

Perceptions and Value of Off-line Retailers' Interactivity

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Abstract

Researchers repeatedly suggest that interactivity is a characteristic of the Internet. This paper examines whether consumers perceive off-line retailers to be as interactive or even more interactive than the on-line retailers on three dimensions: message contingency, real-time communication and control. Two studies (in-depth interviews and a survey) reveal that when comparing interactivity of web stores with physical stores and catalogues, consumers perceive physical stores and catalogues to be as interactive as web stores on two out of three interactivity dimensions. In addition, the paper shows that consumers value the interactive characteristics of off-line retailers as much as they value the interactive characteristics of on-line retailers. The implications of these findings are discussed.

Keywords

shopping behavior, multi-channel strategies, interactivity, catalogues, physical stores

Introduction

More retailers today employ multi-channel strategies to integrate their on- and off-line stores (Lu et al., 2006). They capitalize on the interactive characteristics of on- and off-line processes to offer a more satisfactory shopping experience. Consumers, for example, can customize the products on-line and receive the products off-line or order the products on-line and return them off-line (e.g. Barnes and Noble, and Loft).

Researchers believe that the interactive characteristics of a retailer can encourage consumers to use it more often (Alba et al., 2000; Liu et al., 2002; Yadav et al., 2005). However, researchers have developed only web-based conceptualizations and measurements of interactivity (Coyle et al., 2001; Dholakia et al., 2003; Liu, 2003; McMillan et al., 2002). This paper argues that to help develop multi-channel strategies, off-line interactivity should be examined and compared to on-line interactivity in retail settings.

Off-line modes of interactivity were studied in communication and social sciences before the Internet became widely used (Newhagen et al., 1996). Lectures, for instance, were found to be less interactive than group and phone dialogues (Bretz, 1983; Rafaeli, 1988). Off-line retailers involve communication with other individuals (e.g. in person, via phone or via e-mail) which consumers might consider equally interactive if not more interactive than on-line retail operations.

A successful multi-channel strategy that integrates the different retail modes depends on consumer perceptions and value of off-line retailers' interactivity. For example, consumers' preference to preview a product on-line but buy it off-line can be due to their perception of higher level of control (a dimension of interactivity) in a physical store than in an on-line store. Also, consumers' satisfaction from a shopping experience can be determined by their perception and value of real-time communication (another dimension of interactivity) with a salesperson in a physical store.

As far as it has been possible to determine, no attempt has been made to compare the interactivity of on- and off-line retailers. Most previous research on interactivity has compared consumers' perceptions of interactivity across web sites or web-based technologies (Liu, 2003; Liu et al., 2002). Therefore, this paper explores whether consumers perceive off-line retailers to be as interactive as on-line retailers and whether they value the off-line interactive characteristics.

Two studies – in-depth interviews and a survey – examine the interactivity of two off-line retail modes, physical stores and catalogues, comparing them to the on-line mode, web stores. The on- and off-line modes were examined in terms of interactivity because consumers tend to combine them while shopping (Lu et al., 2006). They might look through a catalogue, search for more information on-line and finally go to a physical store to buy the product. As a result, companies integrate the three retail modes to form multi-channel strategies.

The paper is divided into three parts. The first part presents the theoretical background on interactivity and the development of the hypotheses. The second part presents the methodology used in the two studies, in-depth interviews and a survey. The third part is the discussion that includes a summary of the findings, managerial implications and the limitations of the studies.

Theoretical Background and Hypotheses Development

Alba et al. (1997) defined interactivity as “a continuous construct capturing the quality of two-way communication between two parties” (p. 38). This construct, in most cases, is not measured directly but through dimensions (Liu, 2003; McMillan et al., 2002). Researchers have proposed various dimensions to capture interactivity (for a review see (McMillan et al., 2002)). The present paper focuses on three central interactivity dimensions, message contingency, real-time communication and control, which have been used in previous studies (Ariely, 2000; Liu, 2003; Williams et al., 1988).

The first purpose of the paper is to assess consumer perceptions of the three interactivity dimensions across three retail modes: physical stores, catalogues and web stores. Assessing consumers’ perceptions of interactivity dimensions is considered to be a subjective approach (McMillan et al., 2002). An objective approach is used to assess the presence or absence of interactive technologies (Heeter, 1989). Although objective assessment is valuable, the principal focus of much research is subjective assessment (Dholakia et al., 2003; Ha et al., 1998; Liu et al., 2002; McMillan et al., 2000). This approach can include the benefits of non-technological environments (e.g. conversation with salespeople in a physical store). The subjective approach has been adopted in this paper as it is most appropriate to capture interactivity in physical stores and catalogues (off-line retail modes), and compare it to interactivity in web stores (on-line retail mode).

