International Journal of Business, Human and Social Sciences
ISSN: 2517-9411
Vol:8, No:8, 2014

The Effects of Consumer Inertia and Emotions on New Technology Acceptance

Chyi Jaw

***Abstract*—**Prior literature on innovation diffusion or acceptance has almost exclusively concentrated on consumers' positive attitudes and behaviors for new products/services. Consumers' negative attitudes or behaviors to innovations have received relatively little marketing attention, but it happens frequently in practice. This study discusses consumer psychological factors when they try to learn or use new technologies. According to recent research, technological innovation acceptance has been considered as a dynamic or mediated process. This research argues that consumers can experience inertia and emotions in the initial use of new technologies. However, given such consumer psychology, the argument can be made as to whether the inclusion of consumer inertia (routine seeking and cognitive rigidity) and emotions increases the predictive power of new technology acceptance model. As data from the empirical study find, the process is potentially consumer emotion changing (independent of performance benefits) because of technology complexity and consumer inertia, and impact innovative technology use significantly. Finally, the study presents the superior predictability of the hypothesized model, which let managers can better predict and influence the successful diffusion of complex technological innovations.

***Keywords*—**Cognitive rigidity, consumer emotions, new technology acceptance, routine seeking, technology complexity.

I. Introduction

THE growth of new technologies is revolutionizing the business landscape with firms using technology both internally and externally to improve operations, increase efficiencies, and provide functional benefits for customers. Many institutions and companies have also devoted large amount of resources to the development of technological innovations, but some have suffered as a result of consumers' rejection of new technological products/services. Most studies have focused on successful innovations and their rate of diffusion through the market. But still now, consumers' resistance to new technologies has received relatively little marketing attention. Some marketing scholars and practical managers have emphasized the value of studying new technology failure [1].

The most prominent obstacle is getting customers to adopt new technologies, which often involves a significant behavior change in which patterns that are ingrained must be altered. Many modern industries assumes the consumers who are willing and able to initiate and respond positively to change, and yet, companies that attempt to initiate such changes as technological innovations are often stymied by consumers at real market who are loath to make the changes. Often the reasons for the resistance to technological innovations are not far to seek: The benefits of new technologies are not consonant with—and are often antithetical to—the interests of the consumers being asked to make the change. Nevertheless, some consumers seem not to accept even new technologies that are consonant with their interests. Who are these people? What are the personality and psychological characteristics that drive such loathing? The research described in this article makes an attempt to answer these questions.

Past studies about resistance to change have focused on situational antecedents [2]-[4]. Only few of recent studies have begun to explore concepts that are related to negative attitudes to technological innovations from an individual difference perspective. For example, technology anxiety may impact self-service technology usage [5]. Wood and Moreau show learning to use a new technological product can evoke an emotional response [6]. The purpose of this study is to understand the underlying influence of consumer inertia and emotions on new technology acceptance. To better understand this consumer-centric process of new technology diffusion, this study builds a mediated model including two psychological dimensions, consumer inertia and emotions. The paper tests the model in an experimental study and describes how managers can use the findings to help predict and influence new technology acceptance.

II. Literature Review and Hypothesis Development

Even though it has been well established that new product/service success can be reliably predicted by the influence of their innovation characteristics on consumers [7], [8], relative to other characteristics, "complexity" is typically indicative of slower diffusion rates and can even create disutility through "feature fatigue" [8]-[10]. In Rogers's classic work on diffusion, he also identifies the innovation's "complexity" as an indicator of an innovation's success [8]. In the period of trial and early use of complex innovations, consumers learn how to achieve promised benefits. Rogers calls this "how-to" knowledge and acknowledges that it has been overlooked to date as a key factor in diffusion success [8].

It's a difficult process to bring consumers to try a new product or service, then let alone establishing regular use [11]. Thus, if firms expend great effort to bring consumers to the point of trying, it seems important that firms then act to encourage a usage environment that is conducive to positive attitude. But one of the major causes for market failure of new technologies is the resistance they encounter from consumers.

C. Jaw is with Department of Business Administration, National Yunlin University of Science & Technology, Douliou, Yunlin 640, Taiwan, R.O.C. (phone: +886-5-5342601 ext. 5231; fax: +886-5-5312074; email: jawc@yuntech.edu.tw).

Endt found that perceptions of usage difficulty have caused a significant number of consumers to delay purchases, and actual usage difficulty has caused them to return previously purchased products/services [12].

This study shows that a significant proportion of consumer emotions result from their psychological inertia and the complexity of new technologies, implying that a new technology designer or marketer may either predict or influence the consumer's emotions. Perhaps the most significant contribution of this research is the demonstration that consumer emotion responses to new technologies are not simply reflective of achieved benefits but result directly from learning efforts. Technology complexity and consumer inertia are the influential antecedents for consumer emotions toward technological innovations. These mental influences, both immediately and over time, significantly impact new technology acceptance in the consumer market.

