Fabib Model for Studying Online Grocery Shopping Behavior

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Abstarct

The Indian consumer is changing- more connected than ever - more tech savvy and better equipped to benefit from an ever changing market place. Their shopping behavior has undergone sea changes due to change in lifestyle, penetration of internet, exposure to various cultures, higher disposable incomes and paucity of time among others. Indian consumers seek convenience in all forms of living including shopping. They are overcoming biases against purchasing items without prior inspection and safety of automated and online transactions. This shifting tendency is brought about by competitive pricing and the convenience of shopping for groceries from the comfort of one's own home. This study attempts to understand the online shopping behavior of working women in Bengaluru while shopping for groceries. Website factors, market factors, consumer factors, perceived risk and subjective norms were identified as factors influencing attitude, which in turn influences the behavioral intention and behavioral intention influences the behavior. A conceptual model was developed based on the DTPB (Decomposed Theory of Planned Behavior) and TAM (Technology Acceptance Model) called the FABIB model and empirically tested using Structural Equation Modeling (SEM). The findings of the research model showed that, absolute fit indices fits the sample data and reveals that the proposed model is a good fit, by way of satisfying the recommended values.

Introduction

Online retail or e-tailing is a subsect of e-commerce, which deals with sale of goods and also services online. The share of food and grocery in the overall retail hovers around 67%. Of this, 97% is dominated by the unorganized retail and the share of organized retail is only 3%. This is expected to increase to 5% by 2021. The online grocery market is expected to reach around 2% of the expanding grocery market by 2020, with a market size of 10 billion USD. The grocery market evolved from kirana (mom and pop stores) to hypermarkets to online grocery buying, with many different forms along the way. Online grocery was initially implemented in the west but is emerging in India. First firms were started in the year 2011. Online grocery market is growing at 25 to 30% in the metros and other larger cities. Traffic, lack of parking, spending time driving to the store, walking through the aisles, standing in crowded checkout counters are some of the challenges customers face while purchasing groceries in the store format. As consumers become familiar with the products and do not feel the need to touch and see the product, they have started opting for online grocery shopping. It must be borne in mind that online grocery shopping is not a replacement for the store format but an additional option for consumers. Online grocery shopping is catching up in tier – I and tier – II cities. This paper attempts to study the online grocery shopping behavior of working women in Bengaluru, the Silicon Valley of India, with 5.99 million internet users as on 2014.

Indian retail is estimated to reach 2.1 trillion USD by 2025 from 545 billion USD in 2015 as shown in fig. 1.1
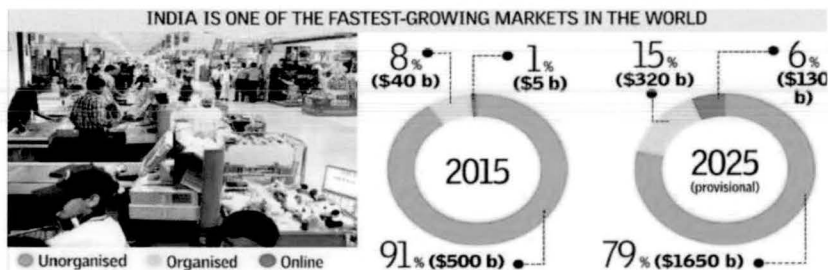

INDIA IS ONE OF THE FASTEST-GROWING MARKETS IN THE WORLD

8% ($40 b) · 1% ($5 b) · 15% ($320 b) · 6% ($130 b)

2015 · 2025 (provisional)

91% ($500 b) · 79% ($1650 b)

● Unorganised ● Organised ● Online

Fig. 1.1 Share of unorganized, organized and online retail in India

KEY WORDS: *ONLINE GROCERY, SHOPPING BEHAVIOR, FACTORS*

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Need for the study

Grocery sells irrespective of the state of economy. Grocery shopping is a woman's domain in the Indian context and it is the working women who have to juggle between various roles. Working women are greatly time starved and have to manage the pressures of household as well as work. Online grocery shopping has come as a boon for these working women. As a number of online grocers are growing by each day, it is necessary and essential to study the behavior of working women, who are potential customers of online grocers. They have greater financial independence and are in a position to decide their purchases. Hence it is vital to study their shopping behavior.

Objective of the study

The main objectives of this study are:
1. To identify the factors influencing online grocery shopping behavior of working women in Bengaluru
2. To develop a model to study the factors influencing online grocery shopping behavior and to see if the model is a good fit for the data collected using SEM

Literature review

Review of literature is the first step in gaining insights into the known facts and to avoid duplication of research efforts.