The literature that looks at benefit has addressed the value of interactive characteristics to consumers in retail settings (Burke, 1997, 2002). However, not all interactive characteristics are valued equally by consumers. For example, Sundar et al. (2003) showed that in terms of message contingency, a highly interactive web site was less valued by consumers than a less interactive web site. Wolfenbarger and Gilly (2000) demonstrated that some consumers value the on-line channel because there is no real-time communication. Thus, a second purpose of this paper is to examine how the three interactive dimensions are valued in off- and on-line retail settings.

Message Contingency Dimension

Early work in communication studies defined interactivity in terms of message contingency – the degree to which messages are contingent on previous messages – and identified three levels: non-interactive, quasi-interactive and fully interactive (Bretz, 1983; Rafaeli, 1988; Williams et al., 1988). Non-interactive communication involves a one-way communication process (e.g. newspaper) in which the sender (e.g. editor) communicates messages to the receiver/s (e.g. audience); the roles are non-interchangeable and all messages are independent of each other. Quasi-interactive communication occurs in a two-way communication process where the roles of sender and receiver may be exchanged, but the message is a response only to the latest received message (e.g. feedback). Finally, a fully interactive communication occurs when the response message refers to the sum of all previous messages (e.g. reciprocal communication).

All levels of message contingency can be experienced in the three retail modes. Web stores can provide the three levels through web page links (Sundar et al., 2003) or communication with salespeople via e-mail or phone. In catalogues the pages provide consumers with a non-interactive content similar to newspapers. However, consumers can communicate with customer representatives via phone (e.g. a 1-800 number) which is considered a quasi-interactive communication (ask questions) or a fully interactive communication (exchange information). In physical stores, consumers also can practice quasi- and fully interactive communication; they can engage in reciprocal communication or give and receive feedback when conversing face-to-face with salespeople or other consumers.

Consumers may value some levels of message contingency more than other levels (Sundar et al., 2003). However, once they value a certain level of message contingency in one retail mode they should value it equally in other retail modes. Thus, consumers should value the quasi- and fully interactive communication in all three retail modes equally because all three retail modes offer these communication levels. Based on the above, the following is hypothesized:

H₁: With respect to *message contingency*,

- (a) Consumers perceive web stores to offer the same amount of quasi-interactive and fully interactive content as catalogues and physical stores.
- (b) Consumers equally value quasi- and fully interactive communication in web stores, physical stores and catalogues.

Real-time Communication Dimension

Although message contingency is an important aspect of interactivity, other dimensions have also been used to assess interactivity. One such dimension is real-time communication (Häubl et al., 2000; McMillan et al., 2002). This dimension focuses on response time in a two-way communication. Some researchers have labeled it as speed and synchronicity (Alba et al., 1997; Liu et al., 2002; Steuer, 1992). Real-time communication is considered central to interactivity because fully interactive communication may be delayed (e.g. via e-mail) or instant (e.g. face-to-face, via phone). Due to the time it takes, delayed communication is considered less interactive than real-time communication. Web stores usually offer delayed (e.g. e-mails) and real-time communication (1-800 number) while physical stores and catalogues usually offer only real-time communication. Physical stores usually offer face-to-face interaction with salespeople and catalogues usually offer a 1-800 number to speak with a salesperson.

Consumers might value delayed communication, even though it is perceived as less interactive, because they can fully interact with salespeople without direct contact (Wolfinger et al., 2000). Consumers sometimes might prefer to communicate their questions, concerns and feedback via e-mail when it is too personal or embarrassing. Web stores offer delayed communication but physical stores or catalogues do not. Therefore, consumers should value delayed communication more in web stores than in physical stores and catalogues. Real-time communication should be valued equally across the three retail modes as it is offered by all of them via phone or fact-to-face communication. Consequently, the following is hypothesized:

H₂: With respect to *real-time communication*:

- a) Consumers perceive web stores to offer delayed communication more than do physical stores and catalogues.
- b) Consumers perceive catalogues and physical stores to offer the same levels of real-time communication as web stores.
- c) Consumers value delayed communication more in web stores than in physical stores and with catalogues.
- d) Consumers value real-time communication equally in physical stores, with catalogues and in web stores.

