Factors Affecting Online Grocery Shopping in Indian Culture

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Abstract

Today the online grocery shopping (OGS) is helping customers by making their life convenient by offering best and comfortable deals. Scope of online grocery shopping is increasing exponentially. Therefore, this study aims at examining the influencing role played by personal innovativeness (PI), economic values (EV), design aesthetic (DA), perceived enjoyment (PEJ) and convenience (CON) attributes on development of positive attitude to use OGS by Indian customers. For testing the variables and relationship of the proposed model, a structured questionnaire was formed and dispersed among 351 Ghaziabad and Delhi residents, out of which 232 were used for analysis. The Smart PLS 3.0 programme has been used to provide partial least square structural equation modelling (PLS-SEM) method. Finding a study easy to use (PEOU), perceived usefulness (PU), PI, EV, DA and PEJ and CON have a symbolic quantitative correlation in India with the acceptance of OGS. In contrast, PEJ did not support PEOU. Therefore, the study will provide direction to all online grocery service providers to design their services according to the customer's expectation and need.

Keywords

Online grocery shopping (OGS) • Personal innovativeness • Economic values • Design aesthetic • Perceived enjoyment and convenient

1 Introduction

The Indian e-Commerce market is predicted to grow double size from current 32.7$ (2019) to 71.9$ billion in 2022 (eMarketeers, Economictimes.com).

Online food and grocery market in India has entered into the digital age and growing with a 25–30% rate and expected CAGR by 66% during 2018–23 (Livemint Financial Express). Nevertheless, IGD suggested that the growth rate for online groceries differs according to low-, middle-, high-income countries (Johnson et al., 2018). During COVID-19 pandemic, customers preferred more online grocery shopping.

Several forms of studies have been performed on different aspects of OGS in the context of acceptance models, including the live theory of planned behavior (TPB) (Hansen et al., 2004; Hansen, 2008; Ramus & Nielsen, 2005), the theory of reasoned action (TRA) (Hansen et al., 2004) and the technology acceptance model (Childers et al., 2001; Kurnia & Chien, 2003). In various nations, demographic variables, cultures, consumer behaviours, a number of studies signifying the adoption of e-shopping have been conducted (Choi & Geistfeld, 2004; Park & Jun, 2003). A survey among American and Korean consumers has been done regarding internet buying behaviour and found that perceived risk among both countries is significantly different (Park & Jun, 2003) and Korean consumers get more influenced by subjective norms (Geistfeld, 2004). In a study of consumer perception of home shopping (online grocery shopping) in the USA, consumers showed interest in perceived risk and convenience (Park et al., 1996). Convenience and PEOU have been very efficiently verified in a further analysis of the customer advantages and disadvantages of online grocery shopping in Finland (Raijas, 2002). A study showed orientation of stores, use of information, convenience and seeking of variety as influential factors to motivate online grocery shopping in the USA (Rohm & Swaminathan, 2004). Situation-based factors can influence

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continuation or discontinuation of usage of OGS, which was confirmed in a study "Effect of contextual variables on online grocery shopping in the UK". (Hand et al., 2009). PEOU and PU were strong predictors for behavioural intention, and it is influenced by education, income and age for online grocery shopping in Singapore. (Hui & Wan, 2009). The significant difference was noticed in perceived risk among frequent and infrequent online grocery shopping users in Australia (Mortimer et al., 2016). However, in some studies, online grocery shopping behaviour is similar to offline shopping behaviour (Anesbury et al., 2015).

TAM has been validated as an active method in previous studies to provide a clear picture of the subscriber's technology adoption in various contexts and cultures, including m-commerce (Bruner & Kumar, 2005), banking technology (Chau & Lai, 2003; Adamson & Shine, 2003), online games (Hsu & Lu, 2007), email, desktop video conferencing (Townsend et al., 2001), telemedicine technology (Chau & Hu, 2002) and so on.