A. The Effects of Technology Complexity and Psychological Inertia on Consumer Emotions

In most innovation diffusion studies, complexity definitely is more impactful than other innovation characteristics [9]. For some new products (e.g., a new taste chips), there is little uncertainty about the difficulty of use [13]. However, in cases in which the innovations require adaptation or learning (e.g. Palm Pilots), usage uncertainty abounds [14]. Thus, complexity is likely to be influential only if products/services are both new and relatively complex. This leads to what is perhaps a marketplace paradox: The inertial and negative emotional experiences of initial use are more influential for technological or functional innovations (e.g., computer software, an online self-service system) than for simple experiential or aesthetic products (e.g. a book, a music CD). However, this paradox is not so counter-intuitive in light of the notion that the emotional responses we investigate herein are that which arise from technology complexity (learning difficulty), not that which is tied directly to technology benefits.

When people are confronted with a learning task, they develop goals and then monitor progress toward those goals. Emotions are mechanisms that communicate important information relative to expected progress toward learning goal achievement [15], [16]; as such, they are likely to occur spontaneously when consumers first use a new, complex technology. Specially, negative emotion occurs when expected progress toward the activated goal is impeded, and positive emotion occurs when expected progress toward the activated goal is accelerated or when the goal is attained [16], [17].

Although consumption emotions can be driven by actual product/service performance [13], [18], research also suggests that consumption emotions are a function of disconfirmation [19]. The disconfirmed situations can be contrasted with those in which consumers are actively learning the new category (e.g., working with new self-service technologies [11], participating in co-production [20]) in which real gaps are likely to exist between consumers' expectation and the difficulty of goal attainment. Appraisal of progress, especially given unexpected difficulty, typically generates negative emotional responses [21], [22]. Thus, this study proposes Hypothesis 1:

H1-1: Technology complexity is negatively related to consumers' positive emotion to new technologies.

H1-2: Technology complexity is positively related to consumers' negative emotion to new technologies.

Most modern industrial societies value the person who is willing and able to respond positively to change, and yet, companies that attempt to initiate such changes are often stymied by consumers in the market who resist the changes. The benefits to the business organization are not necessarily consonant with—and are often antithetical to—the interests of the individuals being asked to make the change [2]-[4]. Nevertheless, some consumers seem to resist even changes that are consonant with their interests.

The resistance to new technologies may exist on a continuum, increasing from consumer inertia to active resistance [23]. Past studies discuss reluctance to give up old habits as a common characteristic of inertia to change [3], [24], [25]. Some have explained this reluctance by arguing that "familiarity breeds comfort" [26], [27]. When individuals encounter new stimuli, familiar responses may be incompatible with the situation, thus producing stress and negative emotion, which then becomes associated with the new stimulus [28].

Some researchers have emphasized loss of control as the primary component of inertia [29]. Individuals may resist changes because they feel that control over their life situation is taken away from them with changes that are imposed on them rather than being self-initiated. When people are confronted with a new technology and are requested to develop a learning task for the innovation, the new task stress and less control make consumers produce negative emotion. Specifically, consumer inertia occurs when expected learning task toward the new technology is difficult [16], [17]. Other researchers suggest that change is a stressor, and therefore resilience should predict an individual's ability to cope with change [30], [31]. It may be that less resilient individuals are more reluctant to make changes [32], [33]. Oreg has combined these several psychological factors to form a component of inertia, "routine seeking" which would evoke negative emotion with change [24], [31].

Among researchers who have examined the cognitive processes underlying people's responses to change [34]-[36], some have suggested that the trait of dogmatism might predict an individual's emotions and attitudes to change [24], [37]. Dogmatic individuals are characterized by rigidity and closed-mindedness and therefore might be less willing and able to adjust to new situations. Although one empirical study failed to find support for this hypothesis [36], it still seems likely that some form of "cognitive rigidity", another component of consumer inertia, would be implicated in an individual's negative emotion to change. Thus, this study proposes Hypothesis 2 as following:

H2-1: Consumer inertia, (a) routine seeking and (b) cognitive rigidity, is negatively related to their positive emotion to new technologies.

H2-2: Consumer inertia, (a) routine seeking and (b) cognitive rigidity, is positively related to their negative emotion to new

technologies.