Control Dimension

Finally, control over the content and the presentation of the messages is an interactivity dimension used by many researchers (Ariely, 2000; Bezjian-Avery et al., 1998; Liu et al., 2002; Roehm et al., 1999; Williams et al., 1988). In general, control has been viewed as consumers' ability to achieve mastery over the environment, which can contribute to personal well being (Hui et al., 1991). With respect to interactivity, control refers to consumers' ability to impact the exchange of information between them and the other party (Liu, 2003). When consumers can determine the sequence of the information they are exposed to, they exercise control over the form in which information is presented to them. A higher level of control over messages is considered more interactive than a lower level of control (Alba et al., 1997; Hanssen et al., 1996; Häubl et al., 2000; Williams et al., 1988).

Web stores provide consumers with a sense of control using links to navigate through pages of information (Ariely, 2000; Hoffman et al., 1996; McMillan, 2002; Roehm et al., 1999; Steuer, 1992). In addition, consumers feel themselves to be in control when they access the web pages at any time of the day (Liu, 2002; Wolfinger et al., 2000). Catalogues provide lower levels of control over the information sequence and the content that consumers view (e.g. flipping through pages) compared to web stores. Consumers have some level of control in catalogues viewing product information anytime/anywhere. Even so, the level of control consumers can exercise in catalogues is more limited than in web stores. In physical stores consumers might perceive themselves to have some control over the exchange of information with salespeople (e.g. asking questions). However, consumers depend on the salesperson's knowledge and willingness to share information, which reduces their perception of control.

Though consumers perceive levels of control to vary across retail modes, they should value the control dimension equally in all three retail settings. In physical stores consumers should value perceived control when they interact with service providers. In catalogues they should value the option of flipping through pages and being able to view the information any time and any where. In web stores consumers should value their control over the sequence, content, time and amount of information they view. Thus, the following is hypothesized:

H₃: With respect to *control*:

- a) Compared to catalogues and physical stores, consumers perceive web stores to offer more control over the content, sequence, time and amount of product information they view.
- b) Consumers value control over the content, sequence, time and amount of product information they view equally whether in physical stores, catalogues or web stores.

In-depth Interviews

Methodology

The in-depth interviews addressed two issues: (a) consumers' perceptions of the three retail modes in relation to the three interactivity dimensions, and (b) the value to consumers of experiencing the interactivity dimensions in each retail mode. In terms of perceptions, participants were asked to identify whether they perceive the three dimensions to be present in each retail mode. In terms of value, participants were asked to assess the value of these dimensions to them in each retail mode.

Sample. Ten teachers, four males and six females, from a technology-based charter school, participated in the interviews. The teachers were selected based on their knowledge of and experience with Internet technology. All teachers had a bachelor's degree and 4 of them had or were working on masters or Ph.D. degrees. Their ages ranged from 24 to 45 years. Five of them were married with children and five were single. The time the participants spent at home on the Internet varied significantly. The lowest amount of time spent was one hour per week. The highest amount of time spent was between four and five hours a day. Six out of the ten participants used the Internet for between one and two hours per day, mostly for work-related activities. All participants spent at least half an hour per day surfing the Internet for recreational purposes.

Method. Face-to-face interviews lasting about 1 to 2 hours were conducted. The interviews were taped and written transcripts were made later. The participants were presented with the questions prior to interview so they had time to prepare. At the end of the interview time was given to add comments and additional thoughts related to the subject. The content analysis was done manually identifying main motifs related to the two concepts, perceptions and value of the interactivity dimension in the three retail modes.

Results

Products purchased through the three retail modes. Participants buy their groceries and most of their clothes (90%) in physical stores. They use catalogues and/or web stores for special items/brands that physical stores do not carry. For example, one participant (male, married with a baby, in his thirties) said he was buying organic fabric clothes on-line. Mostly, shoes and boots are bought in physical stores unless the participants know exactly what they want and/or the items are on sale in catalogues or on-line. For example, one participant (female, married with teenage children, in her forties) said she was buying Teva sandals for the whole family through a catalogue because they were on sale and she knew what sizes she needed. Music CDs and books are frequently bought on-line. Two participants bought their cars on-line after they tried them out at dealerships. Special equipment (e.g. musical instruments, computers, camping equipment and model airplanes) is usually bought through catalogues or web stores.

Table 1 summarizes the responses of the interviewees. The table presents key points participants addressed in their interviews across the three dimensions and the three channels. Perceptions and value of the key characteristics were separated because participants tended to link them in their responses. Elaboration on these key points follows.

