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Discontinuance Intention of Online Shoppers Due to Techno Stress: An S-O-R Perspective

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Abstract

Mobile applications have gained a high proliferation due to the advent of smart phones in the market at a lower cost. Despite the increasing popularity of mobile applications in business, a pattern of clients quitting these applications has emerged in recent years. With the use of the Stimulus Organism Response (SOR) Model from the field of environmental psychology, this study focuses on user abandonment of shopping apps. Four important environmental stimuli factors viz. complexity, uncertainty, invasion, and information overload were compared with two important internal states of the organism i.e., techno-stress and online shopping exhaustion; thereby leading to the response of discontinuance intentions. Confirmatory factor analysis was used to ensure that the constructs were legitimate, and structural equation modelling was used to test and validate the hypothesized model. The findings revealed that all stimulus elements had a beneficial impact on the interior states of the organism, and that these internal states also had a good impact on the intention to discontinue shopping online. Information overload was the most influential factor of techno-stress and invasion was the most persuasive factor of online shopping exhaustion. Among the two internal states, techno-stress had more impact on the intentions to discontinue. The major contributions of this study have substantial real-world inferences for corporate

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establishments and decision-makers, in terms of the development of strategies for operative applications.

Introduction

Mobile commerce has been severely progressed by the rapid adoption of mobile devices and wireless technology (m-Commerce). Mobile shopping is regarded as a value-added service and the primary source of revenue generation for m-Commerce sellers. The mobile application has become a vital part of an individual's regular life, thanks to the remarkable expansion in the use of smartphones. The convenience offered by the mobile application has shifted an individual's habit of in-store purchases to purchases in online platforms. This increase in the intensity of shopping via app globally, widened the research gap and several studies had explored the factors causing initial adoption decision and continuous usage intention among the online shopping app users. In spite of the growing acceptance of online shopping apps, a new trend has emerged in recent years, with an average of 88 percent of people quitting them in diverse industries such as fashion, consumer electronics, and cosmetics (Statista 2020, Chen, et al 2019). There are three major phases in the life cycle of an Information System (IS) (Furneaux & Wade, 2010; 2011). Individuals create the intention to start using an IS in the first phase of the IS life cycle, the adoption phase; in the second phase, the ongoing usage phase, the individual develop intents to use the IS continually for a longer amount of time and in the third phase, termination phase, the users develop intentions to discontinue IS and develop intentions to switch to other alternatives as to the after-effects of these intentions (Maier, et.al, 2015). A review of the literature revealed that study methodologies have primarily concentrated on the first and second phases of the IS life cycle, with the third phase currently being investigated; because the murky side of mobile app use is emerging but underappreciated, it's interesting delving into the phenomena of a massive number of apps being abandoned and removed. As a result, an attempt is made to discover the most likely reasons for users' intents to stop using the service.

For the purpose of this study, the researchers used the Stimulus Organism Response (SOR) model from the field of environmental psychology, which has been used in a number of consumer behaviour studies (Lin et. al 2020; Cao et. al 2017). Given the importance of environmental cues in influencing customer behaviour, the SOR model provides a detailed and well-organized technique to examine the natural changes on shoppers'

psychological or emotional reactions, and consequently their intention to stop buying. Hence, the current study applied the SOR model to measure the discontinuance intention due to techno stress.

The concept assumes that various aspects of the environment operate as stimuli (S) that influence people's internal states (O), which then effect their behavioural responses (R). Various stimulus factors identified were complexity, uncertainty, invasion, and information overload. Internal states of the organism were identified as techno-stress, which is a psychological stage of trauma linked to technology usage that is supplemented by physical and natural indices, and online shopping exhaustion, which is 'an individual's psychological reaction to stressful situations such as perceiving the information overload when using Online Shopping Sites.' Finally, the individual's response was depicted as discontinuance intention, which was defined as an individual's behaviour to eliminate the negative consequences generated by technology as well as to reinstate emotional steadiness.

