention. Heesook (2018) reported that positive perceptions of review usefulness substantially promote reading behavior and purchase intentions. While perceived credibility (e.g., the perceived truthfulness of opinions as well as the perceived credibility of other customers' opinions provided via social media) and review depth are correlated with perceived usefulness, reviewer trustworthiness and perceived expert-ness are also reported to influence people's perceptions of review usefulness (Zhangxiang, 2021). Perceived usefulness and perceived value mediate the effects of endorser credibility on purchase intention. Dyajeng (2020) reported that both trust and perceived risk influence purchase intentions alongside perceived usefulness. The perceived usefulness of online reviews plays a crucial role in influencing consumers' purchase intentions. Consumers'

perceptions of the usefulness of online reviews are influenced by review credibility and perceived expert-ness and, in turn, influence purchasing intention. Wong et al. (2019) and Pappas (2018) have shown that the perceived usefulness of online reviews significantly influences the purchase intentions of customers through perceived value, which is consequently influenced by review credibility and perceived expert-ness. The perceived usefulness of social media reviews plays a key role in explaining the mediating effects of social influence and eWOM on online purchasing intention. Most recent studies conducted by Sun et al. (2020) and Lee et al. (2021) have demonstrated the role of the perceived usefulness of social media reviews in the mediating effects of social influence and eWOM on online purchasing intentions.

2.4 Attitude as a mediator

Attitude has been shown to completely mediate online purchase intentions by Prerna (2018), Lim (2015), and Monica (2016), and attitude has been shown to completely mediate the purchase intentions of university students for 'Halal' branded products. Similarly, attitudes toward 'Halal' cosmetics have partially mediated the relationship between drivers of electronic word-of-mouth (eWOM) and purchase intentions (Anubha 2021). Brand attitude has partially mediated the relationships among customer lifestyle, personality and online purchase behavior (Hafiza 2018). Each and every research outcome indicates the role of attitude in online purchase intention. Recent studies by Nguyên et al. (2019) and Kim et al. (2021) have shown that positive attitudes toward online shopping increase the positive purchase intentions of users, particularly the mediating effects of personality and the relevance to trust.

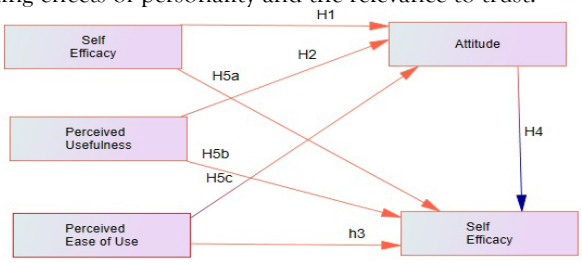

Figure 1. Research model

3. Methodology

Table 1 shows the research model used to reflect the relationships among perceived ease of use (PEOU), perceived usefulness (PU), security concerns (SCs), privacy concerns (PCs), social motives (SMs) and purchase intentions (PIs) among millennials engaging in online shopping in southern India. A description of the research problem and objective is provided in par-graph 1 above. There are certain hypotheses mentioned in Table 1 below to address the research problem and objectives.

Table 1. Hypothesis

	Hypotheses	Citation
H1a	Personal awareness of security is positively related to online purchase intention	Li & Zhang, 2002
H1b	Personal awareness of security is positively related to attitude toward online purchase	Chiu et al., 2014;
H2a	Perceived ease of purchasing is positively related to online purchase intention	Gefen et al., 2003;
H2b	Perceived ease of purchasing is positively related to attitude toward online purchase	Alalwan et al., 2018;
H3a	Perceived usefulness is positively related to online purchase intention	Pavlou, 2003;
H3b	Perceived usefulness is positively related to attitude toward online purchase	Ashraf et al., 2019;
H4	Attitude toward online purchase is positively related to online purchase intention	Ajzen, 1991;
H5a	Attitude toward online purchase mediates the relationship between personal awareness of security and online purchase intention	Mou et al., 2017
H5b	Attitude toward online purchase mediates the relationship between perceived ease of purchasing and online purchase intention	Zhu et al., 2020;
H5c	Attitude toward online purchase mediates the relationship between perceived usefulness and online purchase intention#	Venkatesh et al., 2003