Table 1
Summary of the Interviewees' Responses

	Quasi- and Fully Interactive Communication	Real-time/Delayed Communication	Control
Physical Stores	Perceptions/Value: <ul style="list-style-type: none"> • Helpful and knowledgeable salespeople that can answer questions • Feedback from family and friends 	Perceptions/Value: <ul style="list-style-type: none"> • Easy and immediate access to salespeople • Face-to-face consultation • Contact with people as a social and recreational activity 	Perceptions/Value: <ul style="list-style-type: none"> • None
Catalogues	Perceptions/Value: <ul style="list-style-type: none"> • None 	Perceptions/Value: <ul style="list-style-type: none"> • None 	Perceptions/Value: <ul style="list-style-type: none"> • Detailed and specific information • Comparison across brands • Flexibility in browsing anywhere and anytime
Web stores	Perceptions/Value: <ul style="list-style-type: none"> • Can give feedback 	Perceptions/Value: <ul style="list-style-type: none"> • Speed, quickness • Enter anytime • E-mail reminders 	Perceptions/Value: <ul style="list-style-type: none"> • Compare prices • Search for product information • Read reviews • Sort and prioritize information • Avoid asking "stupid" questions • Customization of product attributes

Quasi- and Fully Interactive Communication. Participants mostly acknowledged this dimension in physical stores. In physical stores, consumers appreciated helpful and knowledgeable salespeople that can answer questions. Some participants mentioned the importance of receiving feedback from family members when buying clothes in physical stores. They were more comfortable with feedback from their family members than from salespeople. Participants also acknowledged the web stores' ability to handle feedback, which was of value to them.

Delayed and Real-time Communication. Participants stressed the importance of real-time (e.g. easy and immediate) face-to-face communication with salespeople or customer representatives in physical stores. Several participants viewed the interactive experience in physical stores as recreational and social, where they can meet with friends, see people and interact with family members. The social aspect of real-time communication is an important aspect of the interactive experience in physical stores.

In web stores, consumers perceived e-mails reminders as delayed communication that they valued (e.g. sales promotions, new products, new trends). In terms of real-time communication, web stores were valued for and perceived as being easy to enter at any time and allowing quick search for information.

Control. The control dimension was mostly mentioned in relation to web stores. Most participants said that they preferred web stores when they needed to search for product information. Some participants mentioned the importance of being able to read reviews, compare prices and look for price deals on the Internet. Some participants mentioned the ability to control the type and the amount of information they received through the web sites (e.g. prioritizing and sorting information). Control over gaining product information was valued by consumers as they did not have to ask salespeople “stupid” questions.

Three participants mentioned the benefit of being able to customize on-line product attributes for housing, music equipment and travel arrangements. One participant, who searched for houses on-line, customized his search for demographics that included crime rates, housing prices and schools (male, single, in his thirties). Another participant, who was interested in music equipment, could customize sound systems in the on-line stores (male, single, in his thirties). Finally, a participant, whose hobby was traveling, customized his travel information to suit his financial limits (male, single, in his twenties).

Interviewees perceived catalogues as providing brand comparisons and detailed specifications of products. They valued the ease of flipping through the pages and the flexibility of browsing through catalogues anywhere (e.g. bathroom) and anytime. Many participants perceive web stores as electronic catalogues. Some participants said that they compared catalogue information with corresponding web sites to check whether the catalogues were up-to-date with the latest information. The participants did not mention any of these benefits as present in physical stores.

Conclusion. The interviews suggest that consumers perceive off-line retail modes, physical stores and catalogues, as possessing interactive characteristics. These characteristics are valued by consumers while shopping. Consumers perceive physical stores to offer real-time quasi- and fully interactive communication with salespeople and other consumers. They value this type of communication when they need assistance from knowledgeable salespeople and feedback from their friends or family members. Web stores are perceived as offering control over product information (e.g. prices, reviews and customization). They are also perceived as offering delayed communication, in the form of e-mails, and real-time communication, in the form of easy and quick access to product information. Catalogues are perceived as offering some level of control as consumers can flip through the pages to find relevant information and have the flexibility to use it anywhere and anytime.

The in-depth interviews coupled with the literature on interactivity guided the development of the hypotheses and the design of the survey. In particular, the in-depth interviews assisted in determining the items that can measure the three interactivity dimensions. The next section discusses the purpose, design and results of the survey.

Survey

Methodology

The purpose of the survey was to validate the in-depth interview findings and to test the hypotheses. In the survey, perceptions and values were measured separately. The perceptions and values of the off- and on-line retail modes were compared using eight items that correspond to the three dimensions.

Sample. Ninety-four students from a medium size northeastern university participated in the survey. They were recruited from marketing classes and received extra credit for their participation. Table 2 summarizes the descriptive characteristics of the participants. The average age of the participants was 21, ranging from 19 to 23 years. More females (63%) participated in the survey than males, and most of the participants were seniors (90%). Almost everyone had a computer (96%) at home and was connected to the Internet (99%). When comparing their shopping habits across the three retail modes (physical stores, catalogues and web stores), 97% indicated that they shopped two times or more a month in physical stores, 21% indicated that they shopped two times or more a month from catalogues, and 44% indicated that they shopped two or more times a month from web stores. Thus, the participants were familiar with the three retail modes in terms of shopping experience.