Despite the fact that numerous research have been undertaken to determine the impact and effectiveness of online shopping apps, the termination phase is left unlearned. The study explored the reasons for the intention to discontinue using a 7-dimensional validated model which was tested using SEM analysis with the help of AMOS software, and the results attempt to bridge the void in the literature by adding theoretical contributions to both techno-stress research and discontinuance research.

Contextual Background and Theoretical Development

Information System (IS) Discontinuance

Though extensive studies have been conducted on Information System (IS) continuance the studies focusing on IS discontinuance was found limited. But recently many scholars attempted to explore the IS discontinuance being an important phenomenon that requires attention (Turel, 2014). After the adoption and utilisation phases of the IS's life cycle, there is an unexplained termination phase (Furneaux & Wade, 2010; 2011). The adoption phase has been explained by different theoretical models, such as the Technology Acceptance Model (TAM) (Davis, 1989), the IS continuation model (Bhattacherjee, 2001), and the termination phase has been still overlooked by many pieces of research for a structured model (Turel, 2014). Parthasarathy and Bhattacherjee (1998) state that the perception of people continuing on IS greatly differs from the people discontinuing IS, and thus Turel (2014) tried to theorize these differences in perceptions. In short, when the users of IS are stressed by using technology, the might stop using them to avoid stress (Beaudry & Pinsonneault, 2005) and thus develop discontinuance intentions.

Technostress Research

Techno-stress is described as the tension that an IT user feels when utilising technology (Ragu-Nathan et al., 2008). In recent years, IS research has begun to focus on techno-stress (e.g. Tarafdar et al.,2007; 2010; Ragu-Nathan et al., 2008; Ayyagari et al., 2011 Maier, 2014). When IS users are constantly agitated as a result of their use of technology, the variables that cause the stress are referred to be technostress producers or stimuli (Tarafdar et al., 2007). According to Ayyagari et al., (2011), when a person is stressed by technology, he may respond by feeling exhausted, which is known as techno-exhaustion. The technostress makers have a big influence on user happiness, which is a yardstick for gauging a person's long-term technology usage intentions (Tarafdar et al. 2007; 2010; 2011). Maier et al. (2012; 2014) investigated the findings of Ayyagari et al. (2011) and Tarafdar et al. (2007; 2010; 2011) on social networking sites (SNS) and found that SNS-stress creators are a main factor responsible for SNS-exhaustion, which leads to discontinuous usage intention. The impact of several stressors on IS discontinuation intentions was still something that needed to be looked into.

SOR Model

The Stimulus Organism Response model (SOR) is an extensive model to study the behavioral responses (O) of people and their response (R) when an external environment stimulus acts on them (S) (Mehrabian & Russell, 1974). The external stimuli in the environment will alter people's interior states, according to a model from the study of environmental psychology (Eroglu, Machleit, & Davis, 2001). The phrase organisms, according to Bagozzi (1986), refers to the internal circumstances of insight, feelings, and reflective exercises. The SOR model has been utilised in many past research to investigate online user behaviour (Grace, Ross, & Shao, 2015; Min, & Liu, 2014; Zhang &Xu, 2016) and the SOR model is found appropriate to study the response of abandonment in human being when the internal states are affected by the technological features acting as external stimuli. As a result, the SOR model is used to investigate online shopping behaviour and its effects.

Online Shopping Sites Facet as Stimulus (S)

Stimulus factors refer to 'the environment as discovered by the individual' (Jacoby, 2002). Online shopping sites have become an imperative component in the everyday life but the flood of information, complexity, and various other factors create exhaustion in the mind of those users which leads to stress and ultimately ends up in a permanent discontinuance user intention or for a shorter duration of time. Maier et al., (2012; 2014),

has identified that stress creating factors are those factors which are faced by the users when using an SNS, we have adapted these stress creators for the development of a model for the study and they include four stimulus factors complexity, uncertainty, invasion, and information overload.