SaravanaBhavan (2015) studied the consumers' attitude towards online shopping in Coimbatore city, analyzed the consumers' satisfaction towards online shopping and also identified the problems faced by the consumers while shopping online. Of the 600 samples in the study, 55% of the respondents were influenced to purchase products and services online on their own. Gender, age group and family members of the respondents significantly influenced the frequency of purchase of products or services online. 68.33% showed lack of interest in repurchasing the products or services online. Consumers were unwilling to shop online due to security concerns. The report revealed that majority of the respondents have faced theft of credit card and private information. Internet access and time spent on the internet had significant influence on the re-purchase of products or services online. 26.34% respondents suggested improving the security measures for on line payment.

Jun Li Zhang (2011) inthe study on "An empirical analysis of online shopping adoption in China" identified the key factors influencing Chinese consumers' online shopping behavior. The important factors namely, perceived risk, consumer resources, service quality, subjective norms, product variety, convenience, website factors, price and product guarantee were identified and administered on a sample of 435 respondents.The study revealed that website factors, convenience, product variety and consumer resources positively influence Chinese consumers' choice of online shopping. Perceived risk, subjective norms and service quality negatively influences Chinese consumers' online shopping adoption. Also,

there was no significant relationship between price, product guarantee and Chinese consumers' choice of online shopping adoption.

Jongeun Kim (2004) in the study on "Understanding consumers' online shopping and purchasing behavior explored the differences between four potential group of web users – the current non-web user, the user who visits the web stores with no intention to buy, the internet browser who has an intention to purchase online but has never done so and the person who made an online purchase. Consumer factors, marketing factors and technology factors were the variables that were considered to study the attitude of the shoppers on a sample of 343 students of three U.S. universities. The consumer factor showed a strong relationship in predicting online purchase intention and behavior whilethe marketing factor showed a moderate relationship. The technology factor that was related in predicting the online buying intention was that the number of hours of internet use of the respondents. The more the time spent, the more likely they were to make a purchase on the internet.

LackanaLeelayouthayotin(2004) studied the factors influencing online purchase intention of health food consumers in Thailand on a sample of 786 consumers. The Technology Acceptance Model (TAM) developed by Davis was used to build the conceptual model. Perceived usefulness (POU), perceived ease of use (PEOU), perceived risk (PU), customer experience (CE) and product and company attributes (PCA) were the five constructs. The study showed that POU was a powerful determinant and the strongest predictor ofpurchase intention (PI). Customer experience (CE) was the second most important factor. It showed an indirect and a positive effect on purchase intention. Perceived risk showed a significant negative and indirect effect on purchase intention. Perceived usefulness (POU) and perceived ease of use (PEOU) were found to be the mediating factors of other constructs in influencing purchase intention (PI). Variety of choices, modern personality, product assurance, trusted company and simple order procedure were effective measurement items for POU, CE, PR, PCA and PEOU respectively.

Research gap

Review of literature has led the researcher to conclude that there are very few studies on online grocery shopping behavior especially in the Indian context.Online grocery shopping is complex as it consists of both large number and a wide variety of items. As online grocery shopping in India is in its infancy, it poses a great challenge for today's grocery retailers aiming to build and grow with the generation, who are tech-savvy. Insights into the factors influencing consumers to shop grocery online would provide useful inputs to retailers or businesses planning to use internet as a business tool. As working women are time constrained and are potential customers of online grocers, it is imperative to study their online grocery shopping behavior, where there is a huge gap in the available literature. This study is

an attempt to bridge that gap and would provide a strong foundation for future research in this area.

Conceptual model developed by the researcher
Online consumer behavior

Consumer behavior is dynamic and is based on the interaction of various elements. In order to gain competitive edge in the market, e-grocers need to understand the consumer behavior in the online context. Hence, it is imperative to identify and analyze the factors that influence consumers to shop for groceries online to provide a great shopping experience.

Major research models

The most commonly used and relied upon theories in studying online consumer behavior are
1. Theory of Reasoned Action (TRA)
2. Technology Acceptance Model (TAM)
3. Theory of Planned Behavior (TPB)
4. Innovation Diffusion Theory (IDT)

Theory of Reasoned Action (TRA)proposed by Fishbein et al., states that an individual's behavior is determined by the individual's behavioral intention (BI). BI consists of two functions namely, attitude towards behavior and subjective norms (i.e.) an individual's perception of normative social pressure to perform the behavior.

