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Impact of Interactivity on the Stickiness of Online Gift Stores

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Keywords: Internet, Performance, Online stores, Interactivity

Abstract
Store traffic is an important objective in retailing. This study shows that an increase in the level of Interactivity is associated with an increase in the level of hedonic and utilitarian value, which in turn is associated with an increase in the level of stickiness. When the level of stickiness is increased, store traffic increases as well. It also shows that the relationships tend to be non-linear and that there will therefore be an upper bound on the effects of interactivity on stickiness.

Introduction
How can you keep people coming back to your store's website? What generates the appeal that draws people to your online store? How can an online operation expect to succeed if it cannot retain existing customers' visits and draw new customers? While a number of traditional retailing elements are important (merchandise selection, pricing), there are also unique issues for "etailers" (online retailers). Clearly, the website design, i.e., sensory appeal (in particular visual appeal), is important, as it is for a bricks and mortar store (Spangenberg, Crowley, & Henderson, 1996). But a new issue specific to online retailers has arisen: the success of the user interface (Ariely, 2000). This study investigates a major feature of the interface, the degree of web site user interactivity.1

How does the degree of interactivity affect the appeal of the website? More importantly, rather than just listing interactivity features and correlating them with appeal, this study places the role of interactivity into a theoretical framework. The concept of the "appeal" of a website is defined as "stickiness". Theoretical propositions are then tested using a consumer sample that viewed and evaluated 120 websites. Measures are developed for all constructs and the variance decomposition approach of (Finn & Kayande, 1997) followed.

Literature Review
In the past it was assumed that website usage would grow as web familiarity and web time increased. However, evidence in the United States is that people are cutting the number of web sites they visit each month from around 20 to 10 and that people are generally reducing the number of web sites they visit (Independent Business Weekly, 2000; WhartonNow, 2000). This implies that surfers are starting to pick their favourite web sites and settling on a fixed set. Soon, the store traffic of most web sites will be threatened because surfers might drop up to half of the web sites they currently visit (Independent Business Weekly, 2000). When a consumer visits an online retailer, it is critically important that they be satisfied, even if they do not buy anything at that time, so they will retain the site in their stable and come again the next time.

Store traffic has always been an important objective in retailing Moe & Fader, 2001: Peter & Olson, 1999). Peter & Olson (1999) define traffic as the total number of customers visiting a
store. This clearly includes both first time visitors as well as revisits from customers. Store traffic is important because once the customer is in the store he/she is exposed to the product offerings and such exposure presents an opportunity to make a sale. Total store traffic will only grow when new visitors and returners outstrip non-returners. Thus, both of these sources of traffic are important in building and maintaining store traffic.

The principle of the importance of store traffic applies to online stores as well. Online stores are web sites that offer direct sales through an electronic channel via the Internet. They cover a variety of categories ranging from books, electronic software, and hardware to gifts and travel. Existing theory on store traffic and its benefits to bricks and mortar stores should also be transferable to stores on the Internet (Lohse & Spiller, 1999).

If web sites do not attract revisits as well as new visitors, they will risk being left out of surfers’ favoured set of web sites (Business Week, 2000). The issue is how does a web site increase or maintain its store traffic?

Ghose & Dou (1998) identified interactivity as a means to increasing store traffic through attracting first time visitors to a web site. The importance of designing interactive web sites has been noted from the very earliest days of the Internet (Alsop, 1995; Foskett, 1996; Rushbrook, 1995). However, we have only just begun to place the impact of interactivity on web site performance into a theoretical framework and test its effects.

Ghose & Dou (1998) found that the more interactive a web site is, the more likely it was to appeal to experts. They took this to mean that it was then more likely to be propelled onto an expert ranking list. Once these interactive sites are on such a list, the number of first time visitors to that site is assumed to increase as a result of both the simple exposure (through the ranking list) and the implied recommendation. Thus, while the Ghose & Dou (1998) study was important for their listing of interactive elements and linking them in some way to appeal, other issues remain to be examined. For example,

1. Does interactivity appeal directly to consumers as well?
2. Does interactivity have an impact on the likelihood of consumers revisiting the web site?
3. What are the factors that explain the positive appeal of interactivity?