Virtual Users' Experiences as Organism (O)

Virtual encounters, according to the SOR world view, intervene in the effect of natural upgrades on customers' practices (Animesh, Pinsonneault, Yang, and Oh, 2011); such an effect is likewise clarified by the progressions in their conduct as they experience the innovative ecological boosts. 'Techno-stress,' which is characterized as a 'stress or psychosomatic sickness brought about by utilizing innovation' (Ayyagari et al., 2011) and 'an advanced infection of reception made by an ineptitude handle the inventive know-hows in a lively style' (Brod, 1984). Techno-stress is a mental state wherein individuals become totally involved inside an improvement, and the touchy expansion in the quantity of end-clients of online customer's advancements upgrades the seriousness of techno-stress. 'Web based shopping weariness,' can be characterized as 'a person's mental response to unpleasant circumstances, for example, seeing the data over-burden when utilizing Online Shopping Sites'. As a result, this study employs the concepts of techno-stress and Online shopping exhaustion to support the premise that certain aspects of online shopping may cause users to experience more tension, anxiety, and weariness.

Behavioural Reaction of Users as Response (R)

Many technical elements or functionalities, such as information overload, techno-stress, weariness, and push alerts, affect a user's participation behaviour in online buying while they are shopping. As a result, the users' intention to stop using the research model is taken into account. Meanwhile, online shopping fatigue refers to a user's inclination to cease using online shopping apps and sites as a result of a variety of issues, including too much information, too many emails and notifications, long hours spent on the Internet, guilt, fear of loss, and bewilderment. These factors add to the stress among users and thus to the developments of intentions to discontinue.

Research Gap and Objectives

The vast majority of previous studies have focused on the effects of techno-stressors on discontinuous usage intentions aimed only at broad IS or long-distance interpersonal communication destinations, but they have neglected to look into mobile shopping application abandonment, resulting in very few studies in the critical period of the internet shopping pattern's existence, which is the end stage. Users of mobile apps receive aggravating

or unsettling notifications, according to a study by Dennison, Morrison, Conway, and Yardley (2013), and they tend to uninstall those programmes. Because the scope of their study was confined to health-related apps, there remains a large field of research to be done on other apps. As a result, this research aims to fill a gap in the existing literature by delving deeper into the end-of-life phase of online shopping apps. This study will be advantageous to the corporates as it helps in improving the effectiveness of online shopping apps. This study also set forth the following research questions for investigation: Does the use of online shopping apps creates techno-stress? Whether the use of online shopping apps creates exhaustion? Will the techno-stress and Online Shopping exhaustion leads to discontinuance usage intention of online shopping apps? At this outset the study entails a detailed investigation to satisfy the following research objectives:

- To explore whether the use of online shopping apps creates techno-stress.

- To examine whether the use of online shopping apps is exhaustive.

- To study whether techno-stress and Online Shopping exhaustion lead to discontinuance usage intention.

Development of Hypothesis and Model for Validation

The researcher gained valuable insight into the development of a structured model for testing and validation after conducting a literature review. It was found that SOR is a suitable model to study the discontinuance intentions among online shopping apps users. From the findings of Albrecht et. al; (2016), it was found that shopping is one of the main source of stress in human being, which lead them to avoid shopping, hence they create a distance between the stress creators and also abandon the stressful conditions, these results were drawn upon an in-store purchase. Maier et.al. (2012) concluded that the people will develop discontinuance intentions as a result of exhaustion developed from overload, this was relating to social networking sites. From the conclusion of the various studies, four variables were identified as stimuli factors; a negative perception that OS apps are difficult to use (complexity), a negative interpretation that OS apps are continually shifting and updating (uncertainty), a negative insight that OS apps play an excessively dominant role in and have invaded daily life (invasion), and a negative perception that OS apps are flooded with information (information overload). The internal states of the organism are affected by stimuli variables, which indicate an individual's fatigued feeling when utilising technology' (Maier et al. 2015) called weariness. The men's mental feelings can also lead to 'intention to change behavioural patterns by limiting consumption intensity, or even abandoning platforms,'

according to the SOR model (Maier et al. 2015) called the discontinuance intention in a nutshell. The study tries to find out the relation between the identified stimuli factors on the internal states of human and their response to such stimuli factors.