Table 2
Descriptive Characteristics (N = 94)

Characteristic	Frequency (%)/Mean
Gender:	
Males	37%
Females	63%
Age	21.17 (s.d. = .62)
Year in college:	
Junior	10%
Senior	90%
Ownership of personal computer:	
No	4%
Yes	96%
Internet Access:	
No	1%
Yes	99%
Shops in physical stores (times per month):	
1 or less	3%
2-3 times	23%
4 or more	74%
Shops from catalogues (times per month):	
1 or less	79%
2-3 times	15%
4 or more	6%
Shops from web stores (times per month):	
1 or less	56%
2-3 times	26%
4 or more	18%

Method. Previous measures of interactivity could not be employed because all measures have been developed to assess on-line interactivity (Dholakia et al., 2003; Liu, 2003; McMillan et al., 2002). These measures have items that are not transferable to off-line retailers (e.g. “loads fast”). This led to the development of an exploratory assessment of eight items that correspond to the three dimensions. The items were formed based on the literature and in-depth interviews and measured differences among the three retail modes. The items are listed in Table 3. Because this paper is an exploratory study that examines whether consumers perceive off-line retail modes to be interactive, no attempt has been made to present a well-developed measure of interactivity that transforms these items into scales.

Table 3
Mean Differences of the Perceiving Dimensions of Interactivity in On- and Off-line Retail Modes

Interactive Characteristics	Physical Stores (PS)	Catalogues (C)	Web Stores (WS)	Significance levels (p<)	Related Hypotheses
Message Contingency					
1. Quasi-interactive communication (e.g. feedback)	4.13 (1.48)	3.68 (1.64)	4.61 (1.28)	C-WS: .01 PS-WS: NS	H ₁ (a) is partially supported
2. Fully interactive communication (e.g. reciprocity)	3.81 (1.49)	3.63 (1.56)	4.71 (1.40)	C-WS: .01 PS-WS: .05	

Interactive Characteristics	Physical Stores (PS)	Catalogues (C)	Web Stores (WS)	Significance levels (p<)	Related Hypotheses
Real-time Communication					
1. Delayed interaction	2.91 (1.26)	3.68 (1.72)	5.03 (1.41)	C-WS: .01 PS-WS: .01	H ₂ (a) and H ₂ (b) are supported
2. Real-time interaction	4.56 (1.34)	3.68 (1.72)	3.97 (1.56)	C-WS: .NS PS-WS: NS	
Control					
1. Control over message sequence	4.44 (1.76)	4.19 (1.80)	4.77 (1.26)	C-WS: NS PS-WS: NS	H ₃ (a) is not supported
2. Control over message type	4.47 (1.48)	4.42 (1.75)	5.00 (1.29)	C-WS: NS PS-WS: NS	
3. Control over time spent on the message	5.91 (1.20)	5.70 (1.34)	5.42 (1.52)	C-WS: NS PS-WS: NS	
4. Control over the amount of messages	4.97 (1.31)	5.03 (1.58)	4.71 (1.64)	C-PS: .NS C-WS: NS	

To assess perception of interactivity, participants were asked to rate the interactivity items on a 7-point scale ranging from “mostly absent” to “mostly present.” To assess the value of interactivity items, participants were asked to rate them on a 7-point scale ranging from “not at all valuable” to “very valuable.” Participants were randomly assigned to one of the three channels: physical stores, catalogues, or web stores. T-tests were employed to test for differences between the off- and on-line channels on the eight items. The results are presented in Tables 3 and 4 and the following section discusses them.

Table 4
Mean Differences of the Valuing Dimensions of Interactivity in On- and Off-line Retail Modes

