WEBSITE INTERACTIVITY
e-Commerce Usability Perspectives in Indonesia

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Abstract: Usability is a key factor of website that is commercially successful. Interactivity has been linked to website usability. This research confirms that improving website interactivity promotes website usability. In addition, the extension of previous research such as usability sub construct such as learn ability, memorability, efficiency, user error and self-efficacy are validated to improve the body of knowledge particularly on e-commerce research.

1 INTRODUCTION

The use of e-commerce alleviates Indonesian textile industries nowadays that are beset by economic crisis. As a matter of fact, using e-commerce increases firm's revenue up to twenty percent. Consequently, it increases firm's efficiencies in production and marketing as well (Kompas, 2004). The impact of internet on marketing and/or advertising has been very important in current years, and it continues to proliferate (Ha, 2003; Macias 2003). The internet exposes to advertising, giving consumers the discretion to participate to particular messages within the medium (Klein, 2003). Marketing has changed dramatically due to the development of the internet (Strauss and Frost, 1999) and since its inception; online marketing including e-commerce has seen rapid change (Rowley, 2001). Growing online competition and maturation of internet technology have underpinned the expansion of website factors, beyond extensive product offerings, customer convenience, ease of navigation, and security, that affect online marketing success (Choate, 2000; Liu et al, 2000; Lohse et al; 2000).

Unfortunately, this is not true for most formats of internet advertising, advertising formats such as buttons, spams, banners, hypertexts, pop-ups; bars are not requested by the receiver of the messages. These advertisements are commonly incorporated in portals, search engines, or media websites, reach large audiences (Ha, 2003).

When the consumers is interested, he or she clicks on one of these advertisings and begin to control the communication process, hence, advertising exposure is able to active (Chaterjee et al, 2003). Websites, therefore, represent the most important form of interactive advertising. Websites are based on information and communication technologies enable easy and quick interaction between consumers and marketers (Coyle & Thorson, 2001). In a website, individuals can interact with the medium itself, which is called *"machine interactivity"*. The machine interactivity allows consumers to control what information will be presented, in what order, and for how long. (Ariely, 2000).

Website interactivity is a design factor that has been indirectly linked to website usability. Furthermore, interactivity is defined as mutual communication between at least two entities, with website interactivity generally involving communication between a user and the website (Liu & Shrum, 2002). Research on website interactivity is still in its preliminary stages, and there is a theoretical gap exists in describing and foreseeing the linkage between usability and interactivity. Seemingly, it may be intuitive that websites with a high extent of interactivity are more usable than less extent of interactivity, there is little theoretical and empirical proof to support this notion. So far, research indicates that interactivity can be useful, value-neutral, or detrimental to a website, depending on the situations. So, understanding how interactivity affects usability is essential to the

progress of research on usability in e-commerce websites. (Liu, 2003).

Usability literature provides guidelines for improving website usability; however, many of these guidelines are not supported by theoretical and empirical evidence causing them incorrect, and inapplicable in some contexts. Accordingly, many usability guidelines largely ignore interactivity aspects of user engagement. Thus, practitioner-based usability guidelines will not necessarily provide appropriate levels of website interactivity. (Chen & Yen, 2004).

In response to the increasing demand for e-commerce, it becomes more important to promote recent usability literature with research based on validated theory and empirical data. This research is based on the improvement of the previous research undertaken by Lowry et al; 2006. That suggested to take into account on usability sub construct such as learn ability, memorability, efficiency, error prevention and self efficacy as suggested by Liu and Shrum (2002), aside from satisfaction, this research. In response to the existing gaps in interactivity literature we set forth some research questions:

- Should perceived measures of two way communication, active control and synchronicity highly correlated with each other?
- Is there any positive correlation between website interactivity and website usability?
- Is there any positive correlation between website interactivity and website usability sub construct satisfaction?
- Is there any positive correlation between website interactivity and sub construct self efficacy of user?

2 ITERATURE REVIEW

2.1 Interactivity

Most of the definitions of interactivity particularly refer to two-way communication and interchange in which two or more parties send related message to each other (Liu & Shrum, 2007). Pavlik (1996) defines interactivity as a process of reciprocal influence (p.135), while Alba et al; (1997) proposed that two dimension of interactivity generally focuses on face-to-face interpersonal communication, however, Ha & James (1998) contended that the definition of interactivity based on interpersonal communication is too restrictive to fit technical communication. This assertion is particularly relevant when considering work that takes place over the *WWW (World Wide Web)* and related technologies. In the technology point of view, interactivity concept includes both human beings and computers as parties in an interaction.