Figure-1: Research Model for Validation

Environment Stimuli (S)   **Internal State (O)**   **Response (R)**
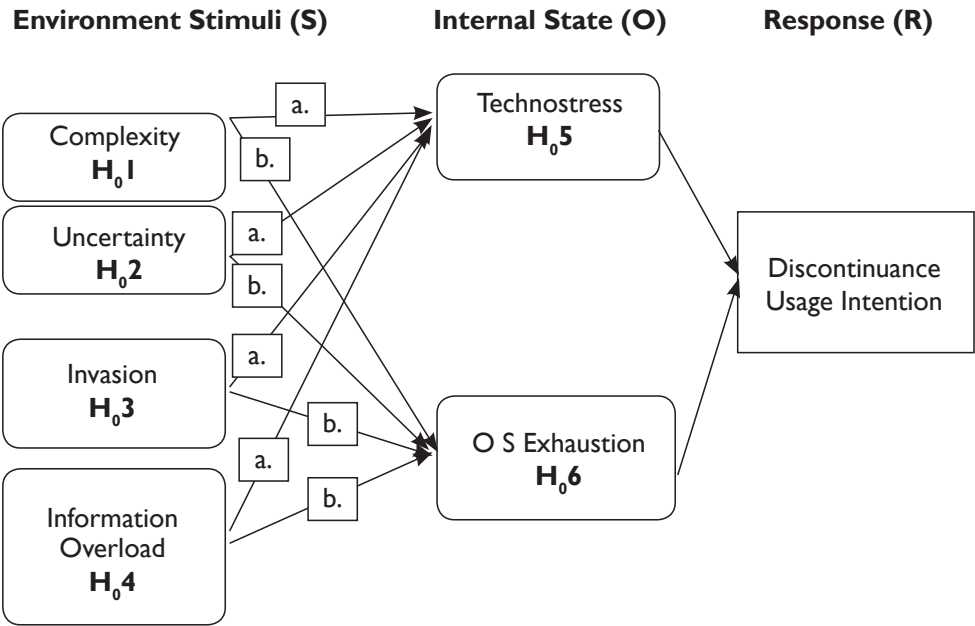
Source: Compiled by Researchers

Materials and Methods

The study was conducted using a survey method by collecting primary data from 325 IT sector employees who had temporarily or permanently abandoned any of the online shopping apps from their mobile phones. This empirical study collected its data from the major IT hubs of India; Bangalore, Chennai, and Kochi respectively. The data was collected by using the questionnaire method, the questionnaire was created and sent through Google forms to the mail address of IT sector employees. The questionnaire had undergone a pilot study among 15 respondents to measure the correctness of the instrument. The same group also was administered with an interview schedule to record differences, if any, in their responses. Significant differences if any were explored using t-test for a few items. The final questionnaire was drafted considering these aspects and with the expert opinion of technicians in the field. The sample size was determined using t tests as part of the power test analysis. - Multiple linear regression (LMR): Single regression coefficient in a fixed model*(Input: Effect size f² = 0.0335, α err prob = 0.05, Power (1-β err prob) = 0.95; Output: Noncentrality parameter δ = 3.2996212, Critical t = 1.6496293,*

Df = 320, Total sample size = 325). Out of a total of 518 employees who received the questionnaire, only 362 responded, and after scrutinizing incomplete responses, 325 responses were finally chosen for the aim of conducting this study. The study used pre-existing scales adapted from earlier research, with minor adjustments made to fit the scales for the online shopping discontinuation study. To guarantee good convergent and discriminant validity, the scales were adapted from prior investigations. All of the items were graded on a seven-point Likert scale, with 1 indicating 'strongly disagree' and 7 indicating 'strongly agree.' The constructs were taken from existing pieces of literature by Maier et al., (2012), Jacoby et al. (2002) for stimulus factors, Maier et al., (2015), Ayyagari et al., (2011) for internal state variables, and Maier et al., (2015) for response factors. The list of factors used for the study is detailed in Table-1.

