CUSTOMER SATISFACTION IN ONLINE STOCK TRADING SERVICES: EXAMINING THE ANTECEDENTS AND CONSEQUENCE OF FLOW EXPERIENCE

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ABSTRACT

While prior research has examined customer satisfaction in retailing and e-commerce settings, online trading services has received little research attention. To understand customer satisfaction better in this fast-growing service, we investigated the role of flow experience, a sensation that occurs with significant cognitive involvement in the online trading process. We focused on experience clues and flow construct and examined how experience clues affect the cognitive states of flow experience, which in turn determine customer satisfaction. Building on flow construct and total experience design, we proposed a structural model and empirically tested relevant hypotheses using the responses from online investors. Our data supported the model and most of the hypotheses it suggests. Our results shed light on important antecedents and consequences of experience flows in online stock trading services.

Keywords: Satisfaction, flow experience, service experience, online financial services

INTRODUCTION

Motivated by the significance of online stock trading services and the limited and inconsistent empirical findings, we examined the interaction of experience clues with flow experience and investigated their influence on customer satisfaction in online stock trading services using a survey dataset from U.S.-based online stock traders. The concept of flow in human-computer interaction is defined as a sensation occurs with significant cognitive involvement in a task (Li & Brown, 2006). Prior research has established the connection between flow experience and consumer behavior, such as attitude and loyalty (Novak, Huffman, & Yung, 2000). However, it is unclear whether such a connection exists between flow experience and customer satisfaction in online stock trading services. Therefore, our first research question is: how does flow experience affect customer satisfaction in online stock trading services?

According to Haeckel, Carbone, and Berry (2003) and Berry, Wall, and Carbone (2006), customers rely on the numerous clues embedded in performance when choosing services and evaluating their service experiences. Despite the well developed structure of flow experience (Csikszentmihalyi, 1991; Luna, Peracchio, & Juan, 2002) and experience clues (Haeckel, Carbone, & Berry, 2003; Berry, Wall, & Carbone, 2006), few research has attempted to bridge experience clues with flow experience by examining how such clues facilitate experience. In this study, we measure the experience clues in online stock trading services with humanic clues (i.e., customer service), functional clues (i.e., system), and mechanic clues (i.e., product offerings and commission). Building upon these experience clues, we proposed a research model that entails our second research question: how do experience clues affect flow experience in online stock trading services?

On the research front, this study advances the analysis and modeling of customer satisfaction in online financial services. Our research provides a comprehensive model, encompassing essential customer satisfaction drivers that pertain to experience design, flow construct, and online stock trading. We also contribute to online financial service practices by empirically examining the effects of flow experience on customer satisfaction in online stock trading settings.

THEORETICAL FRAMEWORK AND HYPOTHESES

Satisfaction

As reported by Bowen and Hedges (1993), more than 70% of customer defection in the financial service sector can be attributed to dissatisfaction with the quality of the delivered service. Due to the critical importance of customer satisfaction in online services, many studies have investigated the drivers of customer satisfaction in online settings. One stream of research rooted in Information Systems research and focused on using information quality and system quality to predict customer satisfaction (Ives, Olson, & Baroudi, 1983; Doll & Torkzaden, 1988). Another stream of research evolves from marketing and operations management and approached customer satisfaction from the quality-satisfaction-loyalty chain, with a particular focus on studying key quality attributes (Parasuraman & Grewal, 2000; Wolfinbarger & Gilly, 2003; Parasuraman, Zeithaml & Malhotra, 2005).

Experience Clues

The first view of experience, as described by Pine and Gilmore (1998), is as real an offering as any service, good, or commodity. Experience occurs when a company intentionally uses services as the stage, and goods as props, to engage individual customers in a way that creates a memorable event. Similarly, researchers including Carbone & Haeckel (1994), Haeckel, Carbone, & Berry (2003), and Berry, Wall, & Carbone (2006) posited that experience can be engineered or orchestrated with either physical and relational clues or mechanic, functional, and humanic clues, which are embedded in service performance and influence a customer's overall perception of an experience.