Interactive Characteristics	Physical Stores (PS)	Catalogues (C)	Web Stores (WS)	Significance levels (p<)	Related Hypotheses
Message Contingency					
1. Quasi-interactive communication (e.g. feedback)	3.91 (1.63)	4.06 (1.55)	4.74 (1.41)	C-WS: .10 PS-WS: .05	H ₁ (b) is not supported
2. Fully interactive communication (e.g. reciprocity)	3.78 (1.58)	3.90 (1.54)	4.87 (1.57)	C-WS: .05 PS-WS: .01	
Real-time Communication					
1. Delayed interaction	3.13 (1.77)	3.61 (1.33)	4.71 (1.57)	C-WS: .01 PS-WS: .001	H ₂ (c) and H ₂ (d) are supported.
2. Real-time interaction	4.78 (1.52)	4.71 (1.64)	4.87 (1.57)	C-WS: .NS PS-WS: NS	
Control					
1. Control over message sequence	5.03 (1.38)	4.90 (1.60)	5.35 (1.36)	C-WS: NS PS-WS: NS	H ₃ (b) is mostly supported
2. Control over message type	5.19 (1.33)	5.55 (1.23)	5.87 (1.02)	C-WS: NS PS-WS: .05	

Interactive Characteristics	Physical Stores (PS)	Catalogues (C)	Web Stores (WS)	Significance levels (p<)	Related Hypotheses
3. Control over time spent on the message	5.91 (1.30)	5.71 (1.32)	5.35 (1.64)	C-WS: NS PS-WS: NS	
4. Control over the amount of messages	5.50 (1.39)	5.52 (1.41)	5.77 (1.15)	C-PS: .NS C-WS: NS	

Results

Message Contingency Dimension. Two items corresponded to the message contingency dimension: feedback-based communication as quasi-interactive, and reciprocal communication as fully interactive. In terms of consumers' perceptions, it was hypothesized that web stores would be perceived as providing as much quasi- and fully interactive communication as catalogues and physical stores (H₁(a)).

On average, quasi-interactive communication was perceived as being significantly higher ($p < .01$) in web stores ($M_{\text{web_stores}} = 4.61$, $s.d. = 1.28$) than in catalogues ($M_{\text{catalogues}} = 3.68$, $s.d. = 1.64$), but not significantly higher ($p > .10$) than in physical stores. Fully interactive communication was perceived to be significantly higher ($p < .05$) in web stores ($M_{\text{web_stores}} = 4.71$, $s.d. = 1.40$) than in catalogues ($M_{\text{catalogues}} = 3.63$, $s.d. = 1.56$) and in physical stores ($M_{\text{physical_stores}} = 3.81$, $s.d. = 1.49$). The results partially support H₁(a) indicating that physical stores were perceived to be as quasi-interactive as web stores but not as fully-interactive as web stores. Web stores were perceived as offering more quasi- and fully interactive communication than catalogues, and more fully interactive communication than physical stores.

In terms of valuing message contingency in communication, it was hypothesized that consumers would value equally quasi- and fully interactive communication in web stores, catalogues and physical stores (H₁(b)). The results do not support H₁(b), as web stores were valued more than the off-line retail modes in terms of message contingency, although one difference is marginal. Quasi-interactive communication was valued marginally more ($p < .10$) in web stores ($M_{\text{web_stores}} = 4.74$, $s.d. = 1.41$) than in catalogues ($M_{\text{catalogues}} = 4.06$, $s.d. = 1.55$) and significantly more ($p < .05$) in web stores than in physical stores ($M_{\text{physical_stores}} = 3.91$, $s.d. = 1.63$). Fully interactive communication was valued significantly more ($p < .05$) in web stores ($M_{\text{web_stores}} = 4.87$, $s.d. = 1.57$) than in catalogues ($M_{\text{catalogues}} = 3.90$, $s.d. = 1.54$) or in physical stores ($M_{\text{physical_stores}} = 3.78$, $s.d. = 1.58$).

Real-time Communication Dimension. Two interactivity items were employed to capture the real-time dimension: delayed and real-time communication. In terms of perceptions, it was hypothesized that web stores would be perceived as offering a higher level of delayed communication than physical stores and catalogues (H₂(a)). Real-time communication should be perceived equally present in all three channels (H₂(b)). The results support both arguments. With respect to the delayed communication item, web stores scored on average ($M_{\text{web_stores}} = 5.03$, $s.d. = 1.41$) significantly higher ($p < .05$) than physical stores ($M_{\text{physical_stores}} = 2.91$, $s.d. = 1.26$) and catalogues ($M_{\text{catalogues}} = 3.68$, $s.d. = 1.72$). With respect to real-time communication, web stores ($M_{\text{web_stores}} = 3.97$, $s.d. = 1.56$) on average were not perceived as significantly different ($p > .10$) from physical stores ($M_{\text{physical_stores}} = 4.56$, $s.d. = 1.34$) or catalogues ($M_{\text{catalogues}} = 3.68$, $s.d. = 1.72$).