TAM has reasons for being famous; TAM was designed for information technology and a better way to explain and predict the variety of customers' acceptance level of a broader diversity of technologies within different cultures, organisations and expertise levels. TAM has a well-established researched theory and offers a validated and trusted measurement scales. As in India, online shopping is in a very nascent stage and growing with a good pace and expected to grow in double digit with massive potential. In India, the online retail market for groceries is supposed to peak up to $10.5 billion by 2023 (Redseer, Livemint.com). Hence, a rigorous study is needed to understand customers' behaviour, expectations and factors affecting them. This study proposed and tested the modified and extended form of TAM in Indian demographics with changing social and psychological culture. So, by exploring the consumer behaviour of Indian online users, we have shortlisted and adopted five external variables, namely economic values (EV), convenience (CON), design aesthetic (DA), perceived enjoyment (PEJ) and personal innovativeness (PI).

Further, their influence on customers to perceive online shopping easy and useful and to ultimately lead the development of their attitude for using online grocery shopping. In India, consumer behaviour of youth is far different from other countries, which employs more OGS, and their behaviour is quite different from developed countries. Their living style and population are changing. Until now, no study has considered the effect of above all variables for adopting OGS by customers, especially in developing countries like India. Hence, it was believed this study is crucial, pioneer and will be helpful for understanding and planning new online retailing strategies for a dynamic environment.

2 Literature Reviews

2.1 Personal Innovativeness (PI)

Personal innovativeness (PI) stands to be the user's willingness to explore latest technology (Agrawal & Prasad, 1998) explained innovativeness as a "willingness to change". It being intrinsic to customer's personality and its level may differ from person to person (Gupta et al., 2011). It is how the individual potentially responds to innovations. The analysis of individual actions for creativity involves personal innovativeness as a variable. So this construct can be used to categorise the customers into "innovators" and "non-innovators". This domain-specific innovativeness reinforces customers in the taking up of industrial novelty. Innovation firmly impacts customers to adopt movable trade. PI is influential on usefulness perception (Lu et al., 2005) and useful in influencing the customers to acceptance of technology PI has been an important antecedent for adoption and use of m-payment (Kim et al., 2010) and PI influence PEOU, which leads to the development of users attitude to use m-payment technology. Innovative consumers will intelligently evaluate the usefulness and ease of use of any emerging technology-based services (Lu et al., 2005). In India, as well as other developing countries, all these technologies are entering and are at very early stage, and the majority of peoples are gradually experiencing these technologies. So, PI can influence and play a vital role in OGS adoption.

H1: Personal innovativeness is related with perceived ease of use.

H2: Personal innovativeness is related with perceived usefulness.

2.2 Design Aesthetic (DA)

In mobile games, design aesthetic is a "harmony, psychological attraction or aesthetic" (Merikivi et al., 2017). DA has drawn positive impact of users in mobile games and also showed a positive impact on the perception of mobile system users (Merikivi et al., 2017). Online customers seek to design and aesthetic as vital for the validation of digital webpages for buying (Cry et al., 2006; Harris & Goode, 2010). DA has been found antecedent of TAM in the mobile category and has a crucial impact on PEOU and enjoyment, which leads to customer's loyalty towards mobile services (Cry et al., 2006). In another study, it has been found that perceived attractiveness of website (DA) influences enjoyment, usefulness and PEOU positively (Vander Heijden 2003). Thus, in India, DA can also influence PEOU and PU that eventually contributes to the development of a good

outlook towards using digital grocery buying. Based on the above theory, we can develop a hypothesis,

H3: Design aesthetic is related with perceived ease of use.

H4: Design aesthetic is related with perceived usefulness.

2.3 Perceived Enjoyment (PEJ)

Defines perceived enjoyment, "the degree to which machine work is considered to be entertaining by itself, apart from any expected outcomes consequences (Davis et al., 1992; Carroll & Thomas, 1988; Deci, 1972; Malone, 1981a, b). Davis et al. (1992) incorporated PEJ in extended TAM. In our context, a definition can be modified "to the extent to which users perceive OGS to be enjoyable". In a study, perceived enjoyment showed positive (Davis et al., 1992) relationship to PEOU, which leads to users acceptance (Venkatesh, 2000). Mun and Hwang (2003), in their study of the prediction on information systems which are web based, found a significant association among enjoyment and PEOU and PU. In estimating the impact of the perceived enjoyment and use of innovation among instructors, the two associations were further developed (Teo and Noyes, 2011). Enjoyment factor drive users to use new technology (Bruner & Kumar, 2005; Davis et al., 1992). Shopping enjoyment has played a crucial role in influencing online shopping attitude (Childers et al., 2001) and intention of using new technologies (Chen & Tan, 2004; Davis et al., 1992). So, perceived enjoyment can be a crucial antecedent for PEOU and PU, which further leads to development of attitude to use any online services in the Indian context. On the basis of the above theory, we can initiate a hypothesis,

H5: Perceived enjoyment is related with perceived ease of use.

