Relating Big Five Factor Model to the Acceptance and Use of On-line Shopping

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Abstract

The main purpose of this paper is to determine the influence of the Big Five personality traits on consumers' online shopping performance and perceptions of shopping experience. Building on previous research, it was found that personality characteristics shape an individual's motivation, goals, and perception, thereby providing criteria to evaluate external stimuli and affect performance. The influence of personality traits on a consumer adopting online purchases as well as his acceptability and adaptability with the said medium is assessed. The paper consists of theoretical and research aspects. The first part encompasses theoretical insights into the secondary research regarding personality traits while the practical part presents the methodology and primary research results. In the study, research goals as well as previous findings and primary research results, corresponding hypothesis were set and confirmed. Inter variable correlation analysis has been performed to test the hypothesis followed by a regression analysis. The results portrayed respondents' consistency in their personality traits (Extraversion, Openness to Experience and Conscientiousness) and their behaviour while shopping online. However, the trait neuroticism did not conform to the generalisation and hence did not display consistency between the trait and its related behaviour in online shopping.

Keywords: personality traits, consumer behaviour, on-line shopping, internet

1. Introduction

Online shopping has grown phenomenally in India and keeps growing by the minute with more and more consumers jumping wagons from traditional retail consumers to virtual consumers. Internet usage increases due to the efficiencies of new technological developments thus the greater provision for online commerce (Miyazaki & Fernandez, 2001). The growth in India's e-commerce sector rides on the back of improving telecommunication infrastructure and as Indian consumers grow increasingly comfortable with shopping online. As broadband Internet access in homes and offices have become common coupled with the generic use of the smart phone has made online shopping way simpler and more convenient. The App only way gone by various online shopping sites provides the online shopper with "shopping while walking, talking, waiting" thus facilitating browsing while waiting for a bus or a train, at the waiting room in a doctors clinic or may be even just trying to kill time. Through the ever friendly smart phones and the flexible and economical recharge vouchers provided by data providers makes shopping online a task on the go. Accel Partners reports that 9 percent of domestic e-commerce traffic came from mobile devices in 2013 and that it is projected that 70 percent of the expected increase in internet users are expected to be added through mobile devices. With the spurt in the use of the smart phone and the resulting increase in e-commerce made popular online shopping sites in India such as Myntra.com, Flipkart.com go the App only way. E-marketers are increasingly pursuing promotional tactics intended to convert web viewers to customers (Zhang et al., 2007) and introducing attractive offers such as Big billion days sale, The Great Indian Festival sale, cash back on shopping via the app makes shopping online appealing if not attractive.

India's e-commerce market grew at a staggering 88 percent in 2013 to $16 million, riding on booming online retail trends and defying slower economic growth and spiralling inflation, according to a survey by industry body Assocham. A report by Associated Chambers of Commerce and Industry (Assocham) of India along with Pricewaterhouse Coopers expects the sector to log a compound annual growth rate of 35 percent and cross the 100 billion mark in value by 2019. The study released in December 2014 put the industry at a current value of

USD 17 billion. According to data by Morgan Stanley, Flipkart is holding the lion market share of 44 percent while Snapdeal is currently the second-biggest player in India with a market share of 32 percent and US Behemoth Amazon accounts for 15 percent of market share.

2. Importance

This marketing channel, the Internet, differs from the traditional retail forms in many ways. What is unique here is that consumers can not touch or smell the products that they wish to purchase as they would normally do in the case of traditional outlet forms. They will have to base their judgements partly on the product information provided by the online portal about the respective product which may serve as a reference but most importantly they will have to use their own instinct and insight into making a favourable purchase online. As a consequence, one's personality plays a significant role in affecting consumers' online shopping performance and attitude toward online shopping. The distinctiveness of this channel added with its rapid growth highlights the importance of understanding the effects of personality on consumers' online shopping behaviour

To assist online marketers tap this vast and potential market, this study compares perceptions towards online marketing to the personality characteristics of online shoppers. The objective is to identify similarities in consumer's personality characteristics with his attitude towards online shopping. To identify personality characteristics in online buyers, the Big 5 Personality Inventory is used. To justify this comparison, it can be stated that prior research indicates that the Big Five Traits (Neuroticism, Extraversion, Openness, Agreeableness and Consciousness) reflect core aspects of human personality and have strong influence on behaviour (Costa & McCrae, 1992). The relationship between the traits and subsequent buying behaviour is being investigated in an online shopping environment.