Interactivity then is a concept that is intuitively useful and yet researchers have neglected it. This article contributes to the literature by extending the work of Ghose and Dou (1998) and relating interactivity to store traffic through the concept of stickiness.

Many Internet writers regard "stickiness" as an important attribute for a web site to possess (Business Week, 2000; Economist, 1999; Kippola, 1999). Stickiness is defined as the positive characteristics of a web site that maximize the duration, frequency and depth of a user’s visit (Gillespie, Malay, Oliver, Olsen, & Thiel, 1999).

In order to create a web site that is sticky, it is necessary to understand what the attributes of a sticky web site are. Stickiness is the result of a web site that offers perceived value to visitors. The value can be either hedonic or utilitarian (Babin, Darden, & Griffin, 1994). The utilitarian value of a web site has been investigated and found to be related to interactivity (Haubl & Trifts, 2000), while utilitarian value has also been related to stickiness (Leong, 2000). In addition, exchange theory (Homans, 1961) suggests that consumers would continue to engage in a transaction only if provided with some form of value. In the context of store traffic, this means that consumers will only revisit the store if they perceive some
form of value (utilitarian and/or hedonic). Thus, exchange theory (Homans, 1961) provides
the conceptual link between utilitarian and hedonic value with stickiness.

These theories taken together lead us to develop the conceptual model shown below in
Figure 1.

![Figure 1: Conceptual Model]

**Conceptual Development**
The section of the paper elaborates each of the links in the model in Figure 1 and identifies
the pertinent literature associated with each of those links.

**Interactivity**
The definition of Interactivity has been adequately established in Hoffman & Novak's
(1996) work. We will use their definition in this article, which we paraphrase as:
The capacity to facilitate dialogue between people and systems as well as between two or
more people. Thus this incorporates both automated responses, such as calculators, and
individual responses, such as chat rooms. For example, a potential customer looking for
information on a company's products may engage with the website in their pursuit of that
information. If the website facilitates that pursuit, either through automated means (e.g.,
search engines or detailed menus) or through person interactive means (e.g., chat rooms for
contact with staff or other customers), then that website displays interactivity.

**Impact of Interactivity on web sites**
Interactivity has been identified as a key component of the appeal of web sites (e.g.,
Merrilees and Fry 2002, Haubl and Trifts 2000). In addition, the relationship between
interactivity and appeal of web sites was tested by Ghose & Dou (1998) and it was found
that the two constructs correlate highly. A model illustrating the relationship among the
factors of interest in their study is shown in Figure 2 below:
Complete circles represent factors that were tested while dotted circles represent factors that were assumed in the research. Corporate web sites were used in Ghose & Dou's (1998) test and it was found that an increase in interactivity (number of interactive functions) was associated with an increase in appeal of the web sites. Appeal was defined by Ghose and Dou as a positive evaluation of the web sites and is measured by the Inclusion of a corporate web site on the Lycos top 5% list in the year of their study. The "Lycos top 5%" list contains websites selected by experienced Lycos staff on the basis of "quality" (an unspecified construct) of the site. Once a web site is included in the list, it would have a higher chance of attracting consumers because of both exposure and the Inferred "quality" recognition from Lycos' experts. In addition, if the Lycos staff opinion is representative of or predicts consumers' evaluations then the web site will also be more appealing to consumers who actually visit the web site. This is an assumption made by Ghose and Dou (1998).

Some important issues remained unanswered by the study. Firstly, Ghose & Dou (1998) argued that web marketers need to Incorporate Interactivity into their web site in order to compete for a place on a list that only contains the top 5% of web sites on the Internet. This means 95% of the web sites will fail to make the list. Does this mean that Interactivity offers no benefits to 95% of the web sites on the Internet?

Secondly, Ghose & Dou (1998) assumed that if a web site appealed to experts, it would appeal to consumers as well. This underlying assumption was not tested in their study.