Flow Experience

The second view of experience is captured in flow construct (Csikzentmihalyi, 1997), which has been widely adopted to define the nature of compelling online experiences. As with context-based experience, flow experience or flow affects customers' satisfaction and further

behavior intentions. Csikszentmihalyi (1991) suggested that an optimum state of flow or "autotelic experience" is engaged when there is a clear set of goals requiring an appropriate response, when feedback is immediate, and when a person's skills are fully involved in overcoming a high but manageable challenge. The notion of autotelic experience is also supported by Ghani and Deshpande's (1994), Huffman, Kalsbeek, & Novak (1996) and Novak, Huffman, & Yung (2000).

After synthesizing above research in satisfaction, experience clues and flow experience, we include four elements within online stock trading services: service, system, product offerings, and commission. We also adopt the flow construct by Novak, Huffman, and Yung (2000) and model the flow experience in online stock trading as determined by the following five cognitive states: (1) skill; (2) control; (3) challenge; (4) focused attention; and (5) interactivity.

RESEARCH MODEL AND HYPOTHESES

Control comes from both the Web user's perception of her ability to successfully navigate through the Web environment and her perception of how the Web responds to her inputs (Novak, Huffman, and Yung, 2000). As most consumers turn to online service for a high level of convenience and personal control (Ding, Verma, & Iqbal, 2007), we anticipate that the level of control leads to customers' positive emotional responses and satisfaction (Klein, 2001). As suggested by Koufaris (2002), skills are similar to computer self-efficacy, defined as "an individual judgment of one's capability to use a computer (Compeau & Higgins, 1995). Researchers in psychological revealed that skill utilization was the major predictor of job satisfaction and accounted for up to 32 per cent of unique variance in job satisfaction (Humphrys & O'Brien, 1986).

H-1A: *Perceived control is positively related to customer satisfaction*

H-1B: *Skill is positively related to customer satisfaction*

Focused attention refers to a "centering of attention on a limited stimulus field" (Csikszentmihalyi, 1977). To experience an optimal flow, customers must concentrate in their online activities. Therefore, attention or concentration is one of the most important components of flow (Ghani & Deshpande, 1994). Compared to offline customers, online customers have a short attention span because of the limited resources of time and information processing (Quelch & Klein, 1996). Xia and Sudharshan (2000) also suggested that interruptions in online shopping experiences limit customer concentration and therefore reduce users' satisfaction. As described by Novak, Huffman, and Yung (2000), consumers who achieve flow on the Web and perceive the online experience to be compelling are so acutely involved in the act of online navigation that thoughts and perceptions not relevant to navigation are screened out, and the consumer focuses entirely on the interaction. Based on Steuer's (1992) three-part conceptualization, interactivity occurs when the pages on the site load rapidly, when the site responds quickly to clicks, and when customers are interested in interacting with the website. Even though we measured interactivity with the three-part conceptualization proposed by Seuter (1992), it is worth noting that researchers in Information Systems extend the scope of interactivity by including the ability to customize the site's look, feel, and content as well as provide interaction with the user (Palmer, 2002).

H-1C: *Focused attention is positively related to customer satisfaction*

H-1D: *The level of interactivity on an online stock trading site is positively related to customer satisfaction*

Challenge in the online settings specifies the consumer's opportunities for action on the Web. As suggested by Anand and Sternthal (1990), web sites that are not challenging enough may lead to tedium and boredom. Other researchers in flow construct also suggested that the level of challenges is positively related to flow (Csikszentmihalyi, 1977; Ghani & Deshpande, 1994; Novak, Huffman, & Yung, 2000). However, the challenge should be positive (Koufaris, 2002) and reasonable (Luna, Peracchio, & Juan, 2002). Otherwise, too much challenge would lead to anxiety (Csikszentmihalyi, 2000). We can anticipate that frequent online stock traders might welcome reasonably higher levels of challenge. On the other hand, less frequent online traders might feel anxiety and less satisfied by using a challenging site.

