Winter 12-1-2010

The Influence of Online Interactive Service for Customer Relationship Management Strategy

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Abstract

Utilizing thinteractive nature of online shopping allows consumers to communicate more effectively with retailers on a one-to-one basis. This study investigates how e-interactivity (online interactivity) affects consumer attitude and further behavior such as perceived value, trust, satisfaction, and loyalty by defining multiple dimensions of e-interactivity. One of the significant findings from the study indicates that perceived two-way communication has the stronger power to explain perceived value as well as satisfaction than the perceived control over the website. Managerial implications are further discussed for retail customer relationship management.

Introduction

The Internet is a readily available interactive communication medium that provides the breadth and depth of information. The transmission of instant information provides two-way communication opportunities for users. Utilizing this interactive nature of the Internet allows consumers to communicate more effectively with retailers on a one-to-one basis. As e-commerce grows rapidly, interactivity becomes important for computer-mediated service and consumer decision making.

While interactivity functions vary, it is important to understand perceived evaluation of interactivity online from the customer perspectives. However, the concept of e-interactivity is still ambiguous as there is a lack of the consistent definition and measurement of interactivity. The level of e-interactivity has to be evaluated by customers' reaction to the interactive function on the website because the online shopping experience usually occurs in a self-service context where users have to confront the attributes of the website by themselves. Despite the growing interest towards e-interactivity, little is understood about the outcomes of e-interactivity and factors relating to interactive online shopping experiences. Therefore, this study investigates how e-interactivity affects consumer attitude and further behavior such as perceived value, trust, satisfaction, and loyalty by defining e-interactivity with multiple dimensions. The potential benefit of highly interactive self–serviced online shopping should be established.

Defining e-Interactivity

Interactivity has appeared in a variety of disciplines (i.e., social psychology, computer science, communication). Human interactivity includes social and intimate interpersonal communications [1] [2]. Usually, face-to-face conversation, which does not involve any media, has been identified as being more interactive than mediated communications such as TV and computer. However, due to the advance of high technologies, the mediated communications are sought as conveying a highly interactive communication. For example, Internet chat rooms can facilitate highly interpersonal and anonymous communications which allows Internet users to express their opinions or ask questions. Realizing essence of e-interactivity, managers of online stores can expect interactive personal communication allowing them to approach their customer in an even more convenient and efficient manner.

In order to identify a level of message interactivity, three levels of message interactivity were introduced: non-interactive (e.g., TV, lecture), quasi-interactive (e.g., feedback), and fully interactive (e.g., face-to-face) according to the degree of message contingency [3]. Sundar, Sriram and Justin demonstrated that when humans interacted with digital content of system, they preferred quasi-interactive communication to fully interactive communication [4]. Message interactivity was evaluated based on a level of control over or customization of the messages in a situation where a human interacts with computers [2].

Medium interactivity was developed mainly in the computer science discipline and refers to human-computer relationships [1]. Medium interactivity refers mainly to users' interaction with computers or their experience of the virtual environment [2]. Hoffman and Novak attempted to develop the concept of machine interactivity referring to a degree of which users can modify the form and content of a mediated environment in real time [5].

In addition, Internet mediated interacting situation s involves a traditional dialog. A traditional dialog between consumers and salesmen as well as interactions between consumers with advertising banners or the Internet itself, provides a newly refined concept of how e-interactivity needs to be built. The interactivity is a major technological capability for Internet user [6].

Researchers have tried to measure e-interactivity by counting the website's interactive features (i.e., hyperlinks, online chat-rooms, email feedback, and search engines) [5] [7] [8] [9] [10] [11]. While the online environment has been updated dramatically, popular commercial websites in which users visit to make a product purchase have already been developed to include all the suggested interactive features.

E-interactivity is a form of perceived e-interactivity regardless of the actual features presented on the website [12]. Three different relevant dimensions are identified, namely active control, two-way communication, and felt synchronicity. Active control describes a user's ability to voluntarily participate in and instrumentally influence a communication. Two-way communication captures the bi-directional flow of information and f?Felt synchronicity corresponds to the speed of the interaction which can be applied to only the on-line context.