Technology Acceptance Model (TAM) developed by Davis adopts the belief-attitude-intention-behavior relationship to demonstrate the adoption of computer based technologies in the workplace.TAM states that BI to use a new technology will lead to actual system use and BI is based on an individual's attitude towards using the new technology. Two determinants influence attitude towards using a new technology- They are PU and PEOU. PU is the degree to which a person believes that using a particular system would enhance his or her job performance and PEOU is the degree to which a person believes that using a particular system would be free of effort. An improved version of TAM developed by Davis, 1993 suggests that PU is influenced by PEOU and not the other way round. The model is shown in fig. 1.2
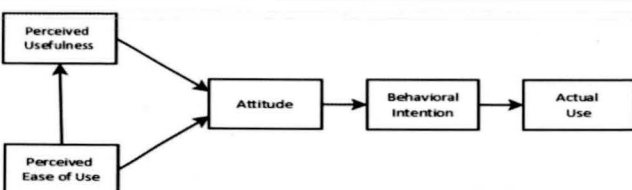
TAM has been used by many researchers in information systems (IS) research and has been successfully applied as a theoretical framework in studying online purchasing behavior. One of the extensions of TAM was proposed by Venkatesh et al., (2000) and referred as TAM 2, which includes subjective norm as it had a significant influence on PU and BI.

Theory of Planned behavior (TPB) developed by Ajzen takes into account, conditions where individuals do not have complete control over their behavior. Thus, it has included perceived behavioral control (PBC), which is an individual's perception of how easy or difficult it would be to carry out a behavior. It is depicted in fig. 1.3
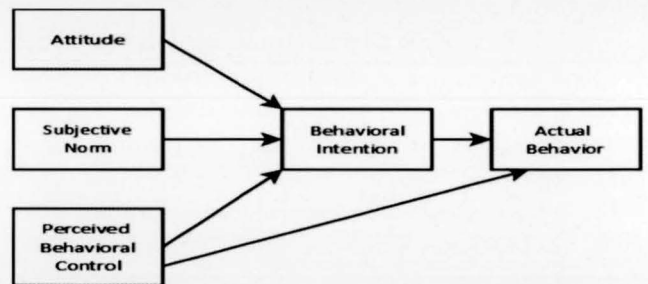

Fig.1.3 Theory of Planned Behavior - Ajzen (1991)

Empirical research has shown the relevance of this model in understanding consumer behavior in the context of online shopping (Hansen et al., 2004). Hansel et al., (2004) tested both TRA and TPB and found that TPB provided better explanation to online consumer behavior than TRA did. However, like TAM, many researchers have added constructs to the model to better reflect the characteristics of consumer online behavior (Cheung et al., 2005)

Innovation Diffusion Theory developed by Rogers states that diffusion is the process by which an innovation is communicated through different channels over time among the participants in a social system. Rogers proposes four main elements that influence the spread of a new idea: the innovation itself, communication channels, time and a social system

Decomposed Theory of Planned Behavior (DTPB) developed by Taylor stated that beliefs can be decomposed into multidimensional constructs. It was argued that the model proposed by Ajzen and Fishbein does not identify the specific factors. The various constructs and their relationships of DTPB are shown in figure 1.4
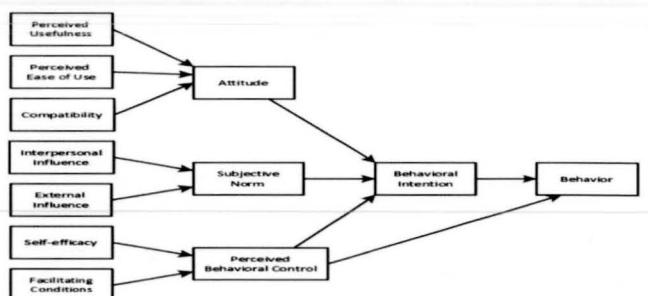

Fig.1.2 Technology Acceptance Model - Davis, 1993

Fig.1.4 Decomposed Theory of Planned Behavior – Taylor and Todd, 1995

Thus, attitude consists of PU, PEOU and compatibility. Subjective norms is decomposed into interpersonal influence and external influence and Perceived behavioral control (PBC) has two dimensions namely, self-efficacy and facilitating conditions. Self-efficacy is defined as an individual's perception of his or her individual capabilities and in the context of online shopping it refers to consumer's self-assessment of his or her capabilities to shop online. Facilitating conditions, refers to external resource constrains that may influence on engaging a particular behavior, such as time, money and technology ; in the context of online shopping the issue of technology constrains is related to the availability of supporting internet equipment (Ajzen,1991, Ajzen,2002, Lin,2007).