Analysis of Data and Results

Sample Statistics

The demographic features indicated that out of the 325 IT employees responded, 55 percent were males and 45 percent were females. The majority of the respondents (71 percent) were between the ages of 21 and 25, indicating that the younger generation uses online shopping sites more than the older generation. Sixty-one percent of the total respondents had a monthly income of Rs. 10,000 to Rs. 20,000.53.4 percent of respondents use online shopping sites for purchasing a product and they make monthly purchases. The spending habits of 65 percent of the respondents' amounts from Rs. 10,000 to Rs. 25,000 annually. Most of the respondents opined that the shopping apps that they have temporarily abandoned are snapdeal, shopclues and wishaddict. In short, it can be concluded that young males with a monthly income of up to Rs. 20,000 uses online shopping sites for making purchases monthly and they spend an average of Rs. 25,000 in a year on online shopping.

Measurement Items Validation

Because all of the constructs employed in the study were derived from previous research, there was no need to group the items, and so no exploratory factor analysis was performed. Cronbach's Coefficient Alpha was used to determine the reliability of the measurement items for all of the factors, and the values exceeded the basic limit of 0.70 (Nunnally 1978) for all of the factors, ranging between 0.732 and 0.868, indicating that all of the measures had good internal consistency. The validity of the entire measurement model was then tested using confirmatory factor

analysis (CFA). Table-1 shows that all measurement items had loadings larger than 0.75, and the expected seven-factor measurement model fit well (X2/df = 2.143 (X2= 390.0, df =182), GFI = 0.912, AGFI = 0.900, CFI = 0.945, NFI = 0.868, and RMSEA = 0.008). Table-1 shows that the average variance extracted for each construct was greater than 0.50, indicating convergent validity (Fornell & Larcker, 1981). In Table-2, the square root of AVE of each latent variable is greater than the correlations among the latent variables, indicating that the instrument has discriminant validity (Joseph F Hair et al., 2010). The model fit indices revealed that the 7-factor model is well defined by all 25 factors employed for measurement. Aside from the model fit indices, the 7-dimensional model was tested using standardised regression weights and critical ratio (CR). Apart from the model's psychometric properties, Hair et al. suggested using the aspects of composite reliability co-efficient (CRC) and average variance extracted (AVE) to measure the model's reliability and validity (both convergent and discriminant) (1998). To summarise, the constructs in the instrument provide sufficient support for the suggested theoretical model's validation, indicating that hypothesis testing can proceed.

Table-1: Model Estimates and Psychometric Properties of 7 Constructs

Construct	Item	Factor Loading (SRW)	Eigen Value	AVE	CRC	Cronbach's Alpha
Complexity (CO)	CO1	0.709	2.40	0.601	0.856	0.857
	CO2	0.653				
	CO3	0.845				
	CO4	0.874				
Uncertainty (UC)	UC1	0.768	1.70	0.568	0.797	0.761
	UC2	0.775				
	UC3	0.717				
Invasion (IV)	IV1	0.807	1.38	0.693	0.819	0.741
	IV2	0.858				
Information overload (IO)	IO1	0.707	2.36	0.590	0.852	0.782
	IO2	0.802				
	IO3	0.763				
	IO4	0.799				
Techno-stress (TS)	TS1	0.76	2.31	0.577	0.845	0.868
	TS2	0.755				
	TS3	0.768				
	TS4	0.757				

Construct	Item	Factor Loading (SRW)	Eigen Value	AVE	CRC	Cronbach's Alpha
OS exhaustion (OE)	OE1	0.72	2.96	0.592	0.918	0.831
	OE2	0.897				
	OE3	0.873				
	OE4	0.936				
Discontinuance intention (DI)	DI1	0.704	2.11	0.529	0.817	0.732
	DI2	0.753				
	DI3	0.795				
	DI4	0.652				

Source: Authors' Calculation

* SRW standardized regression weight, CRC composite reliability co-efficient, AVE average variance extracted

The proposal of Fornell and Larcker (1981) was taken into consideration in order to test the discriminant validity of the components employed in the study, which specifies that the AVE for each construct should be greater than the squared inter construct correlation with any other construct. Table-2 shows the discriminant validity of the study's constructs.