B. An Expanded New Technology Acceptance Model with Consumer Psychological Influences

Theoretically, and akin to gap models of satisfaction, this conceptualization implies that a new product/service experience may be challenging but not necessarily disappointing if difficulty is expected. Complexity should be more impactful when products/services are innovative than when they are new additions to well-understood categories [7], [38], [39]. The difficulty of initial use is more influential for technological or functional innovations (e.g., a computer program, a smart phone) than for simple experiential or aesthetic products (e.g., a magazine, a movie DVD), which are also associated with consumers' rejection. Thus, Hypothesis 3 is hold:

H3: Technology complexity is negatively related to new technology acceptance

When consider using a new technology, consumers may have a choice between old and new options, they must be sufficiently motivated to learn the new technology. Thus consumer readiness is a condition or state in which a consumer is prepared and likely to use a new technology for the first time [11]. Consumer inertia reduces the motivation to be as a key predictor of usage of technology-based products and services is theoretically well supported in the literature [40]. The willing to perform has been shown to be dependent on motivational levels (are negatively related to inertia) for potential customers in the acceptance of technological innovations [41], [42]. It could be reasonably argued that consumer inertia inhibits their acceptance to new technologies. Thus the study predicts the following:

H4: Consumer inertia, (a) routine seeking and (b) cognitive rigidity, is negatively related to new technology acceptance.

This study considers that consumer emotions that are influenced from early learning or trial periods. However, recent research in emotions shows that affective influence is often stronger and more far-reaching than previously considered [15]. Several recent studies have shown the significant link between consumption emotions and satisfaction [13], [18]; most empirical findings indicate that both positive and negative emotions influence satisfaction in their respective directions [43]. Wood and Moreau tested emotional influence for innovation evaluation and usage, and finds the emotional influence is sizable and, importantly, negative emotion lowers innovation evaluation after first use [6]. Thus, this study proposes Hypothesis 5 as following:

H5-1: Consumers' positive emotion is positively related to new technology acceptance.

H5-2: Consumers' negative emotion is negatively related to new technology acceptance.

The study hypothesizes that because consumer emotions result from technology complexity and their psychological inertia, they act as important signals for the consumer regarding his or her own experience. These hypotheses are akin to other examples of "affect as information" in which evaluations of products/services are influenced by situational mood states [44]. Thus, consumer emotions play a mediating role in this new technology acceptance model, and the mediated hypothesis is proposed as following:

H6: Consumer emotions mediate the relationship among technology complexity, consumer inertia, and new technology acceptance.

C. Explanatory Power of the Hypothesized Model versus the Null Model for New Technology Acceptance

In addition to the effects of consumer inertia and emotions, it is important to explore the relative strength of the various sets of predictors of new technology acceptance. Although this research proposes consumer inertia as an important psychological predictor and consumer emotions as a meaningful mediator to build the mediated model, it is also important to know whether the hypothesized model is more effective than the null model which only considers technology complexity in the prediction of new technology acceptance.

The study expects that consumer inertia and emotions may be more stable across contexts, because previous research shows that these factors consistently drive human behaviors [6], [11], [42], [45], [46]. A key value of the constructs is to provide managers with a consistent and concise set of actionable variables that influence new technology acceptance in the consumer market. It is the belief of this study that, overall, the consumer inertia and emotions are more robust predictors for consumer intention to use technological innovations. Thus, this study provides Hypothesis 7:

H7: The hypothesized model includes consumer inertia and emotions has better explanatory and predicting power for new technology acceptance than the null model which only considers technology complexity.

D. Conceptual Framework

Based on the literature review and developed hypotheses, this study proposes a consumer-mental framework for new technology acceptance as shown in Fig. 1. In this conceptual framework, consumer inertia servers as an additional psychological predictor and consumer emotions have mediating effects for new technology acceptance.