In terms of valuing real-time and delayed communication, it was hypothesized that consumers would value delayed communication more in web stores than in the other two channels (H₂(c)) and would equally value real-time communication across the three channels (H₂(d)). Both arguments were supported. The results indicated that with respect to delayed communication, web stores scored on average ($M_{\text{web_stores}} = 4.71$, $s.d. = 1.57$) significantly higher ($p < .05$) than physical stores ($M_{\text{physical_stores}} = 3.13$, $s.d. = 1.49$) and catalogues ($M_{\text{catalogues}} = 3.61$, $s.d. = 1.33$). With respect to real-time communication, web stores ($M_{\text{web_stores}} = 4.87$, $s.d. = 1.57$) were not valued on average significantly more ($p > .10$) than physical stores ($M_{\text{physical_stores}} = 4.48$, $s.d. = 1.52$) or catalogues ($M_{\text{catalogues}} = 4.71$, $s.d. = 1.64$).

Control Dimension. With respect to consumers' perceptions, hypothesis H₃(a) was not supported. It was hypothesized that compared to physical stores and catalogues consumers would perceive the web store to offer a higher level of control over message sequence, message type, time of viewing the message, and the amount of messages viewed. Contrary to expectations, none of the four items that referred to the control dimension differed significantly across the off- and on-line retail modes (Table 3). Thus, according to the

results, consumers do not perceive web stores as more interactive than physical stores and catalogues in terms of control. In the discussion section possible explanations for these results will be suggested.

With respect to valuing control in the three channels, the results support hypothesis H₃(b) for three out of four items. It was hypothesized that consumers would value control equally across the three channels. For the items (a) control over message sequence, (b) time viewing the message, and (c) the amount of messages viewed) on average web stores were not valued significantly more ($p > .10$) than physical stores and catalogues. Control over message type was valued significantly more ($p < .05$) by consumers in web stores ($M_{\text{web_stores}} = 5.87$, s.d. = 1.02) than in physical stores ($M_{\text{physical_stores}} = 5.87$, s.d. = 1.33). No difference was found between web stores and catalogues. The next section summarizes the results, discusses research and managerial implications, and research limitations.

Discussion and Concluding Remarks

Most researchers examine interactivity on-line (Dholakia et al., 2003; Liu, 2003; Liu et al., 2002). This paper examined, through in-depth interviews and a survey, whether off-line retail modes are perceived to be as interactive as the on-line mode, and whether off-line interactivity is valued by consumers. Three dimensions were examined in relation to interactivity: message contingency, real-time communication and control. Web stores were compared to physical stores and catalogues on eight interactivity items that correspond to the three dimensions.

Message contingency. The results indicate that web stores are perceived as more fully interactive than physical stores and catalogues, and that both web and physical stores are perceived as quasi-interactive. Both studies reveal that in terms of message contingency, catalogues are not perceived to be as interactive as web stores. These results do not support the hypothesis arguing that physical stores and catalogues should be perceived as quasi- and fully interactive as web stores (H₁(a)). One possible explanation is that consumers refer to different types of interaction when assessing these concepts. For example, respondents probably compared flipping through catalogue pages (non-interactive) with clicking on page links in web stores (quasi- or fully interactive). However, if respondents compared speaking with a salesperson to order a product from the catalogue (fully interactive) with that of e-mailing a salesperson inquiring about a product in a web store (quasi-interactive), the results might be more consistent with the hypothesis. Physical stores could have been perceived to be not fully interactive because usually consumers only ask specific questions in physical stores (quasi-interactive communication).

Real-time and delayed communication. Web and physical stores were perceived as offering real-time communication. Catalogues were perceived as offering real-time communication in the survey. Delayed communication was perceived to be more available in web stores than in physical stores or catalogues.

Control. The in-depth interviews indicate that catalogues and web stores offer control over the information content. Web stores also offer control over the information format. The survey reveals that consumers perceive all three channels to offer control over content, sequence, time and amount of information. It was originally assumed that web stores would be perceived as offering more control than physical stores and catalogues (H₃ (a)). The results do not support this argument. Control is a broad term and can mean different things to different people. Some people might associate it with communication with other people; others might relate it to links on web pages. Thus, control might not be an appropriate dimension of interactivity to compare on- and off-line retail modes.

Value of interactivity. Participants in the in-depth interviews did not distinguish clearly between perception and value of interactivity. The survey suggests that consumers value quasi- and fully interactive communication in web stores more so than in physical stores and catalogues. In addition, delayed communication is valued more in web stores than in the other two channels. Real-time communication and control are valued equally across the three channels. These results support value-related hypotheses except for H₁(b) which stated that quasi- and fully interactive communication would be valued equally in physical stores, web stores and catalogues. The results indicate that consumers value quasi- and fully interactive communication more in web stores than in catalogues and physical stores. One reason might be that in physical stores and through catalogues consumers try to avoid asking questions or communicating with salespeople if they can help it. Although they perceive physical stores to offer quasi-interactive communication, they might try to avoid it not to look "stupid" as one of the interviewees stated. In catalogues, consumers might fill out the order forms without having any contact with salespeople.