H-1E: *The level of challenges on an online stock trading site is positively related to customer satisfaction*

Once we determine how flow experience on a certain site affects customer satisfaction, the next logical step is to learn how to elicit the right experience. As described in previous section, customers entering into an online stock trading website first experience context-based physical and relational clues or mechanic, functional, and humanic clues. Next, customers will formulate their cognitive states of flow experience on the site, including the level of control, focused attention, interactivity, skill and challenge. In Luna, Peracchio, and Juan's (2002) study on cross-cultural and cognitive aspects of web site navigation, they found that cognitive type experiences of balance between challenges and skills, perceived control, unambiguous demands, and focused attention all come from site content characteristics, which support the link between experience clues and flow experience. Past research has not investigated the relation between context-based experience clues and flow experience in online financial service settings.

Research on product offerings has suggested that a site's outstanding product information and selection can draw new customers, retain existing customers, and reduce switching and customer attrition (Chen & Hitt, 2002). Even though product offerings appear to be a major driver of customer satisfaction in online financial services (Krishnan, Ramaswamy, Meyer, & Demien, 1999), Kotha, Rajgopal, and Venkatachalam (2004) revealed that product selection does not offer pure Internet firms a long-run competitive advantage. Referring to the resource-based view of the firm (Wernerfelt, 1995), product selection and webs site usability can be easily imitated across different sites and therefore does not provide sustainable competitive advantage. However, increasing the range of products may distract customers' attention and enhance the perceived challenge for incoming customers (Koufaris, 2002). Researchers have also demonstrated that the online medium tends to favor price-based competition (Lynch & Ariely, 1999). For providers of financial services, even to professional service users, cost saving is clearly the most important factor driving choice of service (Ding, Verma, & Iqbal, 2007). However, commission can also be easily imitated across different sites and therefore does not provide a sustainable competitive advantage (Wernerfelt, 1995). Within online stock trading, commissions influence trading behavior in such a way that customers paying higher commissions tend to trade higher-priced stocks, trade significantly less, hold their trades longer, and experience much larger price swings (Garvey & Murphy, 2004). This leads individual traders to realize more dramatic gains and losses and also to exaggerate the disposition effect (Dhar & Ning 2006). Therefore, we propose the following

H-2A/B: *The number of product offerings on an online stock trading site is positively related to customers' attention /challenge*

H-3A/B: *The perceived fairness of commission on an online stock trading site is positively related to control / skill*

Customer service has received considerable attention in both marketing and operations areas in the past decades. Among all the existing literature, SERVQUAL (Parasuraman, Zeithaml, & Berry, 1998) has been extensively applied to explore the service quality in Information Systems research (Kettinger, Lee, & Lee, 1995; Pitt, Watson, & Kavan, 1995). The original SERVQUAL measures service quality with five service dimensions: tangibles, reliability, responsiveness, assurance, and empathy. Later studies pointed out the original definition and conceptualization of SERVQUAL, which targeted conventional and face-to-face service settings, is not appropriate for measuring the service performance in online settings and therefore needed further development (Sueter & Burton 1996). As Krishnan, Ramaswamy, Meyer, and Demine (1999) commented, providing customer service through multiple channels is essential and can favorably influence customer satisfaction. Building upon Wolfinbarger and Gilly's (2003) study of service quality, we anticipate that helpful responses to inquires, questions, or problems can help reduce anxiety and challenge. In addition, customer service can help increase perceived control, skill and focused attention.

H-4A/B/C: *Customer service on an online stock trading site is positively related to control / skill / focused attention*

H-4D: *Customer service on an online stock trading site is negatively related to challenge*

System is generally measured with its characteristics that are largely invariant across different uses and can be assessed independently of task, context, or application (Nelson, Todd, & Wixom, 2005). Such characteristics include security, reliability, ease of use, availability (accessibility), response time, and interface (Palmer, 2002; Delone & Mclean, 2003; Nelson, Todd, & Wixom, 2005). System quality leads to system satisfaction (Nelson, Todd, & Wixom, 2005), overall satisfaction and intention to use (Delone & Mclean, 2003), Web site success (Palmer, 2002), overall satisfaction (Wolfinbarger & Gilly, 2003; Parasuraman, Zeithaml, & Malhotra, 2005), and reduced switching (Chen & Hitt, 2002). System features such as easiness to navigate and friendly design enable customers to find the right information and right stock for trading purposes and therefore increase the consumer's focused attention, control and skill. Meanwhile, a well performing system might also reduce the level of challenge of the trading process (Pavlou & Fygenson, 2006). Another important feature, reliability, also helps consumers to overcome any psychological barriers to trading on the site and therefore enhances the level of focused attention and control. In addition, system features also greatly facilitate the interaction between customers and the trading site and therefore we also anticipate a positive connection between them.