Outcomes of e-interactivity

The global meaning of interactivity has delivered fun and satisfaction, engagement and

performance quality and time savings [7] [13] [14] [15]. This enhancement of positive attitude toward the website occurs when e-interactivity is designed to make users' experiences more vivid with the advance of tele-presences. The drastic development of Information Technology in online environment s enables consumers to experience products or services in more direct manners without any physical barriers of time and space. A short film with high resolution on the website provides more positive experience than reading a specific description;while receiving a direct feedback through email or an online chat-room can deliver a more direct experience without any emotional stress to contact salesman in person [16] [17]. The more vivid experiences with the products may lead to positive attitudes and subsequent behavioral intentions [18].

Kim and Frank stated that 'the feeling of being there in the virtual environment' is a predictor of increased brand preference [19]. A high level of e-interactivity may change temporary visitors into frequently visiting customers [20]. Ghose and Dou noted that it is helpful for online stores to build a better relationship with their customers by improving web usability as well as enhancing its attractiveness [21]. It was stated that increased levels of e-interactivity led to the stronger feelings of tele-presence, which was explained as richness of medium interactivity,and users may form more positive and enduring attitudes toward web sites [22]. Teo, Oha, Liua, and Wei found that the level of interactivity has a positive influence on not only cognitive but also affective attitudes including satisfaction, effectiveness, and efficiency [9]. E-interactivity determined online shopping experience and overall satisfaction with online shopping, which resulted in repeated purchases [23].

In order to draw a global picture of e-interactivity influences on crucial factors which determine the success of commercial websites, this study attempted to investigate how perceived e-interactivity acts among the important factors including perceived value, satisfaction, e-trust, and e-loyalty.

High levels of e-interactivity may alleviate the risks because the telepresence of product information can decrease users' concerns caused by nonphysical interaction, as well as direct feedback. Real-time interaction through the online chat-room may resolve the potential problems. E-satisfaction is one of the highly desirable goals as satisfied users may stay longer at the online store, revisit and may recommend it to others increasing e-loyalty.

Interactivity is claimed to bring satisfaction with their on-line experiences [13] [24]. Customers seem to be satisfied when they are feeling like they have control over on the website, which is one of the important elements of perceived e-interactivity [25]. Particularly, Szymanski and Hise addressed the important role of convenient interface of website to create customer satisfaction which turns into a loyal behavior [26]. Therefore following hypotheses are established:

H_1: E-interactivity (Three dimensions) is likely to have a positive influence on perceived value.

H_2: E-interactivity (Three dimensions) is likely to have positive an influence on trust.

H_3: E-interactivity (Three dimensions) is likely to have a positive influence on satisfaction.

Value, Satisfaction and Loyalty Chains

Loyalty is a property for a business to

retain their profitable customers as the costs to gain new customers are known to be much higher than expenses to serve pre-existing customers. A conceptual framework describing loyalty has been developed with a multidimensional construct integrating cognitive, affective and action elements [27]. A loyal customer who holds a deep 'commitment' to a 'preferred' brand or a store, continues to repurchase a product/service from the brand (or the store) regardless of competitors' marketing efforts to tempt to switch over and potential situational influences [27]. In addition, those loyal customers share the experience and spread opinions about the preferred brand (or the store) to other potential customers.

For the last several decades, loyalty has been considered as the most important outcome which businesses are eager to earn in order to harness actual profits.

Reichheld and Schefter insisted that the existent rules related to loyalty may be even more relevant and vital in the Web [28]. It was noticed that the newly defined e-loyalty shares similar underlying theoretical backgrounds of traditional loyalty, even though there are unique aspects involving the Internet environment [29]. The effect of e-loyalty relating to dramatically rising profits in the later stage of the cycle may be even greater and accelerating at a faster rate than the old loyalty did.

Furthermore, the more competitive the Internet retailing business gets, the more difficult it is for consumers to find the one website they can rely on. Surfing the Internet becomes a sort of daily routine for Internet users, they may visit the online store they are loyal to more frequently without any restrictions of time and place. By amplifying the effect recommendation, the last element of loyalty, Internet base businesses may provide their loyal customers with more efficient tools such as online chat rooms, bulletin boards, and third party evaluating websites. Old-fashioned Word-of-Mouth (WOM) is applied to the close relationship like family, friends, etc. This WOM through the Internet seems to be much more powerful so that it can spread product information faster toward a wider range of consumers while old-fashioned WOM is applied to close relationships such as family, friends, and so on.