Thirdly, Ghose & Dou (1998) offered no explanation as to why interactivity is positively related to store traffic. Lastly, the Ghose & Dou (1998) study focused only on one aspect of store traffic, first time visitors, while leaving out surfers who revisit the web site (who may well buy more as they know where they are going and can be assumed to be returning deliberately). These issues regarding interactivity and its appeal represent gaps in the literature that the present research attempts to fill.

**Stickiness**

In the following paragraphs, the discussion will focus on the importance of stickiness and the various attempted definitions of stickiness. In this research we will use DeFigueiredo's (2000) implied definition of stickiness which we paraphrase as: stickiness consists of mechanisms on the web site that encourage consumers to stay on as well as visit the web site frequently. DeFigueiredo (2000) specifically discusses site-specific advantages, such as
ease of navigation, interactivity, and the level of involvement with the site. This implies that surfers are seeking specific benefits (e.g., hedonic or utilitarian) and that providing these benefits will lead to return visits.

**Importance of stickiness**
As stated earlier, it has been reported that consumers in the United States are reducing the number of web sites they visit regularly by about 50%, from around 20 to 10 each month (Independent Business Weekly, 2000). This may reflect the maturing of the novelty value of the Internet, a response to increasing web clutter, and that surfers are starting to pick their favourite web sites and settling down on a set.

Therefore, it is important to make a web site sticky in order to both attract consumers to visit the web site and to adopt it as one of their regularly used web sites. The benefit of stickiness is that it helps to boost store traffic, which is a key objective in retailing (Peter & Olson, 1999). As mentioned, store traffic is an important objective because once the customer is in the store, he/she is exposed to product offerings and such exposure will likely increase the probability of store sales. Hence, stickiness is an attribute of a web site that is much sought after.

In addition, the importance of stickiness is reflected in its use by Internet industry experts as a measure of the performance of a web site. For example, the level of stickiness of a firm’s web site is an important consideration when evaluating its stock value (Kippola, 1999). Stickiness has also been used by potential advertisers who are seeking an attentive audience (PANewswire, 2000).

Hence, stickiness is important and provides many benefits to web marketers. However, very little theoretical and empirical research has been done on stickiness, representing a major gap between theory and practice.

**Hedonic and Utilitarian Value**
The conceptualisation of value in a physical shopping context consists of two dimensions: hedonic and utilitarian value (Babin et al., 1994). Hedonic value reflects the entertainment value and emotional worth derived from shopping as a pleasurable experience (Babin et al., 1994), while utilitarian value is viewed as an errand or work where shopping is functional and the shopper seeks only to successfully complete his/her shopping task (Babin et al., 1994). The two constructs are related yet distinct, where one dimension might be more relevant in certain cases than the other dimension (Batra & Ahtola, 1991).

Similarly, this conceptualisation of value may be applied to shopping in an online store since it captures the general outcome that consumers seek from shopping in general. In addition, it seems applicable in an online context, since shopping on a web site includes other subjective experiences that can arise from surfing around the store. For a detailed discussion of the hedonic and utilitarian shopping value, see (Babin et al., 1994).

**Interactivity and Hedonic Value**
When users experience hedonic value on a web site, they find the activity of surfing itself enjoyable (intrinsic enjoyment), which means users can enjoy surfing on the web site purely for the sake of it with no intended goals in mind.

The core idea of hedonic value is a focus on enjoying the activity by itself without necessarily achieving another goal. Hedonic value reflects the entertainment value and emotional worth derived from shopping as a pleasurable experience (Babin et al., 1994).
Thus, the more interactive a web site is, the more control and fun it provides a user, resulting in higher levels of hedonic value.

This leads us to our first hypothesis:

**H1: There is a positive relationship between Interactivity and hedonic value.**

*Interactivity and Utilitarian Value*

Consumers will receive utilitarian value only when certain goals are accomplished. Examples of these goals include the purchase of a product, the collection of information and the performance of these tasks in an efficient manner. A unique characteristic of the online shopping environment is that it allows the implementation of a very high degree of interactivity. Interactivity helps consumers achieve these goals through *reducing* search costs and assisting them in their product evaluation (Haubl & Trifts, 2000). Interactivity allows the collection of more information about the web site's merchandise, usually in a less tedious manner, than by traditional methods. Based on the above evidence, it is plausible that Interactivity can provide utilitarian value to consumers. A detailed discussion of the relationship between interactivity and utilitarian value, including a discussion of decision-making can be found in (Leong, 2000).