H6: Perceived enjoyment is related with perceived usefulness.

2.4 Economic Values (EV)

Economic values (EV) assumed as a net gain of online customer's in terms of monetary deals, promotional offers, discounts with time, efforts and money saving on travelling expenses (Cassil et al., 1997, Aylott & Mitchell, 1999). It is a togetherness of transaction value and acquisition (Grewal et al. 1994). It includes a basket of monetary investment, behavioural, temporal and psychological supplies of customers being repaid on investment (Thaler, 1985; Mathwick et al., 2001; Grewal et al., 1998).

Consumers also consider OGS useful, as it can save both monetary and non-monetary costs (Lopez Nicolas et al., 2008, Amoako-Gyampah & Salam, 2004). So, we can conclude that EV can be decisive for PEOU and PE, which leads to the development of attitude for online grocery shopping.

Based on these literature reviews, the study presents the following hypothesis

H7: There is a constructive relationship between economic values and perceived ease of use.

H8: There is a constructive relationship between economic values and perceived usefulness.

2.5 Convenience (CON)

Convenience is the combination of place and time utilities and advantages, which is considered as a critical reason for the development of attitude towards m-payment adoption and uses (Kim et al., 2010). We discuss convenience as a construct all the time in marketing and consumer behaviour study (Berry et al., 2002, Ng-Kruell et al., 2002), and the inspiring stories of mobile trade have been major elements (Xu & Gutierrez, 2006). The benefit of adopting online grocery shopping environment is its insight of convenience to shopping from home or anywhere, anytime by 24 × 7 days. Convenience provides both options of when and where customers can shop. Customers who perceive the online platform more convenient are likely to consider it "useful" and "easy to use". Customers mindset of this convenience makes shopping a useful and easy process with more appealing by reducing the frustration of psychological cost and making shopping enjoyable (Childers et al., 2001). Thus, the customer perceived online grocery shopping useful and ease of use technology which develops a positive attitude in customers to use it. Therefore, on the basis of the above-mentioned study, the following hypotheses are presented.

H9: Convenience is related with perceived ease of use.

H10: Convenience is related with perceived usefulness.

2.6 Perceived Ease of Use (PEOU)

The perceived ease of use by consumers, according to Davis et al. (1989), is the level of confidence displayed by users that it is easier to use and manage. A study suggests that it is the perception (Schierz et al., 2010) of users about the particular technology which is easy, clear and understandable, and motivate the user to use it skilfully. Perceived ease of use by the customers factor has been adopted from Davis et al. (1992) technology adoption model (TAM). Similarly, some other studies (Peng et al., 2012; Shankar & Kumari, 2016; Shankar & Datta, 2018) on m-commerce and banking also suggest that this attribute has proved to be essential for

adopting and intending to use mobile apps (Madan & Yadav, 2016; Singh et al., 2020). Another study on the adoption of online banking in Malaysia also confirmed this relationship (Lallmahamood, 2007). Study focussing on the intent to use the internet by Chinese adult also confirmed this affiliation that perceived ease of use positively influence intention to use (Pan & Jordan-Marsh, 2010). Focussing into our study, we can assume that if the user's belief that OGS is easy, it will influence the intention to use. The following hypothesis is proposed.

H11: Perceived ease of use by customers has a positive relationship with attitude to use.

2.7 Perceived Usefulness (PU)

The study suggests that the users adopt any specific technology (Venkatesh & Davis, 2000) if they found it useful for them and it will increase their efficiency and effectiveness (Davis, 1989). According to Kim et al. (2010) by using m-payment technologies the customers can complete their task quickly, comfortably and feel pleasure to use that easy technology (Venkatesh & Davis, 2000; Oliveira et al., 2016). PU is "degree the user's belief that by using that technology, his job performance will increased" (Davis, 1989). The study suggests that perceived usefulness is the utility degree of m-payment technology that a customer perceived by using this technology, and it will increase the profitability and probability. Which influence user's intention to increases the usefulness of technology in ordering the food items (Shanker & Datta, 2018). Previous research demonstrates that m-payment technology has a positive and crucial impact on perceived usefulness (Duane et al., 2014; Apanasevic et al., 2016). Customers use technology as they feel that it increases their effectiveness and efficiency (Kim et al., 2012; Duane et al., 2014). Today, the users adopt these technologies in their daily routine and workplaces (Madan & Yadav, 2018; Singh et al., 2020).