DTPB has been adopted as a successful research model in online shopping to predict purchasing behavior, repurchase intention and as a model to understand the relation of two behaviors such as getting information and actual online purchasing (Chen, 2009).

Previous studies on online consumer behavior have shown that Technology Acceptance Model (TAM) and Theory of Planned behavior (TPB) are valid, reliable models for understanding online consumer behavior. However, researchers are of the opinion that there are other relevant factors that influence online consumer behavior. Based on the Decomposed Theory of Planned Behavior (DTPB) and Technology Acceptance Model (TAM), JR-FABIB Model (FACTORS-ATTITUDE-BEHAVIORAL INTENTION-BEHAVIOR) has been developed for studying the online grocery shopping behavior. The Perceived Behavioral Control (PBC) consisting of self-efficacy (i.e.) self-assessment of individual capabilities to shop online and facilitating conditions proposed by Taylor et al., 1995 have not been included in the model as they do not seem to be relevant to this study, which is conducted on working women in Bengaluru, who are internet users and who have experience in purchasing a product or service online. Hence, Perceived Behavioral Control (PBC) has been excluded from this study. The JR-FABIB Model is shown in fig.1.5

JR – FABIB MODEL

Fig.1.5Model developed by the researcher for this study

In the above model, attitude has been decomposed into website factors, market factors, consumer factors, perceived risk and subjective norms. Man Kit Chang (1998) in a comparison of TRA and TPB has concluded that a modified version of TPB, with a casual path linking subjective norm to attitude provided a significant improvement of model fit. The direct effect of subjective norms on behavioral intention was not significant but the indirect effect through attitude was highly significant. Hence, this study has considered subjective norms as influencing attitude, which in turn influences Behavioral Intention. Behavioral intention in turn influences the behavior of consumers. It must be borne in mind that it is practically impossible for any researcher to study all the factors. The fact that other factors can influence the online consumer behavior cannot be denied. However, the various constructsconsidered in this study are:

Independent Variables
- Website factors
- Market factors
- Consumer factors
- Perceived risk
- Subjective norms

Dependent variables
- Attitude
- Behavioral intention
- Behavior

The above factors have been described in brief below:

Website factors

The quality of website design, the information content, ease in navigation of the website, providing two-way communication, quick downloading and uploading of web pages are all vital for online grocery shoppers. It is equally important that the pictures and color of the products displayed are clear and represent the products. It is also important that the website layout should help the shoppers in searching and selecting the products that they need with great ease.

Market factors

Online grocers generally look for price information from different retailers for the same product to enable them to make the most favorable decision. Price is one of the most important factors used in the consumers' decision-making process both in online and store formats. Value for money, availability of variety of products, availability of the brand and quality of the products that the shoppers look for, comparison of alternative products, ease in returning the products if they are not satisfied and discounts and offers and other product promotions are some of the market factors that shoppers of online grocery look for. Like other retail channels, online channels have various promotional tools such as corporate logos, banners, pop-up messages, e-mail communication and hyperlinks to websites. These types of product promotions influence the shopper.

Consumer factors
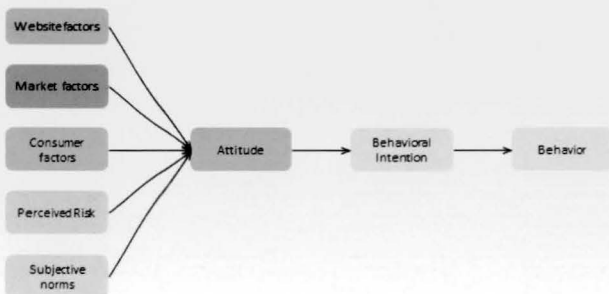
Consumer factors include time savings, convenience in shopping, reducing the efforts in travelling, walking, parking, waiting and carrying etc., for the shoppers. This also includes preference of shoppers to shop online from retailers having reputation, online retailers who encourage consumers to give suggestions, providing personalized service to its customers, understanding the needs of customers, among others. Another consumer issue is the ability of the consumers to touch and feel the products before making a purchase. Normally there is apprehension before making a purchase without touching and feeling the products. However, as consumers get experience in purchasing the same set of products and have started purchasing branded products, they have to an extent overcome the bias and are able to order without the need for touch and feel.