Table-2: Discriminant Validity

Construct	CO	UC	IV	IO	TS	OE	DI
Complexity (CO)	0.601						
Uncertainty (UC)	0.315	0.568					
Invasion (IV)	0.270	0.267	0.693				
Information overload (IO)	0.265	0.342	0.215	0.590			
Techno-stress (TS)	0.087	0.280	0.195	0.268	0.577		
OS exhaustion (OE)	0.038	0.143	0.142	0.180	0.274	0.592	
Discontinuance intention (DI)	0.279	0.447	0.253	0.518	0.180	0.170	0.529

Source: Authors' Calculation

Diagonal values are AVE and off diagonal values are squared inter-construct correlations

Table-2's interpretations reveal that the squared inter-construct correlations are substantially lower than the extracted average variances (AVE). As a result, it is possible to conclude that the constructs used for measurement in the model have high discriminant validity, implying that the constructs used for measurement have a closer relationship with the latent construct than other latent constructs. In summary, the 7-dimensional model utilised in the study is supported by high construct reliability and validity, as well as acceptable model fit indices.

Model Validation and Hypotheses Testing

SEM analysis was used to validate the 7-dimensional model and to assess the components that contribute to discontinuation intention among online buyers, as well as the hypothesis that was defined using AMOS at the outset. Structural equation modelling is a multivariate statistical analysis tool for analysing structural links between measurable and latent components. The study employs SEM to investigate the estimations and interconnectedness of the components in a single analysis. The structural model analysis of General Fit indicators are listed in Table-3.

Table-3: Model Estimates and Fit Index

Fit Index	Recommended Value	Model Value	Suggested by Author
X^2/df	< 3	2.312	Bentler and Bonett
GFI	>0.8	.902	Seyal et al.
AGFI	>0.8	.812	Scott
NFI	>0.9	.903	Bentler and Bonett
CFI	>0.9	.933	Bentler and Bonett
RMSEA	< 0.08	.053	Hair et al.

Source: Authors' Calculation

The model was validated using AMOS and SEM analysis, yielding the following findings for the fit of analysis. Apart from the Chi-square (X2/ df; df = degrees of freedom), which should be less than five for models with good fitness (Bentler 1989), other measures such as the goodness of fit (GFI), adjusted GFI (AGFI), CFI, NFI, and RMSEA were computed to prove the model's fitness as suggested by previous studies. According to Hair et al. (2010), for an adequate model fit of the data, the GFI should be greater than 0.90 and the AGFI should be greater than 0.80. (Gefen et al. 2003).The comparative fit index (CFI) should be greater than 0.90, and the normed fit index (NFI) values of 0.90 or greater indicate a reasonable model fit, according to Bentler (1992). For an adequate model fit, the value of root means the square error of approximation (RMSEA) proposed by Bentler (1989) is less than or equal to 0.08. X2/ df = 2.312 (X2=342.17, df =148), GFI = 0.902, AGFI = 0.812, CFI = 0.903, NFI = 0.933, and RMSEA = 0.053 were the model fit indices for the 7-dimension model. The model fit indices for the 7-dimension model to test the factors contributing to discontinuation intention among online shopping app users show that the model fits, as shown in Table-4.

Table-4: Regression Weights of Variables

Variable Regression	Hypothesis Acronym	Standardised beta Co-efficient	P Value
CO --> TS	H01a	0.220**	<.001
CO --> OE	H01b	0.571**	<.001
UC --> TS	H02a	0.177**	<.001
UC --> OE	H02b	0.271**	<.001
IV --> TS	H03a	0.427**	<.001
IV --> OE	H03b	0.601**	<.001
IO --> TS	H04a	0.497**	<.001
IO --> OE	H04b	0.300**	<.001
TS --> DI	H05	0.840**	<.001
OE --> DI	H06	0.719**	<.001

** Significant at 1 percent Level

Source: Authors' Calculation

The null hypothesis (H01a, H01b, H02a, H02b, H03a, H03b, H04a, H04b, H05, H06) was completely rejected, and it was demonstrated that these variables have a highly significant positive connection. Based on the Standardized beta co-efficient given in Table-4 it can be inferred that all the factors of environmental stimuli positively affect the internal states of the organism and the internal states of the organism also positively affect the discontinuance intentions. Information overload was identified as the highest influencer in the creation of techno-stress followed by invasion. Also, online shopping exhaustion is highly influenced by invasion and complexity. Among the identified internal states of the organism techno-stress is the leading factor in creating intentions of discontinuance. So it can be vividly concluded that complexity, uncertainty, invasion, and information overload positively impacts the internal states of the organism and creates techno-stress and OS Exhaustion and this ends up in abandonment of the online shopping app.