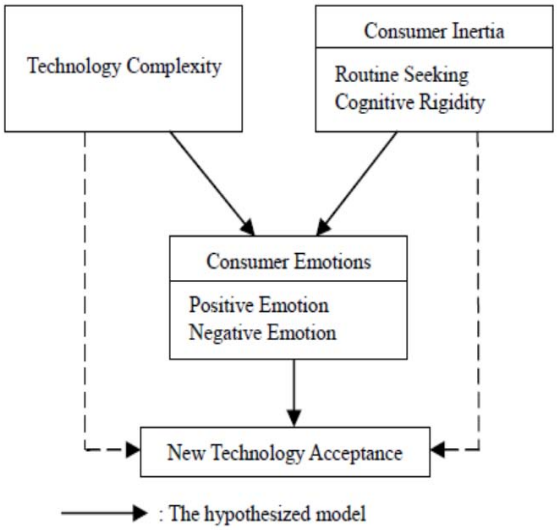

Fig. 1 Conceptual framework

III. Methodology

A. Experimental Design and Procedure

Three requirements guided the selection of the experimental objects: (1) It had not been used by the participant population, (2) there was no prior experience with a previous version, and (3) learning was necessary to achieve basic performance goals. To consider that the simulated websites was developed for the subjects who were undergraduate students and the key manipulation was the technological innovations with low or high complexity. A pretest with 10 new web-based technologies including Google Search by Voice, NFC Mobile Payments, E-Invoicing Service, FB Camera, Mobile Phone Novel App, Upgraded Yuntech Webmail, Online Dressing Room, Mobile Phone Editing Photo App, Mobile Phone Voice Assistant, and Mobile Phone Comic App was conducted to select the adaptive experimental objects. Three five-point complexity scales were cited from Schreier, Oberhauser, and Prügl [47]. Thirty respondents were requested to evaluate the complexity for the 10 pretested objects sequentially which were arranged randomly.

The analysis results indicated that the difference of technology complexity among the 10 objects were as expected. In the pretest results, the complexity of E-Invoicing Service is the highest (mean = 3.281) and the complexity of Mobile Phone Novel App (mean = 2.135) and Comic App (mean = 2.208) are the lowest. The results of *t*-test indicated the significant mean difference of technology complexity between the both sets of technological innovations (3.281 versus 2.135, $p = 0.000$; 3.281 versus 2.208, $p = 0.000$).

The study was a between-subjects design (technology complexity: high versus low). The simulated websites were developed for E-invoicing Service (high complexity) and Mobile Phone Novel/Comic App (low complexity). Participants were 143 undergraduate students at a large university in Taiwan. The selection of the respondent group was particularly relevant for the experimental context because college students are the potential or existing users of the web-based technologies.

Participants were led to a computer lab and participated in the online experiment from their classrooms with prior permission of instructors. It was made clear to respondents that participation was voluntary. After a brief overview the required tasks, participants were randomly assigned to the different treatment levels (high/low complexity). All participants then read the using steps of an experimental object and answered the measuring scales on the experimental websites, before leaving, they were thanked for a gift. Totally, 82 respondents were assigned to the high complexity treatment level, and 61 respondents were assigned to the low complexity treatment level (31/30 for Mobile Phone Novel/Comic App).

B. Measures

This study developed the measures of the constructs in several stages. In the first stage, survey items were generated either by borrowing directly from the literature or through theoretical bases reflected in existing literature. In the second stage, these items were adapted to the online context of this study. The measuring items were originally in English and were translated into Chinese by an academic who was bilingual in Mandarin and English in the third stage. Finally, the study obtained a back-translation from another bilingual academic to ensure that the English and Mandarin versions of the items were comparable at a high degree of accuracy [48]. A 7-point scale ranging from "strongly disagree" to "strongly agree" was used. Principal component analysis confirmed that the construct validity of the scales could be measured adequately.

Table I shows the number of items comprising each scale, Cronbach's α, Average Variance Extracted (AVE), and Composite Reliability (CR) for scale reliability obtained for the samples. All factor reliabilities were above 0.70 which showed a reasonable level of reliability ($\alpha > 0.70$) for each factor [49]. Some scholars suggest that AVE and CR should be over 0.5 and 0.6 to be valid [50]. For all measures, the AVEs exceeded 0.64 and the CRs exceeded 0.78 in this study, which indicated that the measures had composite reliability.

TABLE I
Reliability Analysis Results for the Measures of Study Variables

	Items	Cronbach α	AVE	CR
Technology Complexity	6	0.943	0.7788	0.9427
Routine Seeking	4	0.814	0.6445	0.8238
Cognitive Rigidity	3	0.729	0.6495	0.7833
Positive Emotion	3	0.949	0.9086	0.9644
Negative Emotion	3	0.901	0.8388	0.9290
New Technology Acceptance	5	0.938	0.8045	0.9430

C. Analysis Approach

This study conducted a hierarchical multiple regression to test hypotheses following the steps suggested by Baron and Kenny [51]. In addition, the study compared the overall fit of the hypothesized model to the null model. This research did not use simultaneous path analysis, because one of the key independent variables, technology complexity, is a discrete variable (two treatment levels) with no continuous variable

underlying the construct. Path analysis assumes multivariate normality in the variables, which is not the case here. In addition, the constructs that the study explores exceed the recommended ratio of number of indicators to sample size for path analysis [52]. Therefore, a series of hierarchical regression models provide a more effective analysis approach to test the hypotheses.

IV. Results

A. Preliminary Analyses

The result indicated that the manipulated effect of technology complexity was as expected. The result of *t*-test indicated the significant mean difference of technology complexity perception between E-Invoicing Service and Mobile Phone Novel/Comic App (4.3496 versus 2.7951, p = 0.000).

Table II presents the means, standard deviations, and correlations among the study variables.