3. Literature Review and Research Model

Substantial research has been done in the area of online buying and what might influence a consumer to buy online. Research done to review the role of Demographics on the tendency of consumers to purchase online proves that demographic variables such as gender, education, household income were significantly related to consumers online purchase preference (Girard et al., 2003; Yook & Lauren, 2008; Afizah, Erlane, & Jamaliah, 2009; Ahasanul, Javad, & Ali, 2006). However, though demographics display a predictive power across all product categories, but the degree of predictive power appears to be product specific (Naseri & Elliott, 2011). However, this contention was refuted by Gehrt & Carter (1992) as they suggest that psychographic variables predict shopping orientation rather than demographic variables. Prior research in the area of consumer preference to shop online related to vendor characteristics such as good customer service, privacy protection, security of personal information reveal that vendor characteristics are the key influencing factors to online consumer purchasing behaviour (White, 2004; Guo, 2011; Mohammad et al., 2012).

Research (Girard et al., 2002) has been done to investigate into the relationship of type of product, shopping orientation and demographics with preference for shopping on the internet which proposes that consumer shopping orientation such as price consciousness, risk aversion, innovativeness, brand consciousness, importance of convenience, variety seeking inclination and impulsiveness creates an inclination to shop online for products or services. Swaminathan et al. (1999), Li et al. (1999), Chiang & Dholakia (2003), Jarvenpaa & Todd (1997), Girard et al. (2002) found that shopping orientation valuing convenience significantly and positively related to the frequency of web users' online purchases. This assumption was however rejected by Brown et al. (2003) as his study revealed that recreational shopping was more important than convenience for online shoppers.

Consumer researchers have long been intrigued by the concept of personality and its relationship to consumer behaviour in part because key personality factors are believed to have persistent influence on perception and behaviour (Erikson, 1968; Haugtvedt, Petty, & Cacioppo, 1992). It has been proved that some correlation evidence indicates an interrelation between trait buying impulsivity and impulse buying behaviour. By rule, a personality should provide a rather consistent response to an environmental stimulus based on enduring psychological characteristics (Kassarjian, 1971). But as per a review of over 300 personality studies, the impact of personality on consumer behaviour was described as ambiguous at best (Kassarjian & Sheffet, 1991).

According to Lichenstein, Netemeyer, & Burton (1995) and Moore, Harris, & Chen (1995); traits have been found to be especially useful in consumer research when they have direct relevance to the specific buying behaviour being investigated.

The focus of this study is on personality traits as commonly spelt out as a pattern of thought, feelings and behaviour. A trait is a characteristic or individual difference in which one person varies from another in a relatively permanent and consistent way (Mowen & Minor, 1998). Traits theory is important in studying

consumer behaviour because traits are common to many individuals (Engel, Blackwell, & Miniard, 1995). Personality traits are not only descriptive concepts but are also capable of explaining. Scholars have shown that personality traits have motivational implications, play a role in influencing the characteristics a person perceives as relevant in her environment, the goals a person pursues, and how she responds to external stimuli (e.g., Costa & McCrae, 1988; Little, Lecci, & Watkinson, 1992). Thus for this study purpose, attention is placed on how individuals actually think, feel, act etc. The study uses the Big Five personality inventory to examine its influence on online shoppers.

Personality psychology has recognised five broad traits (the Big Five) that explain much of the meaningful variance in the innumerable traits proposed in the earlier literature (Mooradian et al., 2008). Therefore, the most widely accepted taxonomy of personality traits is the Big Five or five-factor model (John & Shrivastav, 1999; McCrae & Costa, 1999; Gosling et al., 2003). The Big Five factors are Openness to Experience (also called Intellect or Culture), Conscientiousness, Extraversion, Agreeableness, and Neuroticism (also called Emotional Stability). These factors represent personality at the broadest level of abstraction. Each factor summarizes a large number of distinct, more specific, personality characteristics.