This leads us to our second hypothesis:

**H2: There is a positive relationship between interactivity and utilitarian value.**

*Hedonic value and stickiness*

Exchange theory (Homans, 1961) states that human beings learn to expect certain behaviours from others in response to their own actions. In the exchange, feelings such as affection and respect are extended to those who act in ways that are valued, thus reinforcing their behaviour. Similarly, people respond with dislike and blame to those who cause them distress. One result of this process is that regular habits of interaction become established and people develop notions of fair exchange in which rewards are seen as commensurate with costs (East. 1997). This indicates that an exchange between two parties must be perceived as being of value to both to ensure a continuous relationship. Similarly, on the Internet, the principle of fair exchange applies. A web site has to provide consumers with some form of value in order to encourage visitors to stay longer and to attract consumers to revisit the web site. Thus, a web site has to provide hedonic value in the form of entertainment or enjoyment to make a web site sticky. Furthermore, Nel, Niekerk, Berthon, & Davies (1999) identified hedonic value as a predictor of stickiness through intention to return providing additional support for the linkage between these two constructs.

This leads us to our third hypothesis:

**H3: There is a positive relationship between hedonic value and stickiness.**
**Utilitarian value and stickiness**

The study by Haubl & Trifts (2000) stopped at testing the relationship between interactivity and its usefulness in helping consumers make decisions. Haubl & Trifts (2000) did not go beyond this link to test whether perceived usefulness translates into tangible benefits. Similar to earlier discussion on hedonic value and stickiness, exchange theory (Homans, 1961) can also be used to explain the possible linkage between utilitarian value and stickiness. For example, a consumer will only return to a web site if he/she receives some form of utilitarian value through the web site helping him/her with a purchase decision. Therefore, based on exchange theory (Homans, 1961), it is plausible to suggest that a relationship exists between utilitarian value and stickiness of web site.

This leads us to our fourth and final hypothesis:

**H4: There is a positive relationship between utilitarian value and stickiness.**

**Method**

**Unit of analysis**

In studying the relationships in this research, it is first essential to establish the correct unit of analysis (Finn & Kayande, 1997). Here, the unit of analysis is the gift shopping web site with particular interest in scaling the characteristics (design) of the web site.

**Variance Decomposition Analysis**

Given that the unit of analysis is the web site, typical respondent based measures of validity and reliability are inadequate (Finn & Kayande, 1997). This implies that it is essential to measure the web site’s characteristics as accurately as possible. To that end, a variance decomposition of the measurement in question was conducted to establish how best to address this problem. The decomposition is shown in Table 1 below.

<table>
<thead>
<tr>
<th>Table 1 Variance Decomposition Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\sigma^2$ (observed score) = $\sigma^2$ (web site)</td>
</tr>
<tr>
<td>$\sigma^2$ (respondent)</td>
</tr>
<tr>
<td>$\sigma^2$ (questionnaire)</td>
</tr>
<tr>
<td>$\sigma^2$ (environment)</td>
</tr>
<tr>
<td>+[I (interaction), $\sigma^2$ (random error)]</td>
</tr>
</tbody>
</table>

* True characteristics of web sites: $\sigma^2$ (web site)
* Subjects who rated the web sites: $\sigma^2$ (respondents)
* Measurement scales for rating web sites: $\sigma^2$ (questionnaire)
* Setting where subjects rated the web sites: $\sigma^2$ (environment)
The variance decomposition indicates that it is essential to control a number of factors to avoid excessive noise drowning out the signal related to the characteristics of interest. To that end, we have chosen to limit the study to a single industry (we chose the gift industry), we chose to minimize respondent based variation by recruiting self-defined experts (we chose students who identified themselves as using the Internet on a regular basis), we chose to minimize environmental effects by conducting the study In a controlled, laboratory environment, we used a cross sectional approach to avoid issues associated with time lags and the rapid changes in web site design.