Perceived risk

Perceived risk is the uncertainty that the customers face when they cannot foresee the consequences of their purchase decisions. In a virtual shopping set up, as the seller cannot be physically felt or seen, there is perception of uncertainty and hence perceived risk is high in online shopping. Various types of risk are involved in online shopping. There is risk in the credit card details being hacked in the case of online shopping. There is also a possibility of personal information being compromised to a third party. There may be delay in delivery of products, wrong products may be delivered, the exact product ordered may not be delivered, delivery charges may be high in online shopping.Too many websites and information overload may in fact, create confusion in the minds of the shoppers. Moreover, as the stores are virtual, there may be delay in resolving any issues for the customers or they may not be resolved at all.

Subjective norms

Subjective norms refer to the influence of friends, family, media, newspapers, internet advertisements on the shoppers to shop online. Previous research has shown that shoppers are greatly influenced by these internal and external factors. Members of a community also influence the shopping behavior.

Attitude

An attitude is a pre attained disposition of favouring or unfavouring a person, place, situation or an object. It is the result of evaluation of certain aspects in the mind of the shopper which may or may not have a positive impact. Attitude comprises of three components namely, beliefs, feelings and a behavioral intention towards a product or service. Beliefs may be positive, negative or neither positive nor negative.
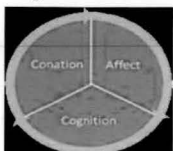

Fig.1.6 The Tricomponent Attitude Model

Attitude consists of three components namely, (1) cognative (knowledge), (2) conative (tendency) and (3) affective (feelings). Attitudes develop a structure and remain steady over time. Since attitudes are learned, the more the attitudes are possessed by an individual, more they will become bonded with the behavior and hence more resistant to changes.

Behavioral intention

The behavioral intention defines the consumer future action related to the product or a service. Intention to purchase a product reflects consumers' choice to either purchase or his intention to reject the future purchase. Consumers' intention to shop online refers to their willingness to make purchases in an online store. Consumers' intention to shop groceries online greatly influences their buying behavior.

Behavior

The ever changing state of mind of shoppers makes it difficult for the online grocers to predict the way the consumers will behave while shopping for groceries online. This is the most substantial step in online shopping, with most empirical research using measures of frequency or number of purchases and value of purchases. Questions like whether they will shop grocery online in future, whether they would recommend online grocery shopping to their friends and relatives, whether they would abandon the shopping cart if it takes a long time, whether they would purchase some items online and some others in store format and lastly, whether they would shop online or offline that suits their convenience at that point of time were the questions posed to measure the online shopping behavior of the respondents.

Hypothesis

Null Hypothesis (H0): The hypothesized model does not have a good fit
Alternate Hypothesis (H1): The hypothesized model has a good fit

Methodology

Data collection and sample

The exploratory research aimed at identifying the factors influencing the online grocery shopping behavior of working women in Bengaluru. Primary was collected from working women in Bengaluru, who have either purchased a product or service online. Data was collected through a combination of online as well as offline methods. Secondary data has been obtained from previous research studies on the topic, journal papers, both national and international, white papers and publications of various consulting companies like BCG, KPMG, Mc Kinsey, Nielsen and PWC.

490 samples were collected and 385 samples complete in all respects and were considered for analysis. Self-administered questionnaire with dichotomous, close ended, multiple choice questions with Likert Scaling was employed for data collection. The questionnaire was pre tested to check the structuring, validity and reliability. Reliability test of pilot study revealed a Cronbach alpha of more than 90% and hence the questionnaire was adopted without any changes.

Data analysis

Collected data were analyzed with the help of software package SPSS and analysis of moment structure (AMOS) 20. Statistical techniques like descriptive analysis, confirmatory factor analysis were employed. Structural equation modeling (SEM) was used for data analysis.

Results and discussion

The demographic profile of the respondents revealed that 45.5% have never purchased grocery online and the remaining 54.5% have purchased grocery online. With regard to the type of internet user, while thinking of using internet for online grocery shopping of working women, 10.1% are non-web users, 13.5 % are visitors (look for general information), 21.8 % are browsers (look for specific information but would not buy online) and 54.5% are internet buyers (look for specific information and would buy online).

As more than 50% of the respondents have already purchased grocery online and only 10.1% of the respondents are non-web users as far as online grocery shopping is concerned, online grocers should evolve strategies to retain the internet buyers and also target to bring the 35.3% visitors and browsers to shop grocery online. These are cues for online grocery retailers to attract new customers and retain the existing customers.