Reliability coefficients for the subscales have been established as acceptable (Extraversion, $\alpha = 0.87$, Agreeableness $\alpha = 0.82$, Conscientiousness $\alpha = 0.79$, Neuroticism $\alpha = 0.86$, Openness to Experience/Intellect $\alpha = 0.84$) (Goldberg, 1999).

4. Method

The current study was designed to address this need by directly assessing the relationship between Big Five Personality traits and its influence on behaviour towards online shopping. The hypothesis regarding the Big Five dimensions and behaviour towards online shopping were based both on an analysis of how the characteristics already known to reflect these dimensions (e.g., Costa & McCrae, 1995) would logically display similar characteristics while shopping online since traits representing the characteristics of individuals remain relatively stable across situations and therefore can be used to distinguish between two individuals (Hertzog & Nesselroade, 1987).

This study used a convenience sample of 63 respondents, who were asked to complete the questionnaire containing the Big Five Factor Inventory (NEO-FFI, Costa, & McCrae, 1992), demographics information such as age, gender, profession were a part of the study. The sample consisted of 40 females and 23 males.

The 60 item NEO-FFI measures 5 personality traits:

Neuroticism as a dimension to personality measures feelings of distrust, inferiority, loneliness, fear and anxiety. Neuroticism is reflected in a negative reaction to both life and work situations, and this will generalize to beliefs about the perceived usefulness of technology (Devaraj et al., 2008). The distrust inherent in people with neurotic personalities has tended to limit the amount of time they spend online exchanging information (Swickert et al., 2002). Neurotic personalities are likely to view technological advances as threatening and stressful, and to have negative thought processes when considering it (Devaraj et al., 2008). This negativity towards online shopping is aggravated since internet shopping inherently involves higher levels of uncertainty than shopping from a physical store because the activity is new to most people, and the transactions are conducted in a virtual environment without the physical assurances of traditional shopping experiences (Lim et al., 2004).

Negative emotions (anger, depression, anxiety) may disrupt control over impulses and urges (Pechmann et al., 2001). Research shows that people who experience emotional distress value short-term pleasures that may relieve their distress. Rook & Gardner (1993), Rook & Fisher (1995), Piron (1991) found that consumer's positive mood were more conducive to impulse buying that negative moods, although impulse buying occurred under both types of moods. The feeling of being bored and sad is replaced by positive emotions such as pleasure and excitement through the purchasing process (Sundstorm et al., 2013, Youn & Faber, 2000). Lack of control is positively related to impulse buying tendencies (Youn & Faber, 2000).

Hypothesis 1: There is significant relation between the neuroticism trait as displayed by factors such as fear, impulse control and inability to cope with stress and related buying behaviour on the internet.

Shopping is often a social process in which a shopper is accompanied by friends or family members (Evans et al., 1996). Shopping involves diverse facets of shoppers' experiences requiring a substantial level of interaction among shoppers as well as the store's atmosphere (Bashar et al., 2013). An individual who manifests a high level of extraversion is active and likes to have a lot of people around him or her. This trait is manifested by feelings of gregariousness, excitement seeking, activity, warmth and positive emotions. Tauber (1972) has argued that one of the prime motives for shopping is the desire to communicate with others who have similar interests, to

share ideas about particular products with shopping companions, to seek their feedback and to enjoy leisure time with friends and family. Since the physical separation constraint may be alleviated by online shopping, online shopping becomes a medium to socialise and interact. Among the earlier shopping orientation studies, Stone (1954) explained that a personalizing shopper seeks personal relationships with sales-people. Further, it is perceivable that social connectedness facilitates the spread of word of mouth, which has been found to have a strong influence on the adoption of innovation (Naseri & Elliott, 2011). Sultan et al. (1990) indicated from their study that word of mouth is the main deriver of diffusion of new products. Naseri & Elliott (2011) studied the relationship between social connectedness and the adoption of online shopping and their results suggested that socially active and extraverted consumers are more likely to purchase online. Gefen & Straub (2003) have found that social presence affects consumers' trust, which in turn influences their purchase intentions. Because one of the main objectives of collaborative online shopping is to fulfil people's desire for social interaction (Schubert, 2000; Tauber, 1972, Zhu et al., 2010), extraverted individuals will use the internet as a tool to acquire things to share with others, such as information and music (Amiel & Sargent, 2004)

Hypothesis 2: There is significant relation between Extraversion trait and related buying behaviour on the internet and will seek online shopping as a medium to interact and socialise.