H-5A/B/C/D: *System performance on an online stock trading site is positively related to control / skill / focused attention / interactivity*

H-5E: *System performance on an online stock trading site is negatively related to challenge*

METHOD AND PRELIMINARY ANALYSIS RESULTS

Sample

Respondents were recruited from the database of a large U.S. based, nationally reputed marketing research company that specializes in product and service design through the use of online questionnaires. The sample was randomly selected from the company's database of registered participants who indicated that they had prior online stock trading experience. To avoid response bias, we included questions that were worded reversely in the survey and

randomized the order of answers to certain questions. We also examined the pattern of each respondent and made sure that his/her responses to the reversely worded questions were consistent with his/her responses to other questions. The process retained 669 subjects, whose responses were used in the following analysis and model.

Results

According to the approach suggested by Gerbing and Anderson (1988), we conducted both principal component analysis with direct oblimin rotation and confirmatory factor analysis to analyze our scales. The analysis showed that the reliability alpha ranges from 0.70 to 0.95, which is significant at $p \leq 0.001$. The loadings of the measurement items on their constructs are above 0.6 and significant at $p \leq 0.001$ indicating good convergent validity. The software package Amos 4.01 was used to examine the relationships between experience clues (service, system, product, and commission) and flow experience (control, skill, focused attention, interactivity, and challenge), as well as the relationships between flow experience and satisfaction as shown in Figure 1. The statistics for overall fit of the model include: $\chi^2 = 2238$; d.f. = 611; χ^2/d.f. = 3.664; p< 0.001; RMSEA = 0.063; CFI = 0.981; Tucker-Lewis index = 0.978. The squared multiple correlations for the equations (interpreted as R^2 values) were 0.377 for satisfaction, 0.047 for challenge, 0.085 for focused attention, 0.559 for interactivity, 0.254 for skill, and 0.492 for control.

The first set of hypotheses, which proposed that flow experience affects customer satisfaction, were largely supported. Specifically, the coefficients associated with H1a (β_{61} = 0.271), H1c (β_{63} = 0.179), and H1d (β_{64} = 0.332) were statistically significant at $p < 0.001$. In addition, H1e (β_{65} = -0.056) was also supported at the 0.1 level. However, H1c (β_{62} = 0.030, $p > 0.1$) was not supported. Therefore, four cognitive states of flow experience (control, focused attention, interactivity, and challenge) affected satisfaction in a significant way, while skill did not. The second set of hypotheses, which proposed that experience clues affect flow experience, were also largely supported. The first subset of hypotheses (related to product offerings) suggested that product affects focused attention (H2a) and challenge (H2b). Both hypotheses were supported at the 0.1 level (γ_{34} = 0.105, $p<0.1$ and γ_{54} = 0.095, $p<0.1$). The second subset of hypotheses proposed that commission was related to control and skill. The results suggested that commission was positively related to control (γ_{11} = 0.080, $p<0.1$). However, commission did not affect skill in a significant way (γ_{21} = 0.019, $p>0.1$). Therefore, only H3a was supported. The third subset of hypotheses proposed that service affects the cognitive state of the flow experience. For the collected data, service affected control (γ_{12} = 0.150, $p<0.01$), skill (γ_{22} = 0.130, $p<0.1$), and challenge (γ_{52} = -0.127, $p<0.1$). However, service did not affect focused attention in any meaningful way (γ_{32} = 0.068, $p > 0.1$). Therefore, hypotheses H4a, H4b, and H4d were supported. The fourth subset of hypotheses proposed that system affects cognitive state of flow experience. All five connections between system and flow experience were significant. Specifically, system affects control (γ_{13} = 0.681, p<0.001), skill (γ_{23} = 0.486, p<0.001), focused attention (γ_{33} = 0.262, p <0.001), interactivity (γ_{43} = 0.748, p <0.001), and challenge (γ_{53} = -0.147, p<0.01). Therefore, hypotheses H5a-H5e were supported.