TABLE II
MEANS, STANDARD DEVIATIONS, AND CORRELATIONS OF STUDY VARIABLES

	TC	RS	CR	PE	NE	NTA
Technology Complexity(TC)	3.6868 (1.3027)					
Routine Seeking (RS)	0.520	3.3479 (1.0698)				
Cognitive Rigidity (CR)	0.295	0.249	3.3590 (1.0726)			
Positive Emotion (PE)	-0.534	-0.422	-0.315	3.8741 (1.0919)		
Negative Emotion (NE)	0.814	0.410	0.480	-0.582	3.5991 (1.1805)	
New Technology Acceptance (NTA)	-0.547	-0.364	-0.373	0.718	-0.606	4.5692 (1.0049)

B. Hypothesis Tests

As shown in Table III, technology complexity was negatively related to consumers' positive emotion to new technologies (β = -0.174, p < 0.05) (H1-1) and positively related to consumers' negative emotion to new technologies (β = 0.378, p < 0.001) (H1-2). H1 is supported totally. As is evident from the table, consumer inertia was significantly related to consumer emotions to new technologies. Routine seeking and cognitive rigidity were negatively related to positive emotion (β = -0.302, p < 0.001; β = -0.226, p < 0.01), cognitive rigidity had a significantly positive effect on negative emotion (β = 0.380, p < 0.001). Routine seeking was still positively related to negative emotion, but was not significant. Taken together, the results support H2-1 and H2-2(b), but not H2-2(a).

TABLE III
THE REGRESSION RESULTS FOR TECHNOLOGY COMPLEXITY, CONSUMER INERTIA, AND EMOTIONS (TESTS OF H1 AND H2)

Variables	Positive Emotion	Negative Emotion
Control		
Gender	-0.109 (t = -1.425)	0.010 (t = 0.148)
Independent Variables		
Technology Complexity	-0.174 (t = -2.042)*	0.378 (t = 5.080)***
Routine Seeking	-0.302 (t = -3.567)***	0.142 (t = 1.919)
Cognitive Rigidity	-0.226 (t = -2.954)**	0.380 (t = 5.679)***
Overall R^2	0.253	0.430
Overall Model F	11.707***	26.054***

* p < 0.05; ** p < 0.01; *** p < 0.001

The direct effect model of Table IV reveals that, technology complexity had significantly negative effect on new technology acceptance (β = -0.207, p < 0.05), in support of H3. Consumer inertia, routine seeking (β = -0.205, p < 0.05) and cognitive rigidity (β = -0.295, p < 0.001), were positively related to new technology acceptance, which support H4.

TABLE IV
THE RESULTS OF MEDIATING EFFECT TEST OF CONSUMER EMOTIONS ON THE RELATIONSHIP AMONG TECHNOLOGY COMPLEXITY, CONSUMER INERTIA, AND NEW TECHNOLOGY ACCEPTANCE (TESTS OF H3, H4, H5, AND H6)

Variables	Direct Effect	Mediating Effect
	New Technology Acceptance	New Technology Acceptance
Control		
Gender	-0.065 (t = -0.850)	-0.003 (t = -0.059)
Independent Variables		
Technology Complexity	-0.207 (t = -2.433)*	-0.024 (t = -0.339)
Routine Seeking	-0.205 (t = -2.414)*	-0.007 (t = -0.103)
Cognitive Rigidity	-0.295 (t = -3.847)***	-0.083 (t = -1.276)
Mediators		
Positive Emotion		0.545 (t = 7.603)***
Negative Emotion		-0.235 (t = -2.872)**
Overall R^2	0.250	0.575
ΔR^2		0.325***
Overall Model F	11.518***	30.680***

* p < 0.05; ** p < 0.01; *** p < 0.001.

The results of mediating relationship test are consistent with Baron and Kenny's requirements [51], consumer emotions had significant effects on new technology acceptance (positive emotion: β = 0.545, p < 0.001; negative emotion: β = -0.235, p < 0.01). Thus, H5 is supported totally. The effects of independent variables, technology complexity (β = -0.024, p > 0.05) and consumer inertia (routine seeking: β = -0.007, p > 0.05; cognitive rigidity: β = -0.083, p > 0.05), were insignificant in the mediating effect model when consumer

emotions were incorporated into the model as additional predictors of new technology acceptance.

As Table IV shown, consumer emotions were significantly related to new technology acceptance and the effects of technology complexity and consumer inertia became insignificantly on new technology acceptance in the mediating effect model, the third condition for mediation was completely supported. Thus, the results support H6 completely.