**Sample Design**

The sample of web sites for this study was developed through the use of a leading search engine. All sites that self-identified as gift sites and had more than five products on otter and more than three different product lines available were chosen to participate in this research. This resulted in 120 gift sites being used for the study.

**Instrument**

Measurement scales for each of the four constructs (Interactivity, Hedonic Value, Utilitarian Value, and Stickiness) were either taken from the literature (Babin et al., 1994 -- hedonic and utilitarian value); (Novak, Novak, & Yung, 2000 - interactivity), or developed from focus groups following the strategy suggested by (Churchill, 1979-stickiness). The scales went through three pre-tests and were modified until satisfactory reliability and validity scores for the unit of analysis (web sites) were obtained. The final version of the scales is contained in Appendix A.

**Data Collection**

Personally administered surveys were used on 72 respondents, each of whom evaluated six web sites resulting in each web site being evaluated a minimum of three times. Each person evaluated one common web site, which was used as a base-line measure for the remainder. The data were collected over two days on a university campus in a computer lab. Respondents were recruited from randomly chosen classes of undergraduate students on campus. Once in the computer lab they were given a scenario in which they were required to find a gift for a close friend or family member and they were given a set of six gift sites to look at in turn and from which they were expected to make their choice. The context was chosen to motivate the respondents in their exploration of the web sites and thus to experience more of what the site had to offer. As a thank you for their participation, all participants received a packet of M&M’s chocolates.

**Data Preparation**

The data collected contained 10,800 data points (72 respondents*25 questions*6 web sites), of which 10 data points were missing. Given the low number of missing values, pairwise deletion was used. Observations for individual respondents were first normalized about the common web site measure. This ensured that all measurements were taken relative to a common, fixed point. Observations for each web site were then averaged across respondents. This eliminated differences in measurement due to variations in the range of perception of the respondents. The resulting 120 observations were then used in a structural equation model, the results of which are discussed below. Note that the web sites were assessed in a random order to avoid order effects.
Results
The two step approach suggested by (Anderson & Gerbing, 1988), was followed to establish an appropriate measurement model and test the structural model. However, given the relatively small sample size, bootstrapping was used to complete the second step. The measurement model resulted in the removal of a number of indicators. The final measurement model is shown in Figure 3.

![Figure 3: Measurement Model](image)

<table>
<thead>
<tr>
<th>Construct</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interactivity</td>
<td>0.91</td>
</tr>
<tr>
<td>Hedonic</td>
<td>0.85</td>
</tr>
<tr>
<td>Utilitarian</td>
<td>0.91</td>
</tr>
<tr>
<td>Stickiness</td>
<td>0.94</td>
</tr>
</tbody>
</table>
The measurement model had the fit characteristics shown in Table 2. The results provided support convergent validity, however, it was unable to establish discriminant validity between hedonic and utilitarian value. Those of the structural model (see Figure 4) are shown in Table 3.

<table>
<thead>
<tr>
<th>Table 2 Summary of Fit Indices for Measurement Model</th>
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<tbody>
<tr>
<td>GOF test</td>
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<tr>
<td>Absolute Indexes</td>
</tr>
<tr>
<td>χ² Value</td>
</tr>
<tr>
<td>Goodness-of-fit (GFI)</td>
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<td>RMSEA</td>
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<td>Incremental Indexes</td>
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<tr>
<td>Tucker-Lewis Index (TLI)</td>
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<tr>
<td>Comparative Fit Index (CFI)</td>
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<tr>
<td>Incremental Fit Index (IFI)</td>
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<tr>
<td>Incremental Fit Index (IFI)</td>
</tr>
</tbody>
</table>

The relationships between the goodness of fit for the structural model and the measurement model indicate that the structural model is a good fit for the data. Therefore, nomological validity is established. The bootstrapping (using the Bollen Stine bootstrapping technique (Bollen & Stine, 1992) and 2000 iterations) results produced a p score of .369 indicating that the model represents the data well.