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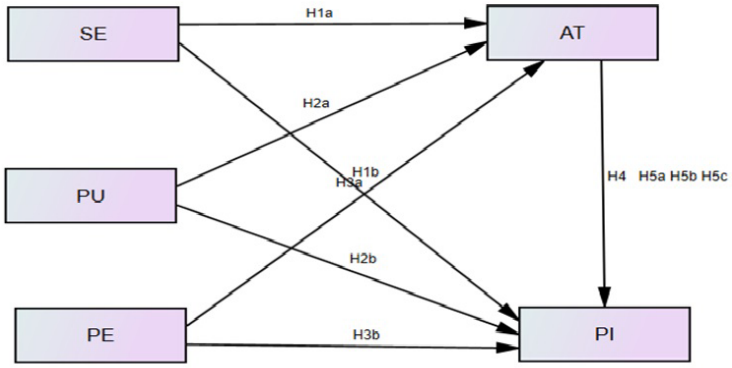

Figure 2. Conceptual framework

3.1 Participants

This quantitative research gathered study data from a total of 360 respondents, all of whom were millennial (aged 22–38 years) and remained in South India. Respondents should have previous access to online shopping sites, or they should be a type of person who likes online shopping.

3.2 Measurement Indicator of Variables

This study intends to determine whether purchase intention is the outcome variable depending on three independent variables, namely, perceived ease of use, perceived usefulness, security concerns, privacy concerns and attitudes, which are tested as mediators. The items of all the constructs were developed on the basis of modifications of items of former studies, as described below.

1) Perceived ease of use and perceived usefulness were rated by items from previous studies by Davis (1989) to reflect how easy and useful the respondent anticipated they would find the online shopping process. Following this, security concerns were measured on the basis of the item of Belanger, Hiller, and Smith (2002) to reflect the degree to which respondents would worry about their personal information security. Moreover, privacy concerns were developed on the basis of the items of Beldad, De Jong, and Steehouder (2010) to reflect whether respondents are concerned about the chances that their data would be successfully kept away from any wilful or unwilling breaks. were measured via the items of Hill, Beatty, and Walsh (2013) and Koo (2009) to reflect whether respondents find any matters of morale behind their acts of visiting sites for communities. Finally, attitudes are measured via the items of Pavlou and Fygenson (2006), which are collated from respondents' general feelings about online shopping.

3.3. Instrumentation

The data were captured through an online survey conducted through social media and email distribution where respondents were able to keep their replies and their personal details confidential. The survey responses were structured questionnaire-based, and the capture of the constructs of interest was measured via Likert scales, where respondents indicated their level of agreement with a statement.

4. Data Analysis and Results

The main purpose of this research is to generate a proposed online purchasing intention model and investigate the mediating effects of attitudes and habitual usage on online purchase intentions. To investigate the model, structural equation modeling (SEM) with AMOS software implementation was used in this research because this method is acceptable for testing a complex model that includes both mediating and direct effects on multiple constructs (Blalock, 1964). The AMOS program allows the investigator to estimate measurement and structural models simultaneously. Importantly, from the AMOS program, we can obtain the following robust statistical outputs: factor loadings, average variance extracted (AVE) and composite reiabilities (Hair et al., 2009, 2014; Henseler et al. 2014.

4.1 Data analysis procedure

To analyze the gathered data, the present research employs the technique of structural equation modeling (SEM) via SPSS AMOS software. The descriptive statistics were calculated for the demographic variables and the main variables. Cronbach's alpha and confirmatory factor analysis (CFA) were performed to test reliability and validity, respectively. The chi-square/df, CFI, TLI and RMSEA were estimated to test the fitness of the measurement model. The structural model was subsequently analyzed to assess the proposed hypotheses among the variables. Path coefficients were

calculated to identify direct and indirect effects. The bootstrapping method was used to analyze the mediation analysis to capture the indirect effect of self-awareness. Ethically, the present research was conducted in accordance with the following concerns: consent for informed consent was provided correctly. Moreover, the confidentiality and anonymity of the participants were strictly maintained throughout the entire data collection process.