C. The Comparison between the Hypothesized Model and the Null Model

Table V reports the comparison for the overall fit between the hypothesized model and the null model for new technology acceptance. The null model contains the control variable and technology complexity which was the most important one of traditional diffusion influences [8], [9]. As shown in Table V, the overall fit degrees of the hypothesized model (Overall R^2 = 0.575, $p < 0.001$) was much better than the null model (Overall R^2 = 0.114, $p < 0.001$). The results indicated that the fit of the hypothesized model was superior to the fit of the null model (R^2 = 0.461, F = 21.652, $p < 0.001$). In addition, the hypothesized model reveals the complete mediating effect of consumer emotions among technology complexity, consumer inertia, and new technology acceptance. The results fully support H7.

TABLE V
THE COMPARISON BETWEEN THE HYPOTHESIZED MODEL AND THE NULL MODEL FOR NEW TECHNOLOGY ACCEPTANCE (TEST OF H7)

	The Null Model	The Hypothesized Model
Control		
Gender	-0.025 (t = -0.299)	-0.003 (t = -0.059)
Independent Variables		
Technology Complexity	-0.344 (t = -4.171)***	-0.024 (t = -0.339)
Routine Seeking		-0.007 (t = -0.103)
Cognitive Rigidity		-0.083 (t = -1.276)
Mediators		
Positive Emotion		0.545 (t = 7.603)***
Negative Emotion		-0.235 (t = -2.872)**
Overall R^2	0.114	0.575
ΔR^2		0.461***
Overall Model F	9.028***	30.680***

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

In the model comparison, the hypothesized model includes consumer inertia and emotions overwhelmed the null model with only technology complexity (see Table V). Thus, consumer inertia and emotions were the important consumer-central predictors for new technology acceptance. In other words, the explanatory power of new technology acceptance model was raised when incorporated consumer psychological factors.

In addition to exploring the relative strength of consumer psychological factors on new technology acceptance, it is illuminating to compare between the hypothesized model and the null model. As Table V shows, the hypothesized model generated a higher overall fit degree than did the null model. Based on the comparison results, the hypothesized model is the better consumer-central model of new technology acceptance.

V. DISCUSSION

A. Theoretical Contribution

Prior research on consumer innovation or technology adoption focuses largely on cognitive processes and performance benefit, but not considers the role of consumer psychology in product/service consumption. By showing how inertial and affective responses influence new technology acceptance over time, this research extends previous work in technology adoption and innovation diffusion. The hypothesized model provides a consumer-centric description of how consumer emotions are impacted in the early contact of complex new technologies and how they may influence new technology acceptance beyond diffusion's traditional focus on performance benefits. This study demonstrates that consumer emotions resulting from early experience with the technological products/services and psychological inertia can have a lasting influence on diffusion; also emphasize the dynamic nature of new technology acceptance process in the consumer market.

Shih and Venkatesh describe that use-diffusion depends on (1) characteristics of the individual or household, (2) characteristics of the innovation, and (3) characteristics of the environment [53]. The current research expands the knowledge of how these factors may interact by examining how the environment (Internet-technology markets), the new technology (complexity), and the consumer (inertia and emotions) combine to create an initial technology use experience. Thompson, Hamilton, and Rust propose that consumers assign less weight to product/service usability before use than after use. Thus, they show that consumers are not often calibrated in their perceptions about product/service complexity and usability before use [10]. The research shows that inaccurate and overconfident expectations about usability may create situations in which consumers' negative emotion have a powerful influence on new technology acceptance.

B. Managerial Implications

This study proves that the predictive power of traditional technology adoption model can be improved by incorporating consumer psychological factors. Importantly, consumer acceptance for technological innovations is a function of technology complexity, consumer inertia, and emotions, not simply a result of product or service benefits. The results tell marketers two points: First, consumer emotional influence can be assessed by measuring usage complexity and their psychological inertia, and second, consumer emotions can be influenced by changing consumers' complexity perceptions in the period of trial and early use of new technologies. Thus, marketers can influence complexity perceptions when they show technological product/service use in commercials, describe usage instructions in online formats, or use other high involvement sales channels.

In addition, marketers must seek solutions in which

consumers are encouraged to try new technologies but not only through promises of ease that create unrealistic expectations for early use. This research suggests that training frontline sales personnel is important; the salesperson may demonstrate that a technological innovation is easy to learn to close the sale, yet the uncontrolled complexity perceptions can lead to technology resistance in the consumer market.

C. Limitations and Future Research

This study only explores both of consumer psychological factors, inertia and emotions. For the future research, the results of the current study can combine with other psychological variables (e.g., regret), begin to build a more complete psychological picture of consumer technology acceptance before and after a choice is made. More importantly, can such inertial and emotional reactions influence the evaluations of new technologies be decreased by some elaborate marketing strategies? This research suggests that they can be valued issues for technological innovation diffusion in the future.