Also, as with the control dimension, message contingency might not be an appropriate dimension to measure interactive differences across on- and off-line retail modes. Consumers might not be able to

differentiate between human interaction in physical stores and catalogues, and clicking through page links in web stores. Further research is needed to examine different causes for the message contingency result.

Although this study is exploratory, the results have important implications for consumer research. Researchers may need to re-conceptualize interactivity to address off-line retail modes. One question researchers need to address when conceptualizing interactivity is what dimensions should be included. Control for example may not be appropriate to measure differences across on- and off-line retail modes. Consumers might interpret control differently in off- and on-line retail modes. Other dimensions such as customization or playfulness might be more suitable to use in comparing on- and off-line retail modes (Ansari et al., 2003; Ha et al., 1998).

Another important question researchers can investigate is how the perception and the value of interactivity across retail modes influence consumers' retail channel preferences and what multi-channel strategies could be preferred by consumers. For example, when web stores offer only e-mail communication for questions and clarifications, consumers might prefer shopping through a catalogue if they value speaking to a company representative on the phone over sending an e-mail.

Managerial Implications

The results from both studies have significant implications for practitioners. The perception and value of interactive dimensions in off-line channels indicate that consumers might be more willing to combine channels while shopping and not substitute off-line channels for the on-line channel (Lu et al., 2006). Thus, practitioners should consider developing multi-channel strategies to utilize consumers' perceptions and the value they place on interactivity in the different channels.

Many retailers have started to develop multi-channel strategies realizing that web stores cannot provide all the interactive aspects of the shopping experience. In many stores consumers can order on-line and pick up the merchandise off-line to save shipping costs (e.g. Barnes and Noble). Consumers also can order the products on-line and return them off-line to simplify the return process (e.g. Loft). Thus, retailers build on their off-line channels to complement consumers' on-line interactions.

With respect to the three dimensions, retailers can increase consumers' satisfaction when they design multi-channel strategies in order to increase consumers' perception of interactivity. For example, stores like Best Buy could allow consumers to customize the catalogues they receive in the mail as reminders of sale promotions. Consumers might be able to customize not only the brands and products presented in the catalogues but also the number of times they prefer to receive them and the type of information that is important to them. Consumers might be able to customize on-line real-time interaction with knowledgeable salespeople in physical stores. They might be able to choose with whom they would like to interact (a specific salesperson or an expert in a specific field) and also when they can interact with that person, so the salesperson is available when they arrive at the store.

Ling-Ling and Jia-Yan (2006) argued that expert consumers perform better in high-information environments and novice consumers perform better in low-information environments. Integrating the off- and on-line channels can reduce the overload of information for novice consumers. When non-expert consumers have control not only over the information presented to them in web stores but also the information provided to them through catalogues and in physical stores, their satisfaction level from the shopping experience might increase dramatically.

Cross-cultural differences of shopping preferences could be assessed when examining perceptions and the value placed on interactive dimensions of the three retail modes. As retailers expand into different national cultures, matching multi-channel strategies to those cultures can increase shopping behavior. For example, Lu and Rucker (2006) found that Chinese consumers seek convenience when shopping across the three channels. Thus, retailers entering the Chinese market should design strategies that integrate interactive dimensions of the on- and off-line retail modes (e.g. higher control on-line and more real-time interaction off-line) to increase consumers' perception of convenience.

Limitations

An interactivity measurement should be developed to assess on- and off-line retailers' interactivity and validate the results of the two studies presented here. The items measuring interactivity dimensions used in the survey have not been designed to form scales for the three dimensions. Future research should employ more rigorous methods to develop scales that represent the three dimensions.

Although the in-depth interviews sampled a more diverse population, the survey used a sample of college students. A more diverse sample in terms of age should be surveyed to test the stability and generalizability of the results presented in this paper. Other age groups might perceive the channels differently based on different shopping experiences. A more mature segment might be using catalogues more frequently, for example, and perceive it as more interactive than a younger segment might.

The participants in both studies were not addressing a specific product category or industry thus some validity issues might be of concern. A broad term was used for physical and web stores to evaluate general perceptions. Differences within these two retail categories based on type of product category (e.g., music vs. apparel) have not been measured. Future research should compare perceptions and value of the two retail types within a specific product and/or industry domain.

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