Figure-2: Validated Model
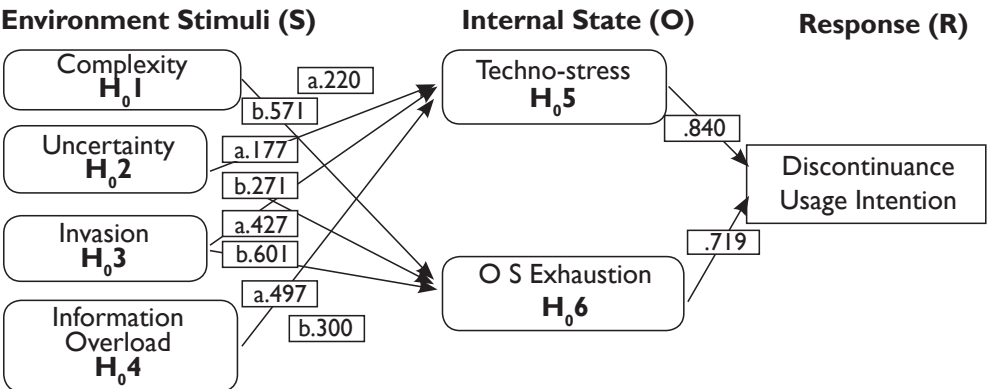
Source: Authors calculation

Discussions and Managerial Implications

The study derived many findings that are beneficial to the corporates in the preparation of online campaigns and plans. Also, the assessment of a people's internal psychological process, especially, techno-stress and exhaustion, adds to the research area on antagonistic feelings in IS discontinuous usage. Turel's (2015) findings suggest that negative emotion cannot be ignored in a study of discontinuation intentions since unpleasant emotions have the motive and ability to lead users to abandon the IS. Besides from the former studies which highlighted the adoption and usage of online shopping sites, this study engrossed the final phase of the life cycle of the online shopping apps and sites i.e., the termination phase, thereby adding to the existing literature on techno-stress using SOR model.

Results of the study state that the negative emotion, techno-stress, is the most prominent factor in the creation of discontinuance intentions among the online shopping app users, whereas the exhaustion created by using these apps have only secondary effect on the discontinuance intention. The stimuli responsible for the creation of techno-stress were information overload experienced by the user and the exhaustion is developed because of the invasion of shopping apps into the personal life of the users. All of the stimulus factors investigated have a positive effect on human internal states, leading to a response of discontinuance intention, i.e., the greater the effect of the stimulus factor, the greater the techno-stress and exhaustion felt, and thus the higher the discontinuance intentions among users. The stimuli – information overload, being a major determinant of techno-stress, the service providers of online shopping apps should keep a check on the amount of information showered on users thereby preventing the development of negative emotions among the respondents. The reduction of invasion is possible only through the limited use, thus it would be better if the apps include a reminder mechanism or surfing time indicator that may help the users to make a check on the time spent by them. It was also found that other stimulus factors; complexity and uncertainty also have significant effects on the internal states of techno-stress and exhaustion. Reducing the complexity in the apps and also limiting frequent updates of apps can also impact in the reduction of discontinuance intentions among the online shoppers. Hence from the results of this study, it can be inferred that the rate of discontinuance is growing high, thus the service providers should control the effect of the stimulus factors in order to reduce the abandonment of online shoppers from their apps.