Further, in the study of mobile wireless technology adoption, relationship in PU and ITU was confirmed (Kim & Garrison, 2009). So based on the above studies, we can assume that in our study, PU will positively influence to attitude to use. Hence, the study proposed the following hypothesis.

H12: Perceived usefulness has a positive relationship with the attitude to use (Fig. 1).

3 Research Design

3.1 Measuring Constructs

Based on previous literature reviews, the researcher proposed a research framework of this study, and it has suggested that the above attributes have influenced the attitude to use online grocery shopping. Therefore, all the research items for the proposed independent and dependent constructs have been retrieved from existing literature reviews. Initially, a pilot study was done for the refinement and to increases the face and internal validity of the research items. A final set of 30 items, out of 31 items, have identified by the researcher and used for final questionnaire development. Thus, the questionnaire consists of two parts. First part includes the respondent's population profiles, and the second part includes the information regarding dependent and independent constructs. Each item of research construct was measured in a 5-point Likert scale, showing a wide choice from strongly disagree = 1 to strongly agree = 5.

3.2 Collection Process of Data

For data collection process, structured questionnaire was designed and distributed among young college-going students, friends, relatives, ordinary citizens in a society in February to mid-march 2020, with the assumption that they are online grocery customers. But due to COVID-19 lockdown, it was hard to approach many respondents, so we have to restrict our survey with some limited responses. All the respondents belong to major cities, preferably of Ghaziabad and other cities of NCR in India and of all age group to get more representation of society. After responses collection, we segregated those responses who were using online grocery shopping. Convenience sampling method has been utilised by the researchers to collect responses from the users using online grocery shopping for their consumption. A total number of 232 questionnaires were used in empirical data analysis out of 351 distributed questionnaires. Thus, a 66% response rate was witnessed in the survey, and the precise demographic details of respondents are shown in Table 1.

Among respondents, 76% are male and 24% are female. Our 76% respondents are between age group of 21–30 years, 63% are graduates, and 34% are post-graduate, 64 and 26% are students and employees. Maximum respondents uses OGS either once in month (44%) or week (41%). Majority respondents are using OGS services less than 2 years (67%) (Table 1).

4 Data Analysis and Result

For data analysis process, the structural model analysis (Hair et al., 1998; Davison et al., 2003; Bagozzi & Yi, 1988, 2012) through partial least square method, SmartPLS 3.0 statistical software has been used by the researcher. PLS-SEM method