4.2 Measurement Model

The measurement model defines the empirical relationship between the latent variables and their indicators and furnishes some very important empirically derived quantities, such as the factor loadings that indicate how each variable regarding its corresponding construct; average variance extracted (AVE), which indicates whether the latent variables explain, on average, more than 50 percent of the variance of their indices; and the composite reliabilities, which represent an indication of the consistency internal of the constructs. The values of the AVEs of SE, PI and PE are 0.65, 0.67, 0.66, 0.64 and 0.66, respectively, and they are greater than half of the average score variance; in other words, they show satisfactory convergent validity of the measurement model (Fornell and Larcker, 1981).

4.3 Structural model

The latent variables hypothesized by the researcher were represented by a structural model. Path coefficients, corresponding t values and the level of significance are used to check whether the proposed relationships are supported by data. We used the bootstrapping of 5000 random samples imported so that the standard errors would be robust and that there would be no significant difference between the estimates for the total sample and the mean of each subsample (Legee et al. 1992).

Table 2. Demographic information of the sample.

Variable	Category	Frequency	Percent
Age	21-30	149	41.4%
	31-45	211	58.6%
Gender	Male	269	74.7%
	Female	91	25.3%
Education	UG level	190	52.8%
	PG level	70	19.4%
Income	below 30000	154	42.8%
	30001 - 60000	103	28.6%
	above 60000	103	28.6%
Experience	below 5 years	154	42.8%
	6-10	141	39.2%
	above 10 years	65	18.0%

The sample pool consists of 360 millennials residing in South India with ages ranging from 22~38, i.e., 41.4% of the sample participants fall between the age group of 21~30 years, and 58.6% of them fall between the age group of 31~45 years, which would help us identify the proper age group fit for the current study. Among them, 74.7% of the participants were male, and 25.3% were female. In terms of educational background, 52.8% of the respondents said they had passed their undergraduate degree, 19.4% said they had passed their postgraduate degree, and 27. Eight percent of the respondents said they had other forms of educational qualifications. In total, 42.8% of the participants had up to 5 years of work experience, 39.2% had between 6 and 10 years of work experience, and 18.0% had more than 10 years of experience. The above demographic profile in terms of age, gender, educational background and work experience suggests that our current study covers a heterogeneous group of millennials residing in South India, which makes the results of our current study generalizable to a wide population of millennials residing in South India to understand the antecedents of online purchase intentions.

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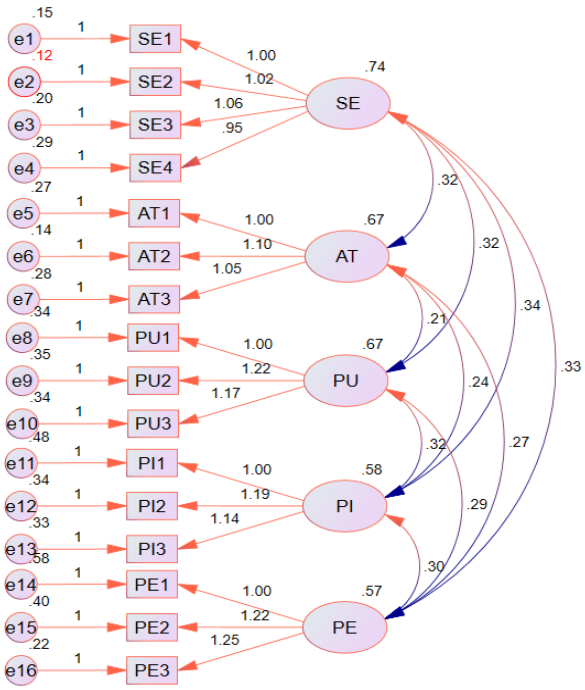