Figure 4 provides an Illustration of the results of the hypothesized model that was tested using SEM.
H1: There is a positive correlation between interactivity and hedonic value.

As shown in Figure 4, it was found that Interactivity and hedonic value were found to be positively related \((r = .86, t = 10.69)\), providing support for hypothesis one. The \(r\) score of .86 suggests that interactivity explains a substantial portion of the variance in hedonic value. This means that when the perceived level of Interactivity of a website increases, the perceived hedonic value received by consumers also increases. For example, when the level of interactivity increases, the level of enjoyment and adventure experienced by consumers increases. Hence, the results from the research are consistent with previous work done by (Novak et al., 2000).

H2: There is a positive correlation between Interactivity and utilitarian value.

Next, Interactivity was positively related to utilitarian value \((r = .72, t = 8.66)\), providing support for hypothesis two. The \(r\) score of .72 suggests that interactivity explains a substantial portion of variance in utilitarian value. This means that when the perceived level of interactivity of a website increases, the perceived utilitarian value received by consumers also increases. For example, when the level of interactivity increases, the functions of the website are perceived by consumers to help them solve problems associated with purchasing and surfing through the website efficiently and easily. The fact that hypotheses one and two were supported (that interactivity is related to hedonic and utilitarian value) should be of interest to etailers. The implication is that an etailer designing or redesigning a website should pay particular attention to the way in which the site is designed to optimise their use of interactivity. Hence, the results from the research are consistent with previous work done by both Novak et al., (2000) and Haubl & Trifts, (2000) on the usefulness of interactivity in website design.
H3: There is a positive correlation between hedonic value and stickiness.

Hedonic value was positively related to stickiness ($r = .58, t=7.29$), providing support for hypothesis three. The $r$ score of .58 suggests that hedonic value explains a considerable portion of variance in stickiness. This means that when the perceived level of hedonic value of a web site increased, the level of stickiness of a web site also increased. For example, when the level of enjoyment and adventure experienced by consumer on a web site increased, the likelihood of using, bookmarking and returning to the web site increased. Hence, results from the research are consistent with previous work done by Nel, Niekerk, Berthon, & Davies, (1999) on the intention to return.

H4: There is a positive correlation between utilitarian value and stickiness.

Finally, utilitarian value was positively related to stickiness ($r = .40, t=5.33$), providing support for hypothesis four. The $r$ score of .40 suggests that utilitarian value explain a considerable portion of variance in stickiness. This means that when the perceived level of utilitarian value of a web site increases, the level of stickiness of a web site increases. For example, when the functions of the web site are perceived by consumers to help them by solving problems associated with purchasing or by assisting them to surf through the web site efficiently and easily, the likelihood of using, bookmarking and returning to the web site increased.

Hence, the results from the research are consistent with previous work done by Haubl & Trifts, (2000).

While the positive correlation between both hedonic and utilitarian values and stickiness is as expected, we might also wonder whether there is a situation in which too much was no longer desirable. Specifically, the relationship between interactivity and both hedonic and utilitarian value might be suggested to be quadratic. That is, that if the level of Interactivity passed some arbitrary point, the net benefit of further Interactivity is negative.

We checked for such a relationship in post-hoc analysis between interactivity and the two intervening variables, as well as between each of the two intervening variables and stickiness. We found that there was a significant ($p = 0.02$) non-linear component in the relationship between interactivity and hedonic value, but not between interactivity and utilitarian value ($p = 0.5$). Interestingly, this implies that the two values (hedonic and utilitarian) are distinct, despite our inability to establish discriminant validity in the measurement model discussed below.

Further, our investigation also found that there were marginally significant effects between both hedonic and utilitarian values and stickiness ($p = 0.08$ and $p = 0.06$) respectively. Also of interest was that the signs for the quadratic were negative, as expected, irrespective of whether the relationship was significant or not. Finally, we also found a non-linear relationship between interactivity and stickiness ($p = 0.01$).