Creating affective, behavior intent (cognative) as well as actual behavioral (action) loyalty is important. Schultz demonstrated that a satisfied customer is inclined to be more loyal than a reluctant customer who happens to buy a product/service for other reasons like lack of time or information [30]. Therefore,the following hypotheses are established.

H_4: Perceived value is likely to have a positive influence on customer loyalty behavior.

H_5: Satisfaction is likely to have a positive influence on customer loyalty behavior.

The Role of Perceived Trust

Consumers counted lack of trust as the most frequently cited reason to explain why they felt reluctant to participate in online shopping [31]. Trust is one of the key factors impacting the success of online businesses in building positive relationships with their customers and finally leading to increased market shares and profits [32] [33] [34] [35].

In online transactions, consumers must select a product without being able to experience the actual features of the product. In addition, consumers must typically pay for this product using their credit card which may convey personal information. This easiest and most prevalent

method of payment sometimes involves identity thefts or credit card frauds, which leads the consumer to not trust the online shopping process [36]. Since consumers can not experience the products physically, information displayed by e-retailers can be misunderstood and misleading, which causes information asymmetry between buyers and sellers. Information asymmetry may give rise to opportunistic behavior such as misrepresentation of product quality, potentially leading to mistrust or even market failure [37]. E-trust may be more critical and hard to be firmly formed since risk and incomplete product information are present in a transaction [38] [39]. Bradach and Eccles also mentioned that the issue of trust arises when an exchange relationship magnifies uncertainty, vulnerability, and dependence as it is in the online shopping context [40].

Researchers recommend for online businesses to build e-trust in a more firm manner as an absolute solution to mitigate risk involving e-commerce [32] [41] [42]. Truly, consumers cannot shop the Internet if they do not trust and believe the images and promises that e-retailers are presenting. Additionally, customers who trust an e-retailer are far more inclined to share private, personal information such as credit card information, which can be very useful for e-retailers to develop further marketing strategies. Given this unique characterized Internet based shopping environment, it has been empirically supported that trust plays a crucial role in augmenting loyalty which leads to repeat visits to the trusted web sites [43].

Although satisfaction usually results in loyalty, there are often the cases where that does not happen. [44] [27]. When it comes to e-loyalty, the direct relationship cannot be promised in the online shopping environment. The Internet enables a customer to search and access relevant information without any restrictions of time and place; it seems to get much harder for e-businesses to attain behavioral loyalty than in the offline environment [29].

It is expected that trust may come into play in this relationship between satisfaction and loyalty which has been even more difficult to achieve in the Internet based shopping surroundings. Particularly, Salmen and Muir also insisted that customer satisfaction is defined by trust as well as being served appropriately over time [45]. Rechheld and Schefter emphasized the significant role of e-trust in shaping e-loyalty especially in the Internet context [28]. Therefore, following hypotheses are established.

H_6: Perceived trust on online shopping has a positive influence on loyalty behavior.
H_{7a}: Perceived trust seems to mediate the link between perceived value and loyalty behavior.
H_{7b}: Perceived trust seems to mediate the line between satisfaction and loyalty behavior.

Methodology

Measurement

Consumers' perceived three dimensions of e-interactivity was used as independent variables: active control, two-way communication, and synchronicity [12]. The dependent variables studied are four perceptual variables including satisfaction, value, trust and loyalty towards web site (See Appendix A). Satisfaction was assessed based on seven questions taken from the study by Teo, Oha, Liua, and Wei [9]. Value was measured by four modified questions about how valuable consumers

perceive their visited websites with adopting from the study [46]. Lastly, e-loyalty was assessed based on seven questions from the study by Salmen and Muir [47]. All questions were anchored on a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). In order to assess reliability, as indicated in Table 1, Cronbach's alpha was calculated and the results showed all alpha values greater than 0.70 as being good for basic research, assuring that the scales in this research can be applied for the analysis reasonably [48].