Discussions

Using online stock trading as the context, our study established the link between context-based experience clues and flow experience. We showed that both physical elements (system, product, commission) and a relational element (customer service) affect flow experience in a significant way. The first physical element of system, which is the platform for trading online, affects all five states of flow experience. A well maintained system or online stock trading platform is one that is reliable, responsive, easy to use, and have a friendly interface. As a consequence, users might face less challenge and perceive an increased level of control and skill on the site, which all contribute to their concentration on the trading process.

Besides system, the range of product offerings also affects the flow experience elements of focused attention and challenge. The range of products refers to the types of services offered by the trading site, which includes the research tools and the variety of investments. Based on the study by Koufaris (2002), online customers can take advantage of the multitasking capabilities of their computer systems and do more shopping. While trading online, customers can take advantage of the research tools by conducting extensive research and analysis on the stock performance. Therefore, the product offerings can strengthen the level of focused attention in their trading experience. In contrast, limiting the range of products and research tools may distract customers' attention.

The third context-based element of service also drives flow experience. Customer service, whenever it is needed, is a great source for customers to solve issues and problems. Customers expect service delivered via different channels (either by email, phone, or an offline branch) to be responsive and courteous. They also expect customer representatives to be knowledgeable, and solve issues in a timely manner. High quality customer service not only reaches to customers at the right time and in the right place, but also helps customers overcome any upcoming problems and challenges. Finally, solving problems and issues in a timely fashion also allows customers to focus on trading and foster their investment strategy and skills

The fourth element of commission, however, does not appear to have a significant impact on flow experience. The fairness of commission and the management fees associated with accounts do not provide much incentive for customers to interact with the trading site. Even though commissions influence trading behavior (Garvey & Murphy, 2004), they do not necessarily determine the level of control and skill. The result can be explained with the cost reduction and quality improvement efforts from e-brokers. Several companies that were included in this survey, such as e*Trade and Scottrade, were able to take advantage of the scale of the trading volumes and charge only $8 - $12 per trade while offering comprehensive and even sophisticated trading services. Therefore, the commission and fees do not work as good indicators of customer control and skill in online stock trading services.

Our second set of hypotheses proposed that cognitive states of flow experience affect customer satisfaction. The hypotheses were largely supported, with the exception of skill among five flow experience measurements. The increased level of control, focused attention, and perceived interactivity can result in a wiser trading decision and therefore tends to increase the happiness and satisfaction associated with the trading service. Meanwhile, the challenge level is negatively related to customer satisfaction, which suggests that positive challenges from the trading experience are not well perceived by customers and therefore do not affect customer satisfaction in a positive way. The connection of challenge and satisfaction, as proposed in the study, is opposite of the general flow theory ((Novak, Huffman, & Yung, 2000). This direction can be explained with the service typology and taxonomy proposed by Cook, Goh, and Chung

(2000). As online stock trading services entail intensified capital investment and customer involvement, customers trading online are more cautious and risk averse towards the service provided through the service site. As a consequence, the level of challenge affects customer satisfaction in a negative way.

FUTURE RESEARCH DIRECTION

Our conceptual model and empirical findings suggest several areas for future research. First, they suggest that customer satisfaction is affected by a two-layer customer experience. Future research should test the validity of the structural model within different contexts, such as e-banking, e-gaming, online shipping and tracking, and online education. The model should also be tested in offline settings, such as the circus (Pullman & Gross, 2004), the theater, the cinema, the hospital, the hotel, and the restaurant. Based on the analysis results and the support from prior studies, we expect that future research will further validate and extend the proposed model in both marketing and service research.

Future research should also test the statistical power of the two-layer customer experience in explaining customer satisfaction across different services and across different customer segments. According to Cook, Goh, and Chung (1999), service can be classified into different categories based on both marketing and operations dimensions. As most online services adopt self-service approaches, a particular focus should be placed on customer contact, or the physical presence of a service provider in the system during the service provision (Mersha 1990). Customers' preferences may also vary across different user segments. As reported by Ding, Verma, and Iqbal (2007), self-service customers in online financial services are different from professional service customers in that they prefer cognitive control, avoidance with service personnel, and convenience. Future research should test the robustness of the model in predicting customer satisfaction across different service and across different customer segments.

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