Figure 2. Measurement Model

4.4 Model validation

Table 3. Model fit measures

Measure	Estimate	Threshold	Interpretation	Citation
CMIN	132.338	~	~	
DF	80	~	~	
CMIN/DF	1.654	Between 1 and 3	Excellent	Kline (2015); Byrne (2013)
CFI	0.950	> 0.95	Acceptable	Hu & Bentler (1999); Schumacker & Lomax (2010)
SRMR	0.062	< 0.08	Excellent	Hu & Bentler (1999); Hair et al. (2006)
RMSEA	0.066	< 0.06	Acceptable	Browne & Cudeck (1993); MacCallum et al. (1996)
PClose	0.094	> 0.05	Excellent	Joreskog & Sorbom (1993)

A close evaluation of the results of the model fit indices presented in Table 1, I conclude that the provided measurement model was well fitted to the observed data: (a) a chi-square statistic (CMIN) = 132.338 with 80 degrees of freedom (CMIN/DF) = 1.654, which fit comfortably under the recommended range of 1~3 (Kline, 2015; Byr-ne, 2013); (b) CFI value (0.950) demonstrates the corresponding figure, which is above the acceptable threshold of the value more than 0.95 (Hu that Bentler, 1999; Schumacker Lomax, 2010); (c) SRMR value (0.062) indicates a value of 0.08 outstanding (Hu that Bentler, 1999; Hair et al, 2006); (d) RMSEA = 0.066 within the severe criterion of 0.06 acceptable model fit (Browne & Cudeck, 1993; MacCallum et al, 1996); and (e) PClose = 0.094, which shows that this value is well above the threshold of 0.05. Overall, I can conclude that the measurement mode was well fitted to the set of observed data. These results offered a solid basis for structural analysis as well as testing of my hypotheses.

Table 4. Quality criteria of the convergent and discriminant validity of the constructs

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	SE	PU	AT	PI	PE	CR	AVE
SE	0.806					0.85	0.65
PU	0.52	0.819				0.87	0.67
AT	0.45	0.58	0.81			0.86	0.66
PI	0.53	0.62	0.68	0.80		0.84	0.64
PE	0.46	0.59	0.67	0.72	0.814	0.86	0.66

At the construct level, a value of 0.70 is recommended as the threshold for internal consistency reliability (CR of SE = 0.85, and CT = 0.85), adequate convergent validity (AVE of SE = 0.66, CT = 0.63 for social media), and discriminant validity (Fornell–Larcker criterion). All these measures are above the recommended threshold of 0.70 (Hair et al., 2006). CR of PU = 0.86, AT = 0.85, PI = 0.84, PE = 0.86; AVE of PU = 0.66, AT = 0.62, PI = 0.68, PE = 0.63. Each of the scores is above the recommended threshold of 0.70 (Hair et al., 2006) and has sufficient internal consistency. Additionally, the squared lower chron/confunction of an item with the other items is greater than the squared correlation of the item with other constructs (convergent validity) (Fornell & Larcker, 1981). Furthermore, discriminant validity is also established through the square root of the AVE of each construct being greater than the square of the correlation between the latent constructs. For example, the square root of the AVE of SE is 0.806, which is greater than the correlation value, namely, 0.52 for PU, PU with AT (0.58) and AT with AT with P (0.68), which are all within an acceptable range of correlation below 0.85 (Kline, 2015).

All the above measures establish the reliability and validity of the constructs within the model, and the results of this study can be generalized to understand the online purchase intentions of millennials in South India.