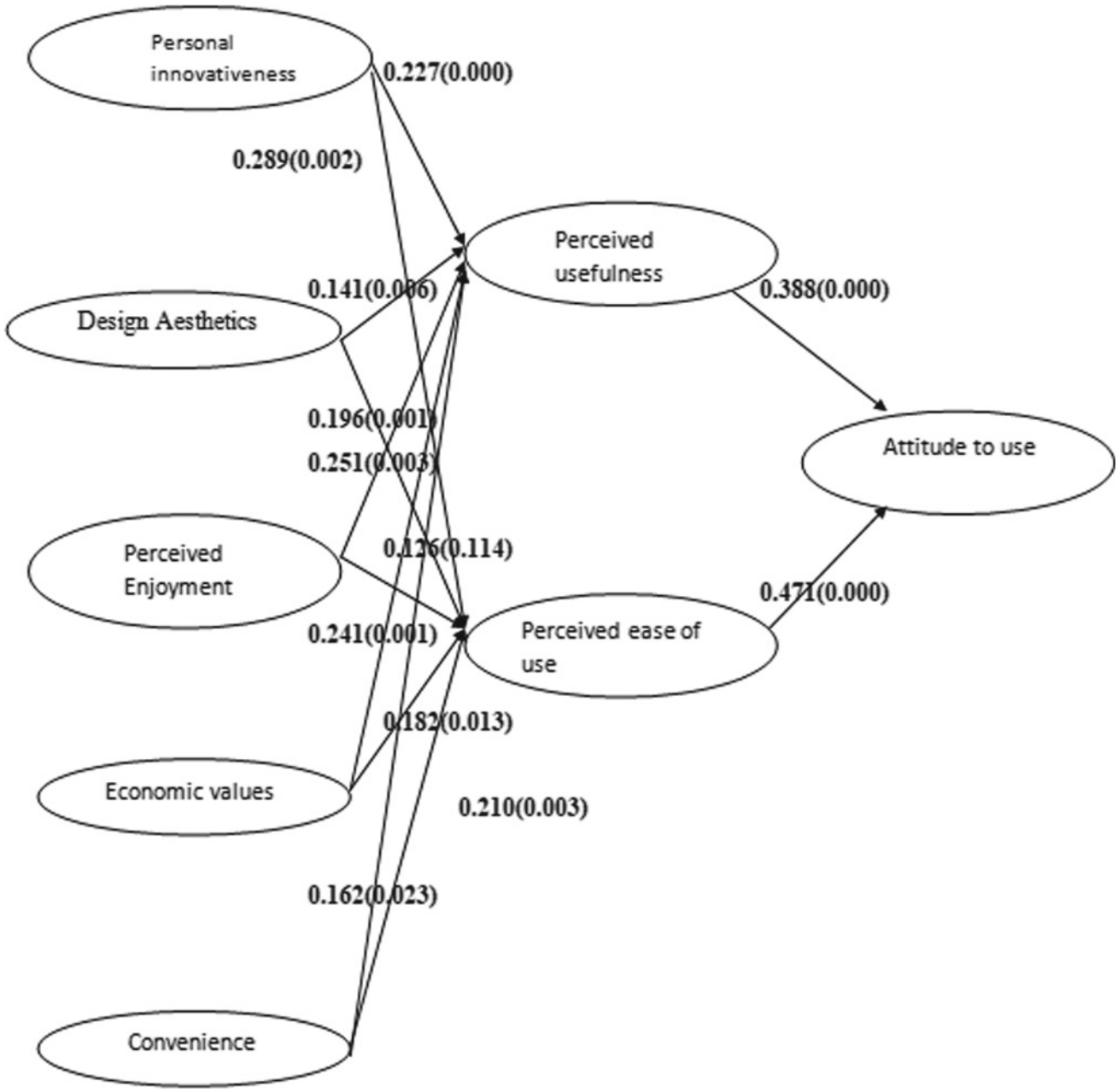

Fig. 1 Proposed research framework

was found to be an appropriate method by the researcher (Hair et al., 2013) because it is considered suitable for both parametric and non-parametric data. It is beneficial for the judgment of the causal relationship between independent and dependent constructs. Along side with this, the study also estimated statistical significance of factor loadings and path coefficients (Chin, 2001; Davison et al., 2003; Henseler et al., 2009, 2015) using a non-parametric bootstrap procedure. The path coefficient is significant, (if the *t* value is higher than 1.96), at a significance level of 5%, then the hypotheses have been accepted by the researcher.

4.1 Validity and Reliability

Conducting reliability and validity analysis ensured the internal consistency of constructs. For measuring the reliability of the research items, the values of composite reliability and Cronbach's alpha (Raykov, 1997) was checked by the researcher used in the proposed research framework, whether the values for both the cases have to be greater than or equal to the minimum standard of 0.70 (Nunnally, 1978). Study findings observe that the values for Cronbach's alpha almost lie from 0.70 to 0.90, and for

Table 1 Detailed demographic profile of respondents

Variable	Levels	Count	Percentage
Gender	Male	177	76
	Female	55	24
Age	Less than 20 years	17	7
	21–30 years	175	76
	31–40 years	19	8
	Above to 40 years	21	9
Education	Intermediate	2	1
	Graduation	147	63
	Post-graduation	78	34
	Other	5	2
Occupation	Student	149	64
	Employee	61	26
	Entrepreneur	10	4
	Other	12	5
Frequency of using OGS	Minimum once in a day	36	16
	Minimum in a week	95	41
	Minimum in a month	101	44
Using OGS since	Less than one year	81	35
	1–2 year	75	32
	2–3 year	40	17
	>3 year	36	16

composite reliability, the value lies in between 0.73 and 0.85 (Table 2).