Openness is represented by flexibility of thought and tolerance of new ideas. Individuals described as high on the openness-to-experience dimension of personality are willing to try new and different things (Devaraj et al., 2008). Online shopping becomes an interesting field as it provides endless supply, unlimited opening hours and supports the consumer by endless choices of price and product comparisons (Chih & Hsi-Jui, 2012). Donthu & Gracia (1999) found that internet shoppers are more convenience seekers, innovative, variety-seekers. Open people are attracted to online activity to sate their curiosity and seek out new forms of adventure (Tuten & Bosnjak, 2001).

Hypothesis 3: There is significant relation between Openness to experience trait and related buying behaviour on the internet and will see online shopping as a medium of exploration and action.

Consciousness likened with qualities of order, persistence, dutifulness, purposeful and motivation in goal directed behaviour. Conscientious people are less likely to use the internet for what they see as unproductive activities. They also tend to spend less time online in leisure pursuits (e.g., watching YouTube videos, Landers & Lounsbury, 2006). People with a highly conscientious personality will be more likely to carefully consider ways in which the use of technology would allow them to be more efficient and perform at a higher level of work (Devaraj et al., 2008). Bakos (1997) asserted that internet lowers the search cost to acquire information about prices and product offerings and reduces inefficiencies caused by buyer's search cost. McElroy et al. (2007), found a positive relationship between conscientiousness and task orientation and self efficacy. Conscientious individuals are inclined to carefully process and weight additional information (Devaraj et al., 2008).

Hypothesis 4: There is significant relation between Conscientiousness trait and related buying behaviour on the internet and will look on online shopping as a systematic medium of doing a task that is to purchase products and services.

These studies suggest that the Big Five personality dimensions have at least some utility as determinants of the use of online shopping. That is, people dominated by different personality characteristics will use the internet to shop to varying degrees and for different purposes.

5. Measures

The NEO FFI (Costa & McCrae, 1992) used to measure the five factor model of personality, is a 60 item questionnaire measuring five dimensions of the normal personality (i.e., neuroticism, extraversion, openness, agreeableness and conscientiousness) and consisting of 12 items per dimension. The respondent is asked to rate on a 5 point Likert scale the extent to which each statement corresponds to his or her perception of himself/herself. Raw scores were used for analysis. In the study presented here, the Cronbach alpha values for the NEO-FFI subscales were (Extraversion, $\alpha = 0.59$, Conscientiousness $\alpha = 0.79$, Neuroticism $\alpha = 0.59$, Openness to Experience/intellect $\alpha = 0.6$). Agreeableness as one of the dimensions to one's overall personality was left out due to non-relevance to the study under investigation.

An instrument was designed consisting of 30 items, to measure the participant perception and behaviour towards online shopping measuring each of the four dimensions of personality from a review of prior research on personality traits. The constructs of online shopping behaviour was determined by Principal Component of Factor Analysis with Varimax rotation to verify that pertinent indicator variables were selected for each of the four personality dimensions. To set the criteria for principal component analysis, factors with eigenvalues greater

that 1.0 and items with rotated factor loadings of 0.50 or greater were retained. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.6 which is the minimum requirement for a good factor analysis. Because communality of a variable represents the amount of variance in the factor solution explained by that variable (Hair et al., 1998), variables with communalities less than 0.40 were deleted for reasons of insufficient contribution to explain the variance. Variables that did not meet the above criteria were excluded from the analysis. Among the 30 items, 18 items were retained for factor analysis and four consumer online shopping behaviour constructs were identified: Purchasing decision making problems, Social connectedness, Versatility of online shopping and Meticulousness in online purchases (refer Table 1). Further the individual items of each sub scale were averaged to form a composite score for each dimension. As the study expects that there be a reflection of personality traits on online shopping, a correlation analysis was done on each subscale with its corresponding NEO-FFI personality trait score. Further a regression analysis was done taking the NEO-FFI subscales as the independent variables and the four consumer online shopping behaviour constructs as the dependent variables