REFERENCES

[1] S. Ram and J. N. Sheth, "Consumer resistance to innovations: The marketing problem and its solution," *The Journal of Consumer Marketing*, vol. 6, no. 2, pp.5-14, Spring. 1989.
[2] L. J. Coch and, J. R. P. French Jr., "Overcoming resistance to change," *Human Relations*, vol.1, pp.512-532. 1948.
[3] N. M. Tichy, *Managing Strategic Change: Technical, Political, and Cultural Dynmics*, NY: Wiley, 1983.
[4] A. Zander, "Resistance to change-Its analysis and prevention," *Advanced Management Journal*, vol.15, pp.9-11. 1950.
[5] M. L. Meuter, A. L. Ostrom, M. J. Bitner, and R. Roundtree, "The influence of technology anxiety on consumer use and experiences with self-service technolgies," *Journal of Business Research*, vol.56, pp.899-906. 2003.
[6] S. L. Wood and C. P. Moreau, "From fear to loathing? How emotion influences the evaluation and early use of innovations," *Journal of Marketing*, vol.70, no.3, pp.44-57. 2006.
[7] C. P. Moreau, D. R. Lehmann, and A. B. Markman, "Entrenched knowledge structures and consumer response to new products," *Journal of Marketing Research*, vol.38, pp.14-29, February. 2001.
[8] E. M. Rogers, *Diffusion of Innovations*, 5th Edition. NY: Free Press. 2003.
[9] C. Jaw, O. S. Yu, and K. C. Gehrt, "The roles of user psychological perceptions on the adoption of web-based service innovations," *Journal of Business and Policy Research*, vol.8, no.2, pp.16-31. 2013.
[10] D. V. Thompson, R. W. Hamilton, and R. T. Rust, "Feature fatigue: When product capabilities become too much of a good thing," *Journal of Marketing Research*, vol.42, no.4, pp.431-442. 2005.
[11] M. L. Meuter, M. J. Bitner, A. L. Ostrom, and S. W. Brown, "Choosing among alternative service delivery modes: An investigation of customer trial of self-service technologies," *Journal of Marketing*, vol.69, no.2, pp.61-83. 2005.
[12] F. Endt, "It is rocket science," *Newsweek*, E8, October 18. 2004.
[13] D. M. Phillips and H. Baumgartner, "The role of consumption emotions in the satisfaction response," *Journal of Consumer Psychology*, vol.12, no.3, pp.243-252. 2002.
[14] R. L. Oliver and R. S. Winer, "A framework for the formation and structure of consumer expectations: Review & propositions," *Journal of Economic Psychology*, vol.8, no.4, pp.469-499. 1987.
[15] R. Bagozzi, M. Gopinath, and P. Nyer, "The role of emotions in marketing," *Journal of the Academy of Marketing Science*, vol. 27, no.2, pp.184-206. 1999.
[16] M. F. Luce, J. R. Bettman, and J. W. Payne, "Emotional decisions: Tradeoff dfficulty and coping in consumer choice," in *Monographs of the Journal of Consumer Research*, no.1, D. R. John, Ed. Chicago: University of Chicago Press. 2001.
[17] C. S. Carver and M. F. Scheier, "Origins and functions of positive and negative affect: A control-process view," *Psychological Review*, vol.97, pp.19-35. January, 1990.
[18] R. L. Oliver, "Cognitive, affective, and attribute bases of the satisfaction response," *Journal of Consumer Research*, vol.20, pp.418-430. December, 1993.
[19] R. A. Westbrook and R. L. Oliver, "The dimensionality of consumption emotion patterns and consumer satisfaction," *Journal of Consumer Research*, vol.18, pp.84-91. June, 1991.
[20] N. Bendapudi and R. Leone, "Psychological implications of customer participation in co-Production," *Journal of Marketing*, vol.67, pp.14-29. January, 2003.
[21] A. Beaudry and A. Pinsonneault, "The other side of acceptance: Studying the direct and indirect effects of emotions on information technology use," *Management Information System Quarterly*, vol.34, no.4, pp.689-710. 2010.
[22] C. A. Smith and P. C. Ellsworth, "Patterns of cognitive appraisal in emotion," *Journal of Personality and Social Psychology*, vol.48, pp.813-838. April, 1985.
[23] S. Ram, "Marketing Strategies to Overcome Innovation Resistance: A Laboratory Experiment," Doctoral Dissertation, University of Illinois at Urbana-Champaign, 1985. unpublished.
[24] S. Oreg, "Resistance to change: Developing an individual differences measuer," *Journal of Applied Psychology*, vol.88, no.4, pp.680-693. 2003.
[25] G. Watson, "Resistance to change," *American Behavioral Scientist*, vol.14, pp.745-766. 1971.
[26] A. A. Harrison, "Response competition, frequency, exploratory behavior, and liking," *Journal of Personality and Social Psychology*, vol.9, pp.363-368. 1968
[27] A. A. Harrison and R. B Zajonc, "The effects of frequency and duration of exposure on response competition and affective ratings," *Journal of Psychology*, vol.7, pp.163-169. 1970.
[28] D. Billeter, A. Kalra, and G. Loewenstein, "Underpredicting learning after initial experience with a product," *Journal of Consumer Research*, vol.37, No.5, pp.723-736. 2011.
[29] D. Conner, *Managing at the Speed of Change: How Resilient Managers Succeed and Prosper Where Others Fail*, 1st ed. NY: Villard Books. 1992.
[30] B. E. Ashforth and R. T. Lee, "Defensive behavior in organizations: A preliminary model," *Human Relations*, vol. 43, pp.621-648. 1990.
[31] T. A. Judge, C. J. Thoresen, V. Pucik, and T. M. Welbourne, "Managerial coping with organizational change: A dispositional perspective," *Journal of Appplied Psychology*, vol. 84, pp.107-122. 1999.
[32] R. M. Kanter, "Managing the human side of change," *Management Review*, vol.74, pp.52-56. 1985.
[33] G. Zaltman and R. Duncan, *Strategies for Planned Change*, NY: Wiley. 1977.
[34] J. M. Bartunek, C. A. Lacey, and D. R. Wood, "Social cognition inorganizational change: An insider-outsider approach," *Journal of Applied Behavioral Science*, vol.28, pp.204-223. 1992.
[35] J. M. Bartunek and M. K. Moch, "First-order, second-order, and third-order change and organization development interventions: A cognitive approach," *Journal of Applied Behavioral Science*, vol.23, pp.483-500. 1987.
[36] C. M. Lau and R. W. Woodman, "Understanding organizational change: A schematic perspective," *Academy of Management Journal*, vol.38, p.537. 1995.
[37] M. Rokeach, *The Open and Closed Mind*, NY: Basic Books. 1960.
[38] S. Hoeffler and D. Ariely, "Constructing stable preferences: A look into dimensions of experience and their impact on preference stability," *Journal of Consumer Psychology*, vol.8, no.2, pp.113-139. 1999.
[39] J. Meyers-Levy and A. M. Tybout, "Schema congruity as a basis for product evaluation," *Journal of Consumer Research*, vol.15, pp.39-55. June, 1989.
[40] G. Barczak, P. S. Ellen, and B. K. Pilling, "Developing typologies of consumer motives for use of technologically based banking services," *Journal of Business Research*, vol.38, no.2, pp.131-139. 1997.
[41] R. Larsson, and D. E. Bowen, "Organization and customer: Managing design and coordination of services," *Academy of Management Review*, vol.14, no.2, pp.213-233. 1989.
[42] V. H. Vroom, *Work and Motivation*, NY: John Wiley & Sons. 1964.
[43] N. Schwarz and G. L. Clore, "Mood, misattribution, and judgments of well being: Informative and directive functions of affective states,"