2.2 Website Interactivity

Website interactivity is pondered to be a subset of interactivity that focuses on the interaction between websites and users. In this regard, website interactivity is broadly defined as any action a user or a website takes a time, while a user is predetermined end-user goal with the website, such as accessing information-whether users are seeking specific information or just browsing. Other goals may include business transactions or even entertainment (Stomer & Galley, 2000).

Interactivity of a website offers facilitated communications, customization of presented information, image manipulation, and entertainment for the customer. (Mathwick, 2002). The interactive nature of websites has been credited with increasing the desire to browse and purchase online (Li et al; 2001).

According to Liu and Shrum (2002) a two-way communication, active control and synchronicity mold the basis of a powerful, yet simple. Further development in two way communication refers to bi-directional flow of communication between communicators. (Liu, 2003). **Active control** is present when a user is given the ability to choose information and guide the interaction. **Synchronicity** indicates the timing of information exchange; a more concurrent or simultaneous exchange between two entities is a more synchronous interaction than an exchange with a longer time lag between responses. These three sub-constructs of interactivity form the basis for exploring the relationship between website interactivity and website usability.

The effects of fulfilled and unfulfilled expectations and desires of interactivity in websites are preliminary supported by website interactivity research. Wu (1999) found out a strong, positive correlation between positive perceptions toward a website and interactivity. Liu and Shrum (2002) provide a literature review and theoretical proposition to support the notion that two way communication, active control and synchronicity improve interactivity and communication with websites. Lowry et al; (2006) research's to students taking Management Information System

coursework, supported Liu and Shrum's theoretical proposition that two way communication, active control and synchronicity have strong positive correlation with website interactiveness.

2.3 Website Usability

The more usable websites, the more positive attitude towards online marketing or e-commerce and increase repeated visit rates, while websites with low usability have the opposite effect. Nielsen (2003) defines **usability** in terms of learn ability, efficiency, memorability, user errors and satisfaction**.** Concerning website usability, Lowry et al; (2006) applied on his research, Nielsen's theoretical framework, but only for the satisfaction variable, since the researcher believed that satisfaction triggered website usability and ultimately, satisfied users revisited designated websites. However, Lowry et al (2006) suggested for future research to explore usability in terms of learns ability, efficiency, memorability, user errors. Lowry et al; (2006) used modified measure of satisfaction as developed by McKinney et al (2002) and found out that there was strong positive correlation between website interactivity and satisfaction. The attribute of subjective satisfaction used by Lowry et al (2006) refers to how pleasant a user finds it to use computer application or websites.

Self Efficacy influences people's choice of activities, how much effort they will expend, and how long they will sustain effort in dealing with stressful situations. Self efficacy expectations toward the emerging traditional computer-based learning systems are likely to influence how participants use the systems (Bandura, 1996). Users with high self-efficacy tend to be more persistent in their learning and more confident in their ability to use the systems. Disorientation is one of the problems that novice explorers tend to have while navigating within a cyberspace (Dias et al; 1999).

Lowry et al; (2006) suggested for future empirical research the use of self-efficacy to measure website usability. Previous empirical research done by Liu and Shrum (2002) also suggested exploring users' self-efficacy. We now operationalize hypotheses to test various elements of our theoretical extension of website interactivity to e-commerce website usability as follows:

H1 The perceived measures of two way communication, active control and synchronicity should highly correlate with each other.

H2 There is positive correlation between website interactivity and website usability.

H3 There is positive correlation between website interactivity and website usability sub construct satisfaction.

H4 There is positive correlation between website interactivity and sub construct self efficacy of user.

3 RESEARCH PURPOSE

This research entitled: Website interactivity: E-commerce Usability Perspectives aim at exploring the following:

- The perceived measures of two way communication, active control and synchronicity correlate with each other.
- The correlation between website interactivity and website usability.
- The correlation between website interactivity and website usability sub construct satisfaction.
- The correlation between website interactivity and sub construct self-efficacy of user.

4 RESEARCH SIGNIFICANCE

This study contributes to the theoretical understanding of how website interactivity relates e-commerce usability and its sub construct such as satisfaction and self-efficacy. Because user satisfaction, learn ability, memorability, efficiency, user error, and self-efficacy have been identified in defining website usability. Poor website usability may lead to the misgivings in e-commerce (Schneiderman, 2000). Rising interactivity shows potential method of promoting consumer trust in e-commerce websites via improved usability. A deeper understanding of the relationship between website interactivity and website usability provides several theoretical contributions by validating the theoretical models of Khalifa and Liu (2003), Liu and Shrum (2002), and extending research done by Lowry et al; (2006).