In summary, there is a positive correlation among the four constructs: interactivity, hedonic and utilitarian value and stickiness. This means that when interactivity increases, hedonic and utilitarian value will also increase. The Increases of hedonic and utilitarian value are associated with an increase in stickiness of the web site.

The research was unable to discriminate between hedonic and utilitarian value in its measurement, despite the two constructs being supported as distinct in theory (Babin et al., 1994; Batra & Ahtola, 1991). This might be due to natural phenomena in the e-tailing
industry, where web sites that are high in hedonic value are also high in utilitarian value, and vice versa. Alternatively, it may also be due to a halo effect, where respondents who liked the website, simply rated it highly on both scales. Given that the scales used for this study were established as effective and (able to discriminate between the two constructs) in past research (Babin et al., 1994; Batra & Ahtola, 1991), it seems unlikely that there is a problem with the measurement instrument itself and more likely that it is a context driven phenomenon as suggested above. Therefore, in this research, it was assumed that the measures were on target even though there was no support for full discrimination. Note as well, generalisability theory (Finn and Kayande 1997) suggests that this may result when moving from a situation where the unit of analysis was the unit of measurement, and is now something different as is the case here.

**Conclusion**

This research has filled the gaps in the current literature on consumer online behaviour through the synthesis of three research areas: hedonic value, utilitarian value, and stickiness. Through filling the gaps, this research has provided a fuller and more complete picture of interactivity and its tangible benefits to web managers.

The research has also extended the work of Haubl & Trifts, (2000) providing support for interactivity as not just simply a useful attribute of a web site but also a form of perceived value received by consumers. In addition, this research brought together two streams of literature, Interactivity and usefulness as well as utilitarian value. Lastly, the research has partially adapted and extended the application of utilitarian value from a physical shopping environment to an online shopping environment.

Next, we have established hedonic value as an important attribute of a sticky web site thereby bridging the gap between theory and practice. In addition, this research has also extended the link of interactivity to include stickiness, thereby, contributing to current literature on consumer online behaviour. Lastly, the research has successfully operationalised and tested the concept of stickiness.

Finally, this research has established utilitarian value as an important attribute of a sticky web site thereby closing the gap between theory and practice. In addition, this research has also extended the link of interactivity and usefulness to include stickiness, thereby, contributing to current literature on consumer online behaviour.

**Implications for Marketers**

1. **Interactivity is relevant and beneficial to consumers in most or all web sites.**
   (Ghose & Dou, 1998) found that the greater the degree of interactivity in a web site, the greater was its likelihood of being included in a Top 5% Sites list based on experts’ ratings. The results of the current research show that interactivity appeals directly to consumers as well. Hence, interactivity clearly also benefits web sites that fail to earn a place on the Top 5% list.

2. **Interactivity has an impact on frequency of revisits**
   (Ghose & Dou, 1998) focused only one aspect of store traffic: first time visitors. This research demonstrates for web managers another incentive for increasing the level of interactivity of web sites: to make a web site sticky and increase revisits from surfers.
3. **Incorporate Interactivity into the design of web sites.**
The positive correlation our research found among interactivity, hedonic, utilitarian value and stickiness suggests that increasing interactivity is associated with an increase in stickiness of a web site, which is a vital and valuable goal for etailing. (Ghose & Dou, 1998) provide a long list of interactive features that can be considered as ways to increase interactivity.

4. **Provide both hedonic and utilitarian value.**
The finding of a positive correlation between hedonic value and utilitarian value with stickiness implies that consumers are looking for a complete shopping experience in an online environment, where shopping has to be perceived to have both entertainment and functional worth.
The implication to marketers is a need to design interactive web sites that create enjoyment, fun and adventure as well as helping consumers solve problems associated with purchasing or surfing through the web site efficiently and easily.

**Limitations of the Research**

1. **Confounding of hedonic and utilitarian value**
A weakness of the research study is its inability to establish conclusively discriminant validity for hedonic and utilitarian value. Hence, the two constructs are empirically confounded. However, these two forms of value may in reality both be typically achieved in well-designed web sites, and neither achieved in poorly-designed web sites, therefore being difficult to disentangle in empirical analyses of actual online retail web sites. Future research should approach this more experimentally. This would allow the researchers to determine a set of web sites that meet experimental design criteria for independence of the two scales prior to assessing the overall effects and thus avoid this problem.