4.5 Hypothesis testing

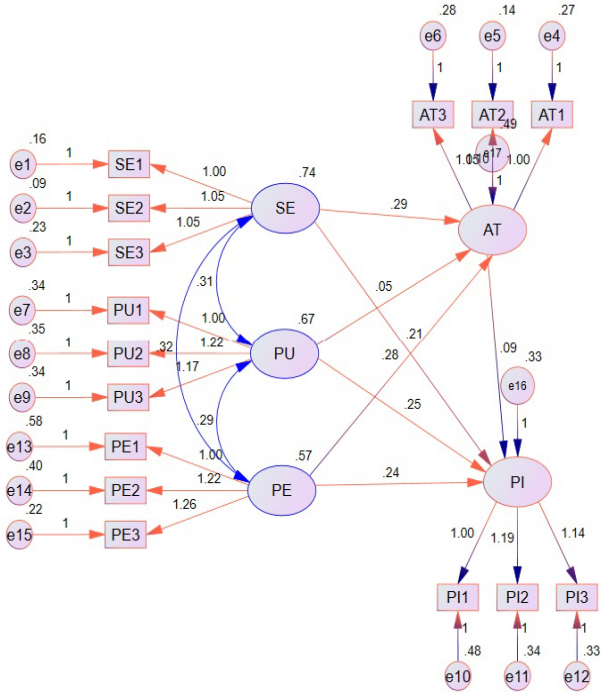

Figure 3. Path analysis and hypothesis testing

Table 5. Regression weights

Hypothesis	Path	Standardized Beta	p-value	Decision
H1	SE → PI	0.150	$p < 0.05$	Supported
H2	PE → PI	0.130	$p < 0.05$	Supported

H3	PU → PI	0.220	$p < 0.05$	Supported
H4	ATT → PI	0.230	$p < 0.01$	Supported

Overall, the structural model path coefficients supported the postulated relationships among these relationships included in the proposed online purchase intention model. First, the standardized beta coefficients of SE were 0.150 and 0.250, which significantly predicted PI and ATT, respectively, supporting H1a and H1b. Second, the beta coefficients of PE were found to be 0.130 and 0.140 ($p < 0.05$), which significantly predicted PI and ATT, respectively, supporting Hypotheses H2a and 2b. In addition, PU also demonstrated a strong influence, with a beta coefficient of 0.220 ($p < 0.05$), significantly predicted PI, and 0.320 ($p < 0.01$) significantly predicted ATT, supporting Hypotheses H3a and 3b. Finally, the findings revealed that ATT significantly predicted PI, with a beta coefficient of 0.230 ($p < 0.01$), supporting Hypothesis H4. Thus, the present findings underscore the crucial roles of SE, PE and PU in predicting millennials' ATT and PI, and efforts should be made to increase these factors to realize the online purchase intentions of Millennials in South India.

Table 6. Mediation summary

Path	Direct Effect (β)	Sig	Total Effects (β)	Sig	Indirect Effect (β)	Sig	Remark
SE → ATT → PI	0.150	0.012	0.215	0.010	0.065	0.015	Partial effect
PE → ATT → PI	0.130	0.028	0.165	0.020	0.035	0.018	Partial effect
PU → ATT → PI	0.220	0.006	0.300	0.005	0.080	0.009	Partial effect

The results of the mediation analysis are shown in Figure 2 below and suggest that ATT partially mediated the relationships between SE, PE, and PU and PI. First, SE has a direct effect on PI (0.150), with an additional indirect effect of 0.065 through ATT, indicating that ATT plays a partial mediating role in the relationship. Second, PE affects PI both directly and indirectly (0.130 and 0.035, respectively), with modest effects of mediation by ATT. Finally, while PE has a positive and statistically significant VSF of 0.220 with PI, it also has a stronger indirect effect of 0.080 through ATT. These findings suggest very clearly that ATT is an important dependent factor in increasing PI, as long as SE, PE and PU are accounted for, which suggests that positive user attitudes augment the effects of SE, PE and PU, thereby enhancing online purchase intentions among the millennial generation in South India.

5. Discussion and implications

The results of the study show that three variables, self-efficacy (SE), perceived ease of use (PE), and perceived usefulness (PU), are highly relevant in predicting the online purchase intentions of South Indian millennials. SE is found to be a strong predictor of both ATT and PI, whereas PE and PU are found to increase ATT and PI among test participants. These findings indicate that when e-commerce platforms increase their security features, users will feel more confident in interacting with, exploring, and purchasing from online shopping sites (Kesharwani Bisht, 2011; Chiu et al., 2014). Similarly, PE is likely to have a positive influence on ATT and PI, indicating that when designing an e-commerce website, the platform administrator comes to know that consumers' preferences, such as color, image size, mapping, and multicolor and matrix designs, can enhance the users' satisfaction with the convenience of shopping online. Moreover, since PU is found to have a strong influence on ATT and PI, the shopping platform needs to be designed in a way that includes features such as recall and a comparison of prices across different brands and locations that will enable the shopper to make a correct decision reflecting the perceived value (Davis, 1989; Pavlou, 2003). This draws attention to the significance of SE, PE, and PU to facilitate easy access to products at affordable prices, leading to the purchase intentions of test participants. The study's findings have revealed an indirect effect of ATT, thereby indicating that while developing an e-commerce model, real-life shoppers can be made to think positively if all the variables are designed and programmed in such a way that users can see the real value of shopping online. The cognitive theory of reasoned action and technology acceptance model framework is found to be valid for the findings, but when applied to other contexts, it needs to add moderating variables such as the PI and operational and environmental conditions (Ajzen, 1991; Davis, 1989). For brand managers, it is clear that they must emphasize their value communication, ease of use, and security information not only to create a positive attitude but also to enhance their purchase intentions. For marketing