Similarly for measuring the validity of the constructs, the researcher observes the values of convergent validity (Fornell and Larcker, 1981) through the values of factors loading and AVE that should be higher than 0.50 (Bagozzi and Edward, 1998). Therefore, the values of factor (0.56–0.92) and average variance extracted (AVE) surpasses the minimum standard of 0.50 (0.51–0.73). Parallel to this, the study also observes the values of discriminant validity (Fornell and Larcker, 1981) used for identifying the inter-correlation between constructs, estimated by the square root values of AVE. The research study also identifies the heterotrait-monotrait (HTMT) results for the discriminant validity (Henseler et al., 2015), which represent the level of uniqueness of one construct with other constructs, based on the low correlation among the constructs. Since all the HTMT values are lower to 0.90, which satisfies the conditions of HTMT (<0.9) proposed by Kline (2015) for all constructs of study, thus, it is concluded that the measurement model shows sufficient reliability, discriminant and convergent validity (Tables 3 and 4).

4.2 Structural Model Assessment

The analyst also explored tolerance and variance factor (VIF) values. And for this purpose, latent variable scores (calculated by SmartPLS) are used as input for calculating multiple regressions. Table 5 indicates VIF values that do not surpass 5 (variable values <3.731) and tolerance level >0.2 (Hair et al., 2011). The result implies no multi-collinearity within independent factors.

4.3 Main Effects and Path Coefficients

The SmartPLS 3.0 software was used to evaluate the proposed assumption based on statistical importance values of factor and route coefficients for a non-parametric bootstrap approach (Chin, 2001; Davison et al., 2003). Table 5 shows the result for each relationship of the standardised path coefficients (β), t value and related meaning levels.

5 Discussion

The study used partial least square structural equation modelling (PLS-SEM) to check the suggested model. PLS-SEM tests the extension of existing structural theory as well as for identifying and predicting the key constructs (Hair et al., 2011). SEM encourages multi-dependent and independent model relation testing (Anderson & Gerbing, 1988). Hence, SEM was used as a measuring tool for the current study. Primary criteria of evaluation for the structural

Table 2 Reliability and validity analysis

Constructs and their observable items	Loadings
Perceived ease of use (PEOU) (AVE = 0.73, CR = 0.92, α = 0.92) (Davis 1989)	
PEOU 1: I like online grocery shopping, as it is easy to use	0.83
PEOU 2: I purchase online grocery skilfully	0.88
PEOU 3: I believe that shopping for grocery online is clear and understandable for me	0.86
PEOU 4: It is easy for me to adopt the process of online grocery shopping	0.85
Perceived usefulness (PU) (AVE = 0.67, CR = 0.82, α = 0.86) (Davis, 1989; Kim et al., 2010)	
PU 1: I like to order my grocery more quickly and easier by using online services	0.77
PU 2: I love to order my grocery more comfortably by using online ordering	0.83
PU 3: Using online ordering services is enjoyable and useful experience for me	0.80
PU 4: Online grocery shopping would be advantageous for me	0.77
Convenience (CON) (AVE = 0.58, CR = 0.84, α = 0.84) (Eastlick and Feinberg 1999; Mathwick et al. 2001; Rohm & Swaminathan 2004; To et al. 2007)	
Con 1: Online grocery shopping saves me time	0.85
Con2: Online grocery shopping made my life easy, as it is convenient to shop	0.84
Con 3: I can shop online grocery anytime from anywhere	0.78
Con 4: Online grocery shopping provides me with access directly to information about all products	0.57
Economic value (EV) (AVE = 0.73, CR = 0.88, α = 0.88) (Mathwick et al., 2001)	
EV 1: Online grocery shopping products are of worth economic value	0.81
EV 2: Overall, I am satisfied with online grocery prices	0.92
EV 3: Prices of online grocery, I purchase are reasonable for their quality	0.81
Personal Innovativeness (PI) (AVE = 0.51, CR = 0.73, α = 0.70) (Agarwal & Prasad, 1998; Bauer et al., 2006; Gupta et al., 2011)	
PI 1: I love to experience new online grocery shopping services	0.84
PI 2:Among my known, I am generally the first one to buy online grocery	0.83
PI 3:My friends usually appreciate my advice regarding online grocery shopping	0.77
PI 4: If I listen about new online grocery shopping service, I like to use it	0.60
Perceived Enjoyment (PEJ) (AVE = 0.62, CR = 0.86, α = 0.86)	
EJ 1: Online grocery shopping is enjoyable	0.79
EJ 2: Online grocery shopping is exciting to use	0.86
EJ 3: Online grocery shopping is interesting	0.83
EJ 4: I feel good while shopping grocery online	0.64
Design Aesthetics (DA) (AVE = 0.57, CR = 0.84, α = 0.84) (CRY et al., 2006)	
DA 1: The website (colour, menus, boxes, etc.) are fascinating	0.82
DA 2: Online grocery shopping website designed professionally	0.78
DA 3: Website graphics have significant meaning	0.72
DA 4: The site's look and feel overall are visually appealing	0.69
Attitude to shop online grocery (AT) (AVE = 0.62, CR = 0.83, α = 0.83) (Kim et al., 2010)	
AT 1: I want to shop online grocery	0.73
AT 2: Shopping grocery online could be excellent and beneficial process	0.86
AT 3: Shopping grocery online would be a pleasant experience, and I want to use it	0.76