Structural equation modeling (SEM):

Structural Equation Modeling (SEM) is a statistical approach to testing the hypothesis about the relationships among observed and latent variables. SEM was selected in this study because of its explanatory ability, its comprehensive statistics of model testing, its popular usage in a parsimonious model and its ability to develop stronger models by testing theories on the specified relations (Cheng 2001).SEM uses a measurement and a structural model to analyze the data and validate the relationships between constructs. The measurement model establishes a link between the latent or unobserved variables and their indicators and the structural model studies the relationships between the constructs. The first step in SEM is to develop a theoretical model that represents the relationships between the constructs as indicated by previous studies (Anderson et al., 1998). All available theory, research and information should be used to determine the variables that are included and the relationships between them (Schumaker et al., 2004).

Measurement and structural models are developed based on the theoretical model. The measurement model represents the confirmatory factor model that is used to test if the latent variables are measured well by using the available observed variable data and the structural model represents the relationship between these variables.

CFA model tests whether a specified set of constructs is influencing responses in a predicted way. In CFA, the researcher has a strong idea about the number of factors, the relation among the factors and the relationship between the factors and measured variables. SEM using AMOS has been done to confirm the model and is in shown fig.1.7
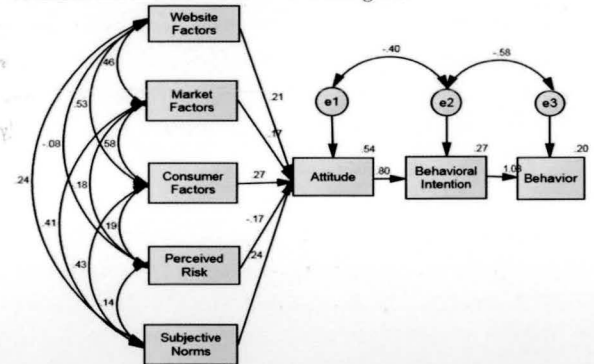

Fig.1.7 Working women online grocery shopping behavior structural model – CFA

Standardized regression weights (Default model)

Table 1.1 showing the standardized regression weights (default model)

			Unstandardised co-efficient	S.E.	Standardised co-efficient	t value	P value
Attitude	<--	Website factors	0.173	0.031	0.208	5.659	<0.001**
Attitude	<--	Market factors	0.118	0.027	0.174	4.427	<0.001**
Attitude	<--	Consumer factors	0.212	0.032	0.271	6.522	<0.001**
Attitude	<--	Perceived risk	-0.121	0.023	-0.165	5.320	<0.001**
Attitude	<--	Subjective Norms	0.250	0.035	0.245	7.060	<0.001**
Behavioral Intention	<--	Attitude	0.553	0.040	0.803	13.821	<0.001**
Behavior	<--	Behavioral Intention	1.304	0.088	1.075	14.743	<0.001**

Note: ** denotes significant at 1% level

The amount of change in the dependent variable for each one unit change in the variable predicting it is symbolized by the unstandardized regression coefficient. The above table shows the standardized estimate for the fitted model. Relative contribution of each predictor variable to each outcome variable can be evaluated by standardized estimates.

It can be seen from table 1.1that while website factors, market factors, consumer factors and subjective norms positively influences attitude, perceived risk negatively influences attitude. Attitude influences behavioural intention which in turn, influences behaviour.

Confirmatory factor analysis (CFA) is also known as measurement model.Absolute fitindexes are used to assess the

ability of the model to reproduce the actual correlation or covariance matrix (Hair et al. 1998). This index is used to assess the overall model fit of the measurement models and structural models. It includes the chi-square statistic in association with its degrees of freedom, root mean square error of approximation (RMSEA) and the goodness-of-fit index (GFI). The comparative fit indexes are used to see whether the model under consideration is better than competing models. This includes the incremental fit index (IFI) and comparative fit index (CFI). The parsimonious fit indexes are used to assess the cost-benefit trade off of model fit and the degrees of freedom. This includes the adjusted goodness-of-fit index (AGFI).

The root mean square error of approximation (RMSEA) shows us how the model, with unknown parameter estimates would fit the population covariance matrix. (Byrne,1998). CFI (Confirmatory Fit Index), RMSEA can be used with Chi-square test to see the measurement model fit. GFI, an alternative to Chi-square test can be used to calculate the proportion of variance. While Chi-square test is affected by sample size, CFI is least affected by sample size and is used in all SEM programs.