Table 1. Factor analysis of online shopping behaviour of consumers

Factor labels (means)	Items	Factor loading	Means	Variance explained (%)	Cronbach alpha
Total				53.5	
Purchase decision making problems. (mean=2.79)	Scared to try out new products	.50	3.02	15.09	0.67
	Difficult to make a choice in online shopping	.52	2.81		
	Regret later for purchase made online	.76	2.83		
	Buy things I did not need	.50	2.52		
Social Connectedness (mean=3.09)	Find purchasing online enjoyable as it gives a chance to socialise	.63	3.98	14.14	0.66
	Enjoy being with others while shopping online	.72	3.27		
	Often update my feedback about product	.58	2.49		
	Consult my family/friends before purchase	.69	3.37		
	Shop online regularly for smallest item	.50	2.38		
Versatility of online shopping (mean=4.19)	Online shopping is flexible as it provides any time shopping	.84	4.37	13.28	0.76
	Online shopping is accommodating as it provides for variety	.75	4.25		
	online shopping is convenient as it is a time saver	.81	4.19		
	Constantly browse online just for a glimpse	.50	3.98		
Meticulousness in online purchases (mean=3.80)	Take time and effort to follow up in case of defective products	.62	3.57	11.02	0.69
	When dissatisfied, promptly return it back	.66	3.59		
	Go through product information before purchase	.53	4.35		
	Before purchase, compare, evaluate other similar products	.50	4.13		
	Go through customer reviews before purchase	.76	3.37		

Note. Responses are indicated on a 5-point Likert scale.

6. Research Findings and Discussion

A.   Mean Analysis:

1)   The (mean=2.87) for Purchase decision making problems is tending towards the lower end of average implying tending towards disagree on the Likert scale of 1 to 5 with 1 being strongly disagree and 5 being strongly agree. This reflects the respondents disagreement of portrayal of fear, distrust etc while online shopping.

2)   The (mean=3.09) for Social Connectedness is average thus reflecting that average of the respondents see online shopping as an means to interact.

3)   The (mean=4.15) for Versatility of online shopping is more than average thus reflecting a strong agreement by the respondents about the versatility by shopping online.

4)   The (mean=3.90) for Meticulousness in online purchases is higher than average thus reflecting an agreement of the display of order and purposefulness by the respondents while shopping online.

B.   Correlation and Regression Analysis:

Hypothesis 1, 2, 3 and 4 hypothesise that there is significant relation between the Big Five traits (Neuroticism, Extraversion, Openness to Experience and Conscientiousness) and related buying behaviour on the internet.

A correlation and Regression analysis was done on each subscale with its corresponding NEO-FFI personality trait score.

Hypothesis 1 showed that the respondents' neuroticism trait as displayed by factors such as fear, impulse control and inability to cope with stress is not significantly related to its related buying behaviour on the internet. Therefore, hypothesis 1 is not supported (refer Table 2).

Table 2. Relatedness of trait: Neuroticism in Online Shopping

		Purchase decision making problems	NEO-FFI Neuroticism score
Purchase decision making problems	Pearson Correlation	1	.042
	Sig. (2-tailed)		.741
	N	63	63
NEO-FFI Neuroticism score	Pearson Correlation	.042	1
	Sig. (2-tailed)	.741	
	N	63	63

Hypothesis 2 showed that the respondents Extraversion trait is significantly related with its related buying behaviour on the internet at 0.01 level of significance therefore supporting the hypothesis (refer Table 3) that consumers high on the extraversion trait will seek online shopping as a medium to interact and socialise. This model with NEO-FFI Extraversion score as the independent/ predictor variable and Social Connectedness as the dependent variable was statistically significant ($F_{1,61}$=8.261, p=.006; Adjusted R^2=.105) showing that 10.5% of the variance in the dependent variable (Social Connectedness) can be explained by the independent variable that is Extraversion trait (b=.345, p<.01)