model is R^2 value for attitude to use OGS is 0.56, which allocates 56% variance of a consumer to use OGS, 53% of variance to PEOU and 53.7% variance to PU, which are considered to be perfect model (Hair et al., 2011) and all R^2 are statistically significant. For the multicollinearity test, the variance inflation factor (VIF) test was conducted and found to be all values less than the suggested values of 3.3. Model fit has been verified by analysing SRMR, where for the

Table 3 Discriminant validity—HTMT criterion

Constructs	AT	EV	CON	VD	PEOU	PU	EJ	PIN
AT								
EV	0.81							
CON	0.83	0.89						
VD	0.65	0.69	0.74					
PEOU	0.89	0.82	0.85	0.76				
PU	0.90	0.89	0.89	0.79	0.89			
EJ	0.87	0.89	0.90	0.80	0.86	0.90		
PIN	0.79	0.71	0.79	0.73	0.84	0.84	0.85	

Table 4 Fornell Larcker criterion

	AT	EV	CON	DA	PEOU	PU	EJ	PI
AT	0.79							
EV	0.80	0.85						
CON	0.83	0.89	0.77					
DA	0.66	0.68	0.72	0.76				
PEOU	0.92	0.82	0.85	0.76	0.86			
PU	0.92	0.90	0.90	0.79	0.96	0.80		
EJ	0.87	0.89	0.89	0.80	0.86	0.94	0.79	
PI	0.79	0.73	0.76	0.63	0.83	0.86	0.83	0.65

Table 5 Main effects and path coefficients

Hypothesis	Beta	*t* value	*p* value	f^2	Result
H1: PI → PEOU	0.289	3.040	0.002	0.29	Supported
H2: PI → PU	0.227	3.781	0.000	0.316	Supported
H3: DA → PEOU	0.196	3.203	0.001	0.14	Supported
H4: DA → PU	0.141	2.761	0.006	0.10	**Supported**
H5: PEJ → PEOU	0.126	1.584	0.114	0.003	**Not-Supported**
H6: PEJ → PU	0.251	3.017	0.003	0.126	Supported
H7: EV → PEOU	0.182	2.503	0.013	0.40	Supported
H8: EV → PU	0.241	3.318	0.001	0.16	Supported
H9: CON → PEOU	0.210	2.972	0.003	0.07	Supported
H10: CON → PU	0.162	2.279	0.023	0.04	Supported
H11: PEOU → AT	0.471	6.193	0.000	0.09	Supported
H12: PU → AT	0.388	4.994	0.000	0.20	Supported

Note Significance level $P < 0.05$, if *t* value ≥ 1.96, based on two-tailed *t* test

saturated model is 0.050 and 0.052 for the approximate mould, which are less to the recommended value of 0.1 (Hu & Bentler, 1998). Hence, the proposed model is fit to go further.