SEM is useful when assessing the casual relationship between variables as well as verifying the compatibility of the model used (Peter, 2011). SEM model evaluates whether the data fit a theoretical model. In order to evaluate the model, emphasis was given to chi-square/degrees of freedom (X2/df), CFI, GFI, AGFI, TLI, IFI, RMSEA and PGFI). A sample size of over 200 (385 in this study) could affect Chi-square statistics. Consequently this model is considered for further interpretation in the goodness of fit measures.

Model fit measures like Chi-square/d.f, comparative fit index (CFI), Normated fit index (NFI), Incremental fit index (IFI), Tucker Lewis Index (TLI) and Root mean square error of approximation (RMSEA) were used to the estimate the measurement model fit. Table 1.2 shows the estimates of the model fit indices from AMOS structural modeling. The criteria for an acceptable model are CFI of 0.90 or higher, NFI of 0.90 or higher and RMSEA of 0.08 or lower (Gerbing and Anderson, 1992). The GFI of this study was 0.980, which is more than the recommended value of 0.90 the other measures fitted satisfactorily; AGFI=0.921, CFI=0.981, TLI=0.941, IFI=0.981, RFI=0.919, NFI=0.974 with X2/df at 1.746 and RMSEA=0.071 indicate a good absolute fit of the model. Goodness of fit indices support the model fit and the indices indicate the acceptability of this structural model.

Table 1.2 showing the consolidated results of the CFA

Indices	Results	Suggested values
Chi-square value	15.714	
P Value	.073	>0.05 (Hair et al., 1998)
Comparative Fit Index(CFI)	.981	>0.90 (Hu and Bentler, 1999)
Goodness of Fit Index(GFI)	.980	>0.90 (Hu and Bentler,1999)
Adjusted Goodness of Fit Index (AGFI)	.921	>0.90 (Hair et al.,2006)
Normated Fit Index(NFI)	.974	≥0.90 (Hu and Bentler,1999)
Incremental Fit Index(IFI)	.981	Approaches 1
Tucker Lewis Index(TLI)	.941	≥0.90(Hair et al., 1998)
Root mean square error of approximation(RMSEA)	.071	<0.08 (Hair et al., 2006)
Parsimony goodness of fit index(PGFI)	.245	within 0.5 (Mulaik et al.,1989)

Conclusion and implications

The objective of this study was to identify the factors that influence online grocery shopping behaviour of working women in Bengaluru, which has been done from the literature review.

The next objective was to develop a model to study the factors influencing the online grocery shopping behaviour of working women, for which JR-FABIBwas developed and tested to see if the model shows a good fit for the data collected. As the data collected satisfied the model fit indices, it can be concluded that the model can be used in studying the factors influencing online grocery shopping behaviour.

The data collected shows that the model is a good fit. Thus, the null hypothesis is rejected and alternate hypothesis is accepted. This model can as well be adopted for studying other factors not included in this study but may influence their shopping behaviour. Also, this model can be adopted for studying online shopping behaviour of other products like electronics, apparel, cosmetics, jewellery etc.

Thus,it can be concluded that website factors, market factors, consumer factors and subjective norms positively influences attitude and consumer factor is predominant among these five factors and perceived risk negatively influences attitude. The influence of attitude on behavioural intention is positive and the influence of behavioural intention on behaviour is higher with a co-efficient of 1.08 when compared to the co-efficient of attitude to behavioural Intention at 0.80.

Thus, online grocery retailers should focus more on consumer factors as it is the most influencing factor. Among the consumer factors, "I can reduce my efforts in travelling , walking, parking, waiting and carrying if I shop grocery online" has the highest mean rank of 6.24, implying that shoppers avoid travelling, walking in crowded places, parking of vehicles, waiting for billing and also carrying the groceries. Groceries are items that are purchased day after day, week after week, month after month- buying the same set of products. The shoppers are familiar with the products and do not want to spend their valuable time in commuting, parking, waiting etc. while shopping groceries, especially in a metro like Bengaluru, where traffic snarls are part of everyday life. This would be a great opportunity for the online grocers, who need to cease the opportunity while providing the much need comfort and convenience to its shoppers.