2. **Use of single Industry**
The present study examined the correlation between interactivity and stickiness in a particular electronic shopping setting: the gift Industry. An important issue is that of the generalisability of the empirical results reported here in terms of to what types of online retail environment they may be expected to be relevant. While the task given to respondents is to purchase a gift, it can be easily changed to purchasing another product. In addition, the constructs of interactivity, hedonic and utilitarian value as well as stickiness were operationalised in a general manner, indicating that the results should be relevant to other retail industries as well.
However, a shortcoming of the study is that the constructs were assumed to be relevant but not tested in other industries.

3. **Applicable only to goal orientated directed shopping behavior**
Another limitation of the research stems from the fact that a task was given to respondents to perform. Therefore, the results of the research are only referred to the context of consumer’s goal directed shopping behaviour in an on line environment.

4. **Correlational study**
A limitation of this research is that it is cross-sectional and thus has not been able to establish conclusive proof for the existence of the proposed causal relationship among the
tour factors: interactivity, hedonic and utilitarian value and stickiness. Nevertheless, theory from the literature review does provide strong suggestions of a causal relationship.

5. Type of Interactive function
Finally, a limitation of this research is that it did not test the contribution of each interactive function to the level of Interactivity, hedonic and utilitarian value as well as stickiness of the web site. Therefore, recommendations are only made at a general level to improve the level of interactivity. It would be more useful if recommendations can be made on a specific level where managers can be advised on which specific interactive functions contribute most to the performance of the web site.

Directions for Future Research
1. Employ a controlled experimental design to establish causality.
A correlational study does not establish causality, but it can suggest the shape of an experimental design that would directly investigate causal connections among the variables. Furthermore, the issue of a lack of distinctiveness of both hedonic and utilitarian value implies the need of a controlled experiment to manipulate high and low levels of each independently (as in the real world they are correlated). Therefore, the effects of both hedonic and utilitarian value can be separated and measured as distinct constructs in future research.

2. Extend study to other environmental settings to test generalizability.
The study should be extended to different environmental settings, such as different Industries, to test empirically whether the theory can be applied across industries. For example, the sampling of web sites can include the travel, books or computers industry.

3. Exploratory navigation behavior.
Future study can test whether similar conclusions can be made from the findings when interactivity is tested in an exploratory surfing environment. For example, an experiment can be conducted where subjects are not given a specific task except to just surf freely for a period of time.

4. Type of Interactive function
Further research can be designed to investigate the Impact of individual interactive function on the hedonic and utilitarian value as well as stickiness of the web site. This would fit in well with a controlled experimental design that would then measure the Impact on consumers of the specific interactive functions (such as from the (Gl10se & Dou, 1998) list). In sum, the present study proposed and tested a theoretical framework linking interactivity to hedonic and utilitarian shopping value and those variables to the desirable goal of "stickiness." The study developed measures for those variables in a web context, assessed the reliability and validity of those measures, and found empirical support for the propositions via a structural equations model test.

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Endnote

1. The study does not cover other interface issues, such as speed of downloading.

References


Appendix

Appendix A - Construct Scales
All items were assessed on a nine-point scale labelled with Strongly Agree (1) Neutral (5) and Strongly Disagree (9)

Interactivity Indicators
The website is highly interactive
The range of what can be manipulated on the website is broad
At any time there are many different actions available to me as I navigate the website

Hedonic Indicators
Surfing on the website was truly a joy
I continued to surf on the website, not because I had to but because I wanted to
While surfing on the website, I felt a sense of adventure

Utilitarian Indicators
The website contains functions, which help me to surf through the website efficiently
The website contains functions, which make it easier for me to surf through the website
The website contains functions such as customisation to help me solve problems associated with purchasing a gift

Stickiness Indicators
I will most likely use this website in the future
I will most likely bookmark this website
I will most likely return to this website to surf deeper.