Table 3. Relatedness of trait: extraversion in online shopping

		NEO-FFI Extraversion score	Social Connectedness
NEO-FFI Extraversion score	Pearson Correlation	1	.345[**]
	Sig. (2-tailed)		.006
	N	63	63
Social Connectedness	Pearson Correlation	.345[**]	1
	Sig. (2-tailed)	.006	
	N	63	63

Note. **. Correlation is significant at the 0.01 level (2-tailed).

Hypothesis 3 showed that the respondents Openness to Experience trait is significantly related with its related buying behaviour on the internet at 0.05 level of significance thus supporting the hypothesis (refer Table 4) that consumers high on Openness to Experience trait will see online shopping as a medium of exploration and action. This is consistent with the finding of Tuten & Bosnjak (2001) but the financial, effort, and time obligation of such behaviour may overcome their curiosity (McElroy et al., 2007). This model with NEO-FFI Openness to Experience score as the independent/ predictor variable and Versatility in Online Shopping as the dependent variable was partially supported ($F_{1,61}$=4.166, p=.046; Adjusted R^2=.049) showing that 4.9% of the variance in the dependent variable (Versatility in Online Shopping) can be explained by the independent variable that is Openness to Experience (b=.253, p<.05).

Table 4. Relatedness of trait: openness to experience in online shopping

		NEO-FFI Openness score	Versatility in Online Shopping
NEO-FFI Openness score	Pearson Correlation	1	.253[*]
	Sig. (2-tailed)		.046
	N	63	63
Versatility in Online Shopping	Pearson Correlation	.253[*]	1
	Sig. (2-tailed)	.046	
	N	63	63

Note. * Correlation is significant at the 0.05 level (2-tailed).

Hypothesis 4 showed that the respondents Conscientiousness trait is significantly related with its related buying behaviour on the internet at 0.01 level of significance thus supporting the hypothesis (refer Table 5) that consumers high on the Conscientiousness trait will look on online shopping as a systematic medium of doing a task that is to purchase products and services. This model with NEO-FFI Conscientiousness score as the independent/ predictor variable and Meticulousness in Online Shopping as the dependent variable was statistically significant ($F_{1,61}$=8.1, p=.006; Adjusted R^2=.103) showing that 10.3% of the variance in the dependent variable (Meticulousness in Online Shopping) can be explained by the independent variable that is Conscientiousness trait (b=.342, p<.000).

Table 5. Relatedness of trait: conscientiousness in online shopping

		NEO-FFI Conscientiousness score	Meticulousness in Online Purchases
NEO-FFI Conscientiousness score	Pearson Correlation	1	.342[**]
	Sig. (2-tailed)		.006
	N	63	63
Meticulousness in Online Purchases	Pearson Correlation	.342[**]	1
	Sig. (2-tailed)	.006	
	N	63	63

Note. **. Correlation is significant at the 0.01 level (2-tailed).

7. Limitations and Implications for Future Research

Although three of the four hypothesis were supported, to have further confidence in the stability of these results, the study needs to be supported by a further analysis of a larger sample size. Further, it is unreasonable to expect that personality alone will influence the acceptance and use of online shopping. Other variables such as types of products (search, experience products), cultures (Adam et al., 2004) etc are also likely to influence the behaviour of consumers towards online shopping. Purchasing is correlated with personality traits but these correlations are weaker in certain countries or regions, thus implying that there must be other driving factors differentially affecting the amount of purchasing that occurs (Kacen & Lee, 2002). Therefore further research needs to be conducted into what are the other factors which may influence the display of personality characteristics while shopping online in different countries. One such factor, identified by Rook & Fisher (1995), is social acceptability, therefore it would be interesting to find out the influence of culture in the display of personality characteristics. Further it would be useful to find out the influence of advertising and marketing factors on personality types as well as the degree of exertion of influence on different personality types.

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