As perceived risk negatively influences the attitude, all out efforts will have to made by the online grocers to eliminateor if not, reduce the risk factor to a great extent. Among the perceived risk factor, "I may have to wait for the product to be delivered if I shop grocery online" has the highest mean rank of 5.23. Thus, grocery shoppers perceive waiting for products to be delivered as a major risk factor and as groceries are essential items for households, online grocery retailers need to reassure the customers that the shoppers need not have to wait for the products to be delivered. This can be ensured by online

grocers by tying up with the neighbourhood stores and ensure quick delivery of the products. Tying up with the neighbourhood stores will to a great extent help online grocers in leveraging the advantages of neighbourhood stores, who are familiar with the customers' tastes and preferences and to gain the confidence of the customers in order to bring about customer satisfaction, loyalty and also provide shopping experience to customers.

Limitations and future research

Only 490 samples were collected for this study. A larger sample could have shown more accurate results. Also, the study was conducted only on working women in Bengaluru.

Future research can be carried out across metros to see if there are differences among the metros. As few factors were considered in this study, other factors that influence online shopping behavior can be studied. A comparative study can be conducted to see if differences persist among working and non-working women and between men and women. The impact of online grocery shopping on the store formats can be studied.

(Data collected from unpublished thesis has been used in this study)

References

1. Ajzen, I. (1991) TheTheory of Planned Behavior: Organisational behaviour and human decision processes, 50,179-211

2. Ajzen, I. (2002) Perceived Behavioral Control, Self-Efficacy, Locus of Control and the Theory of
Planned Behavior – Journal of applied social psychology, 32, 665-683

3. Anderson JG, Gerbing DW (1988) Structural Equation Modeling in Practice; a review two step
approach, Psychol Bull 103:411-423

4. Akhilesh Chandra Pande (Jan 2015) Role of consumer attitudes, beliefs and subjective norms as
predictors of purchase behaviour- The Business & Management Review, Vol.5 Number 4

5. Chen, L. (2009) Online consumer behavior: an empirical study based on theory of planned behavior - Ph.D. 3355612, The University of Nebraska – Lincoln

6. Davis, F.D. (1989) Perceived usefulness, perceived ease of use and user acceptance of information technology – MISQuarterly, 13, 319-340

7. E-tailing in India- unlocking the potential (2013) – A whitepaper from Technopak

8. Emmanuel Cimana andNakkarinPhoosangthong (2013) 'Online grocery shopping in Sweden- Identifying key factors towards consumer's inclination to buy food online

9. Fishbein, M. &Ajzen, I. 1975- Belief, attitude, intention and behavior: An introduction to theory and research, Addison-Wesley

10. Hair, J., Sarsteadt, M., Ringle, C., & Mena, J. (2012) An Assessment of the use of partial least squares structural equation modeling in marketing research Journal of the Academy of Marketing Science, 40, 414-433

11. Jongeun Kin (2004) 'Understanding consumers' online shopping and purchasing behaviors'

12. Jun Li Zhang (2011) An Empirical Analysis of online shopping adoption in China

13. JayashreeRamanan and Dr. KPV Ramanakumar (2014) 'E-Retailing (E-tailing) – Challenges and Trends of E-tailing in India'- International Conference on "e-business-A Paradigm shift in the
Contemporary Scenario" - ISBN-13: 978-81-8209-185-6 and ISBN- 10:81-8209-185-3

14. Kurnia, S. and Chen, A.J. (2003) – The acceptance of online grocery shopping, 16th Bled E-commerce conference – E-Transformation, Slovenia

15. LackanaLeelayouthayotin (2004) Factors influencing online purchase intention : The case of health food consumers in Thailand

16. Man kit Chang (1998) 'Predicting unethical behavior- A comparison of TRA and TPB' Journal of Business Ethics 17: 1825-1834, 1998

17. Online food and grocery retail outlets in India rising (2014): Report (22nd September 2014)

18. N. SaravanaBhavan (2015) 'A study on Consumers attitude towards online shopping with reference to Coimbatore city'

19. R.Renganathan et al., (2012) 'Customer perception towards banking sector: structural equation modelling approach'- African Journal of Business Management Vol.6 (46) pp. 11426-11436, November 2012

20. Rogers, E.M. 1995 – Diffusion of Innovations, Simon and Schuster

21. SherahKurnia et al., (2003) 'The Acceptance of Online Grocery Shopping'

22. Schumacker, R. E., &Lomax, R. G. (2004). A beginner's guide to structural equation modelling

23. Taylor, S. & Todd, P.A. (1995) – Understanding information technology usage: A test of competing models, information Systems Research, 6, 144-176

24. Vania Daniela Vera Velarde (2012) 'Determinants of online purchasing behaviour: An empirical investigation using an extension of the Theory of Planned Behavior'