Table 1. Means, standard deviation and construct inter-correlations

Var/# of items	AC	TW	SYN	PV	TRST	SAT	LOY	Mean	St. D	Cronbach's α
AC/4	1							5.54	0.92	.773
TW/5	.302**							4.54	1.12	.823
SYN/5	.229**	.503**						4.40	0.70	.654
PV/4	.512**	.408**	.423**					5.18	1.09	.856
TRST/8	.617**	.477**	.498**	.742**				5.30	1.01	.895
SAT/7	.706**	.469**	.415**	.639**	.675**			5.26	0.87	.871
LOY/7	.484**	.414**	.429**	.605**	.814**	.623**	1	4.97	1.02	.845

AC: Active Control; TW: Two-Way communication; SYN: Synchronicity; PV: Perceived Value; TRST: Trust; SAT: Satisfaction; LOY: Loyalty

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

Data collection and sample statistics

The research employed an online survey to collect data. Two thousand e-mail invitations were distributed to a randomly selected national sample purchased from an independent research company which has a credit card-screened consumer panel. The targeted population for this study is online shoppers who have at least an online shopping experience in recent 6 months.

In order to capture online shoppers' perception on e-interactivity on a specific online store, the questionnaire asked participants to try to recall their experiences about a website they have bought something from most recently.

Based on the recalled experiences, they were asked to answer the prepared questions. On average, participants have purchased something from online stores about 3 times in recent 6 months. Approximately, twenty percent of participants have bought something 5 times or more through the Internet. This trait is consistent with the natures of recent online shoppers [49]. Regarding the gender distribution, the proportion of female Internet users (68%) was likely to be higher than male users (32%).

Result

The structural equation modeling (SEM) technique was utilized to examine the proposed model. Given that there is no single recommended measure of fit for the SEM, a variety of model fit measures are applied to see if this model is appropriate. Provided in Table 2, the $\chi 2$/df value for this model is 1.580 which is below the desired cutoff value of 3.0 as a general rule [50].

Additionally, in terms of CFI and AGFI, the values in this model indicated 0.937 and 0.795 respectively which is greater than satisfactory level like 0.9 for the CFI and 0.8 for AGFI [51]. With regard to RMSEA, the fit index is 0.064 that is below the recommended cut-off level of 0.08 [52]. With these multiple fit indices indicating a reasonable fit for this model, the results of the structural model analysis can be considered to show an excellent fit of the proposed model to the data. In terms of the proposed hypotheses (See Table 2), the expected influence of multi dimensional e-interactivity on perceived value [H1a: $\beta = .523$ ($t = 5.260$); H2a: $\beta = .387$ ($t = 4.351$)] and satisfaction [H1c: $\beta = .915$ ($t = 4.351$); H2c: $\beta = .329$ ($t = 3.360$)] was statistically significant as hypothesized.

However, Synchronicity, the last component of e-interactivity, does not appear to be significant in the proposed influences [H3a: $\beta = .092$ ($t = 1.141$); H3c: $\beta = .075$ ($t = 1.203$)]. With regard to the effects of e-interactivity on trust, the entire proposed effects including active control [H1b: $\beta = 1.558$ ($t = .573$)], two-way communication [H2b: $\beta = .565$ ($t = .601$)], and synchronicity [H1b: $\beta = .14$ ($t = .594$)] do not turn out to be insignificant. Pertaining to contributions of three important factors to form e-loyalty, perceived value does not directly contributed to e-loyalty [H4: $\beta = .041$ ($t = .481$)] whereas satisfaction significantly does [H5: $\beta = .263$ ($t = 2.219$)].

While the expected prevalent effect of trust has been confirmed as being significant when forming e-loyalty [H6: $\beta = .742$ ($t = 4.123$)], trust also turns out to mediate the effect of perceived value on e-loyalty [H7a: $\beta = .295$ ($t = 3.061$)].

Table 2

Results of structural equation analyses

Hypotheses		Proposed Path	Standardized Coefficient	t-value
H1	H1a	Active Control → Perceived Value	.523***	5.260
	H1b	Active Control → Trust	1.558	.573
	H1c	Active Control → Satisfaction	0.915***	4.351
H2	H2a	Two-Way communication → Perceived Value	.387***	4.298
	H2b	Two-Way communication → Trust	.565	.601
	H2c	Two-Way communication → Satisfaction	.329***	3.630
H3	H3a	Synchronicity → Perceived Value	.092	1.141
	H3b	Synchronicity → Trust	.14	.594
	H3c	Synchronicity → Satisfaction	.075	1.203
H4		Perceived Value → Loyalty	.041	0.481
H5		Satisfaction → Loyalty	.263***	2.219

H6		Trust → Loyalty	.742***	4.123
H7	H7a	Perceived Value → Trust	.295***	3.061
	H7b	Satisfaction → Trust	-1.003	-.356
Goodness of Fitness			**Guidelines**	
χ^2/df		1.580	≤3.000	
AGFI		.795	≥0.8	
CFI		.937	≥0.9	
RMSEA		.064	≤0.08	
Notes: *** p<.01				

Discussion

Loyalty has to be emphasized in terms of customer retention under the severe competition between e-retailers. Satisfaction has been considered as the most relevant antecedent of loyalty. With highlighting the importance of loyalty, the current research attempts to approach loyalty with multiple dimensions. Besides satisfaction, other relevant antecedents such as e-trust and perceived value are included in a proposed conceptual model.