Managers can successfully plan for the implementation of timely techniques that will reduce information overload for users, resulting in less time spent on applications and a reduction in disarray in their use. More information offered in apps can sometimes cause more confusion among users. In terms of technological stress, an excessive amount of emails and

notifications sent after a transaction might be annoying to the customer. Frequent app upgrades, as well as new structural and style modifications, can add to the complexity of the client experience.

Since the study focused on IT sector professionals, who are meant to be technical experts with a solid understanding of app usage, their intention to abandon apps could serve as a wake-up call to the rest of society, who may not have a high degree of technical skill. As a result, reducing complexity in design and operations would tend to boost the overall appeal of the apps to all members of society.

Limitations and Suggestions for Future Research

Several issues are to be considered while making meaningful interpretations as the results are developed based on many limitations. Limitations are unavoidable for research, and no research is developed without limitations. The goal of the study was to learn about online shoppers' intentions to stop shopping as a result of technological stress. The study was confined to respondents from Bangalore, Chennai, and Kochi, as well as persons working in the IT industry. Future researches can study with a wider geographical boundary and also can test whether the result is the same for people who are employed in other sectors. The study identified only four stimulus factors affecting the internal states of human, there are many other factors which can also be considered for future researches. This study was limited by finding the probable factors of discontinuance intentions among the users and the measures to overcome this issue is an area for exploration.

Conclusion

The discontinuance intentions among the users of online shopping apps are influenced by many factors. This study attempts to find some of the probable reasons for the abandonment of online shopping apps by the users with the help of a model adopted from the field of psychology called the Stimulus Organism Response model (SOR). Based on the model, four factors namely, complexity (CO), uncertainty (UC), invasion (IV) and information overload (IO) were identified as environmental *stimulus factors* and two factors viz. techno-stress (TS) and online shopping Exhaustion (OE) were identified as *internal states* of human which results in the response of *discontinuance intentions* (DI) of online shoppers. The findings of the study are beneficial to both service providers and clients. Despite the fact that none of the observed stimulus elements have a direct relationship with discontinuation responses, they all have a substantial impact on human internal states, which ultimately leads to discontinuance intents among online buyers. Information overload was discovered to be the primary cause

of techno-stress and, as a result, discontinuance intentions among users. OS exhaustion, on the other hand, had a role in discontinuance intents, and it was mostly influenced by invasion. In order to lessen the likelihood of online shoppers abandoning their shopping carts, the impact of information overload must be reduced. The study's findings can be generalised because mobile application use is high among India's population, and developers with appropriate tactics can lessen techno-stress.

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Appendix I

Measures Used in the Study

Item Acronym	Measures
Environmental Stimuli (S) Maier et al., (2012), Jacoby et al.(2002),	
CO1	I want quite a while to comprehend and use online shopping apps
CO2	I need to update my technical knowledge to use shopping apps.
CO3	Younger people are better at using shopping apps than I am.
CO4	I often find shopping apps too complex to use.
UC1	The online shopping apps always have new updates
UC2	Shopping apps are constantly being changed.
UC3	Overall, shopping apps are constantly being changed.
IV1	I spent much of my free time surfing in shopping apps.
IV2	I prefer buying every single commodity online than offline.
IO1	I feel confused before choosing which product I should buy
IO2	I consider that more information would generate more confusion in my choice
IO3	I have to process so much information that it frequently takes me a too long time for a purchase
IO4	I receive a lot of emails and notifications after a purchase
Internal States (O) Maier, et al., (2015), Ayyagari et al., (2011)	
TS1	I am compelled to adopt the changes in online shopping apps
TS2	Online shopping apps consumes much of my personal time.
TS3	I feel that my personal life is being overrun by online shopping apps.
TS4	I feel nervous and stressed while using online shopping apps especially towards payment.
OE1	I feel more relaxed and comfortable while shopping offline.
OE2	I feel tired from my online shopping activities.
OE3	Finding products and purchasing good products online is tiresome
OE4	I get stressed with online shopping activities.
Response (R) Maier, et al., (2015)	
DI1	I want to reduce my use of shopping apps
DI2	I occasionally take a short break from shopping apps and return later.
DI3	I sometimes uninstall my online shopping app.
DI4	I prefer offline shopping than online shopping