Journal of Personality and Social Psychology, vol.45, no.3, pp.513-523. 1983.
[44] M. T. Pham, "Representativeness, relevance, and the use of feelings in decision making," *Journal of Consumer Research*, vol.25, pp.144-159. September, 1998.
[45] D. E. Bowen, "Managing customers as human resources in service organizations," *Human Resource Management*, vol.25, pp.371-383. Fall, 1986
[46] B. Schneider and D. E. Bowen, *Winning the Service Game*. Boston: Harvard Business School Press. 1995.
[47] M. Schreier, S. Oberhauser, and R. Prügl, "Lead users and the adoption and diffusion of new products: Insights from two extreme sports communities," *Marketing Letters*, vol.18, no.1/2, pp.15-30. 2007.
[48] R. Brislin, W. J. Lonner, and R. Thorndike, *Crosscultural Research Methods*, NY: Wiley. 1973.
[49] L. J. Cronbach, *Essentials of Psychological Testing*, NY: Harper and Row. 1970.
[50] R. P. Bagozzi and Y. Yi, "On the evaluation of structure equations models," *Academic of Marketing Science*, vol.16, pp.76-94. 1988.
[51] R. M. Baron and D. A. Kenny, "The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations," *Journal of Personality and Social Psychology*, vol.51, no.6, pp.1173-1182. 1986.
[52] J. F. Hair, R. E. Anderson, R. L. Tatham, and W. C. Black, *Multivariate Data Analysis*, 5th Ed. Englewood Cliffs, NJ: Prentice Hall. 1998.
[53] C. F. Shih and A. Venkatesh, "Beyond adoption: Development and application of a use-diffusion model," *Journal of Marketing*, vol.6, pp.59-72. January, 2004.