researchers and managers, the suggested e-commerce framework provides a broad base approach for understanding consumer behavior in the e-commerce environment. This study's results could be tested under different shopping situation contexts in the future, thereby enriching the extant literature (Hair et al., 2011; Zhao et al., 2019).

6. Practical implications

From a managerial perspective, the main implication is that e-commerce stores should enhance security features and communicate those measures to consumers to establish confidence. The straightforward buying process could enhance perceived ease of use, which can lead to satisfying the user and thus significantly enhance purchase intentions. Perceived usefulness can enhance consumer attitudes and, in turn, increase purchase intentions. Furthermore, the personalized communication and engagement approach could address millennials' desires and social influence, and trust-building strategies could improve millennial retail attitudes. These strategies address millennials' apprehensions, which could influence millennials to enhance positive online retail attitudes, which will substantially lend a hand to increasing purchase intentions as a final outcome. The aforementioned strategies could address the apprehension of millennials, and these could influence millennials' ability to enhance positive online retail attitudes, which will substantially increase purchase intentions as a final outcome. All these approaches are crucial for addressing millennials and setting up successful e-commerce stores to attain and retain millennials to enhance the competitiveness of the market and business.

7. Conclusion

The study attempts to further explain the determinants influencing online purchase intentions among millennials in South India through SE, PE, and PU. It is hypothesized that SE, PE, and PU all have a significant influence on AATT and purchase intention (PI). AATT is believed to partially mediate the relationships between each of these factors (except SE) and PI. Hence, the objective of this paper is to study the influence of SE, PE, and PU over PI through rationalization of the TAM and TPB followed by analysis of these influencing factors on a sample consisting mainly of technologically driven millennials comprising approximately 75% of the whole population living in South India. TAM and TPB are seen as relevant in explaining consumer online behavior, particularly in emerging markets such as India. These ideas are crucial for all m-commerce players because they focus on security, user-friendliness, and communication of the perceived value of the products being sold, etc.,, which could lead to higher levels of engagement and purchase intentions.

8. Limitations

The limitations of this study are as follows: First, the sample is limited to millennials residing in South India only, hence not allowing a representative image of online shopping behaviors among different age groups or different regions of India. Second, the cross-sectional design does not allow for drawing the causal relationship between the model's constructs, and last, the foremost limitation is that the study is based on self-reported data where respondents could over/underestimate their online shopping behaviors. Future studies could avoid these limitations by adopting a representative demographic design and using longitudinal designs and objective behavioral data for validation of the findings.

9. Scope for Further Research

Research in the future may also examine additional mediators and moderators to better comprehend the factors influencing online purchase intentions, as trust could be an instance of the latter that can moderate the relationship between SE and PI; similarly, social influence can moderate the effect of PE on ATT, whereas the mediating role of perceived risk can be examined between security concerns and PI. Another approach could be to investigate the level of relationship between these variables over a period of time through longitudinal studies. These relationships could change with increasing age and as digital literacy and e-commerce penetration intensify in emerging economies. Finally, research can also be conducted with demographically diverse groups in other regions of India extending beyond the lower-middle socioeconomic class. These avenues of research would provide deeper insights into the determinants of online shopping behavior, thereby informing more efficient marketing strategies as well as policy-making decisions in e-commerce.

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