Bootstrapping was run with 5000 subsamples, which is suggested by Hair et al. (2011). Except for perceived enjoyment to PEOU, all hypotheses were tested statistically significant.

As already mentioned, this study was conducted primarily to access the crucial factors and their effect on Indian customers to use online grocery shopping.

H1; hypothesis The positive relationship between personal innovativeness and PEOU is statistically supported in this study, which shows Indian customers who are innovative in personality found OGS easy to use. Thus, our results are consistent with the previous study of Okumus R et al. 2018, in which personal innovativeness was found crucial predictors for intentions to use food-ordering app on smartphones.

H2; hypothesis verifies that customers with PI characteristics found OGS useful. They found OGS quicker, comfortable, useful and adventurous for them.

H3 and H4; hypothesis is statistically significant. The study has validated crucial relation in the design aesthetic of website and app to perceived ease of use, which is consistent with the study of Keshwani et al. 2017.

H5; the hypothesis is unsupported, means perceived enjoyment do not influence in developing perceived ease of use, which is contrary to study done by Driedger et al. (2019) on Thai online grocery customer.

H6; the hypothesis is statistically supported, means perceived enjoyment influences customers to perceive online grocery shopping useful which is consistent with the previous study of Driedger et al. (2019) on online grocery Thai customers.

H7 and H8; the hypothesis is statistically significant, which are persistent with a past study of Kesharwani et al. (2017) where economic values and entertainment values have a crucial effect on PEOU for OGS.

H9 and H10; the hypothesis is statistically significant, which reveal that convenience has a significant positive impact on both PEOU and PU and consistent with the previous study of Kim et al. (2010); m, C. et al. (2009) on m-payment customers.

H11 and H12; the hypothesis is statistically significant, which assess that PEOU and PU effect significantly Indian customers to develop a positive attitude to go for OGS which is also supported by the previous study of Driedger et al. (2019) conducted on Thai customers and in another study of Gefen and Straub (2000) on importance of PEOU on the adoption of intention to use in e-commerce.

6 Conclusion

The study's prime aim was to fix factors affecting the use of online grocery shopping in Indian society. For this goal, a research model was suggested consisting of five external variables (personal innovativeness, design aesthetics, perceived enjoyment, economic values and convenience), two belief variables (perceived ease of use and perceived usefulness) and one dependent variable (attitude to use online grocery shopping).

This study strongly extended TAM in online grocery shopping context, which is significantly different from other information systems. This study considered essential and crucial factors affecting online grocery shopping, which were ignored in other previous studies, especially in developing countries like India.

Results of the empirical analysis signified the perceived ease of use and perceived usefulness which were found to be essential precedents for attitude to use online grocery shopping of Indian consumers. PI, DA, PEJ (except PEJ to PEOU), EV and CON have a statistically significant positive relation to PEOU and PU. Both help to develop an attitude in customers for online grocery shopping. Out of all factors, personal innovativeness and economic values were found to be more critical factors in perceiving online grocery shopping useful and easy, since very fewer studies have been conducted on the acceptance of online grocery shopping in countries like India, who explained and validated the extended TAM model for online grocery shopping. India and other neighbouring Asian countries have substantial emerging potential in online grocery shopping, and this paper will help to understand the consumer behaviour of developing country. We cannot formulate the strategies of online grocery shopping of developing countries based on research done in developed countries because the consumer behaviour of both countries is quite different.

Our study explores that in India maximum customers are using online grocery shopping for less than one or two years, so to retain them loyal, companies should keep them engaged with attractive offers. Companies should also offer customers free and flexible delivery options because they prefer the online process due to its convenience. Once they used their services, there are more chances of customers to retain service providers (Smaros et al., 2000).

In India, most customers have preferred online grocery shopping, firstly due to its economic values offered by companies and secondly because of user's innovativeness. Hence, Indian customers want to explore new innovative services, so service providers should take care of these adventurers innovative customers. Thirdly, convenience and design aesthetics factors have influenced customers to develop online grocery shopping easy and useful, which is consistent with the previous study of Driedger et al. (2019 on Thai customers. By this, we can conclude that companies should design their website and apps user-friendly, attractive, impressive with convenience in shopping.

So finally, we can conclude that online grocery services players should incorporate all the above factors in their mind and incorporate them while designing their business strategies for doing good in the market.

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