While this research indicates satisfaction as the most important predictor of loyalty on e-retailers, it also is expected the crucial role of trust to mediate the effect of satisfaction as well as perceived value is based on the unique characteristic of the Internet based shopping environment.

Instead of measuring e-interactivity by relying on the mechanical features, this research attempts to investigate potential effects of consumers' perceived interactivity on an e-loyalty forming process including perceived value, trust, and satisfaction . In addition the research anticipates an active role of trust given the uncertain Internet environments.

With regard to the suggested influences of multidimensional constructs defining e-loyalty, the result indicates that perceived two-way communication has the stronger power to explain perceived value as well as satisfaction than the perceived control over the website Online shoppers are still inclined to be passive receivers when interacting with e-retailers or the website itself, rather than participating in information exchange and control actively.

Although many frontiers in e-retailing have tried to develop e-customization processes which makes customer involvement a product design stage (e.g., Dell.com), customers seem to still evaluate e-interactivity of a website on the basic information exchange interaction. This reflects customer's inclination of wanting a website to be simply designed, fast to load, and easy to use [28]. Complicated processes, like e-customization, may cause the site to feel as if it becomes slower to load and more complicated to use. If a specific website having a variety of aspects related to e-customization process is evaluated, the effect of active control would be more powerful to form the essential factors like perceived value and satisfaction.

Meanwhile, the effect of synchronicity has been declined by the result of being insignificant in affecting the three factors including perceived value, trust and satisfaction. Liu tried to expand the existing concept of e-interactivity by adding the last component of synchronicity which corresponds to the speed of the interaction while the other two factors explain types of interaction like reciprocal information exchange (two-way communication) and voluntary participation on controlling a website (active control) [12]. This result of insignificant effect of synchronicity suggests that the Internet users may not put any significant importance on the speed of interactions.

Such a tendency may occur in that

customers may attribute a slow reaction of websites not to the websites or venders but to a quality of internet broadband access or can attribute both of them. This implies the definition of synchronicity has to be redefined when referring to the speed of feedback or reaction to their requests or questions to e-retailers.

It is found that e-interactivity does not directly influence trust. With its significant relationship with perceived value, trust can be inferred to be formed indirectly by e-interactivity through perceived value. As expected, the role of trust to determine e-loyalty is far more crucial, even more than satisfaction which has been asserted to be the most important predictor of loyalty. Nevertheless, the result indicates that the effect of satisfaction on e-loyalty stands alone and is directly formed without any mediating interruption of trust.

Implications

As technologies have been updated, online businesses may feel a pressure and temptation to reinforce interactive features. However, the result of this study suggests that perceived control online, which can be encouraged by participating in the high technology process, may not be the first factor for customers to assess its e-interactivity level. Instead of investing efforts and money only on developing and following updated technologically based process, online businesses first have to concentrate on encouraging more interactive and active information exchanges between e-retailers and customers.

However, an online company targeting relatively high experienced Internet users may have to distribute their efforts to incorporate other technological development. The most important thing for online businesses to figure out is who their targeted customer is and what they want from shopping through the Internet.

In looking at the crucial role of trust in the proposed model of e-loyalty, online businesses cannot survive in the competitive online market without a firmly built trust relationship with customers. Effective tools to ensure a high level of trust may have to be developed intensively and sustained over time in order to retain loyal customers and lock them in voluntarily.

As mentioned earlier, this study is originally designed for participants, only based on their experiences, to evaluate a website in which they have purchased. This research design can measure customers' real perception on its e-interactivity without counting the features related to e-interactivity, which may not be the factor for customers to feel e-interactivity at all. Nevertheless, such a research design cannot manipulate the type of online business, as well as the type of market situation which can determine the relative importance of the drivers of e-loyalty such as perceived value, satisfaction, and trust.

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