5 RESEARCH METHOD

We tested the website interactivity and website usability of website owned by Indonesian Association of Textile and Apparel Industries *(A.P.I/Asosiasi Pertekstilan Indonesia)* composed of twenty nine company members. The website can be found at http://www.textile.web.id, this association is an open membership association, willing to

bolster joint e-commerce on one website. So far, API website has been inviting new members to join. Consumers are able to surf various products offered by the association interactively. This website was chosen for three reasons (1) Textile and Apparel Industries is one of the backbone industries employing workers and generating fifth biggest income nationally (2) Website participants from both parties (consumers and producers) require interaction with the website to furnish the intended task (3) This website is unique since it is a joint-membership industries or industries association. The experimental design attributed website usability as dependent variable and website interactivity as the independent variable.

The participants were 31 students from a Management Information System class at Soegijapranata Catholic University in Semarang Indonesia. Participants were sophomore-level economics and business majors; 80% were female and 20% were male. All major protocols were followed e.g., informed consent. They were not asked to mention their name at the questionnaire in order to fulfill objectivity.

The participants were assigned to surf and explore the intended website at the campus computer laboratory for three consecutive days (4 hours times 3 days = 12 hours). They were assigned as *"ghost shopper"* or acting consumers that pretend to transact with the companies. Participants were asked to what they expected and decided from API or Indonesian Textile website. Each question was rated on 1 to 5 Likert-like scale.

6 RESEARCH FINDINGS

To test H1 - the perceived measures of two-way communication, active control and synchronicity should be highly correlated with each other-we used Pearson's correlations. These correlations provided support for H1 that was positively correlated to each other. However, two-way communication was correlated with active control slightly (0.231), whereas two-way communication correlated with synchronicity (0.477) significant at the 0.01 level (2-tailed). Active control correlated positively with synchronicity 0.444 significant at the level 0.05 levels (2-tailed). The weak correlation between two-way communication and synchronicity can be described that users faced a major obstacle particularly the degree of synchronicity with respect to internet speed and the responsiveness of website officers/masters to deal with the e-commerce users.

To test H2 - there is positive correlation between website interactiveness and website usability. The result was positively correlated between interactiveness and usability (0.656). Correlation was significant at the 0.01 level (2-tailed) which fully supported H2.

To test H3 - there is positive correlation between website interactiveness and website usability sub construct satisfaction. The result was positively correlated (0.271) but in a less sturdy sense and less statistically significant.

To test H4 - there is positive correlation between website interactiveness and website usability subs construct self-efficacy. The result was positively correlated (0.466). Correlation was significant at the level 0.01 (2-tailed), which fully support H4. We performed Npar test, and the distribution was normal.

6.1 Discussion

This research extended e-commerce website interactivity theory by testing the relationships with website usability. We found that perceived interactivity sub constructs of two-way communication, active control and synchronicity were correlated with each other. This finding bolstered the previous research done by Khalifa and Liu (2003); Liu and Shrum (2002) and Lowry et al; (2006). We also provided extension of usability sub-constructs in terms of learn ability, memorability, efficiency, user error and self-efficacy that was recommended for further study by previous researchers. We captured these ideas to carry out in our research and eventually, the result was website interactivity, significantly correlated with usability. However, contrary to the previous research done by Lowry et al; (2006), we found that website interactivity was not correlated with usability sub construct satisfactions.

These phenomena can be explained that technically speaking, network performance was lousy in the campus area and its surrounding; this caused slower internet speed especially during office hours. Users encountered with problems for wasting time. Dissatisfaction also occurred when the images appeared on textile website was not many and attractive. Apparently, the website designer purposely designed the minimum images and pictures to be posted in the website to enable faster download and upload time. Fiore and Jin (2003) found out that fewer images appeared on textile and apparel website e.g., 3 dimensions of virtual images, images of apparel examples dissatisfied the users.

Slow response from the webmaster or persons in charge to serve and entertain the users in fact, has dissatisfied them.

We came up in the study that website interactivity was strongly correlated with website usability sub construct self-efficacy. The interactivity of this textile website was related to the users confident to surf, obtain information and transact business on the website.

7 RECOMMENDATIONS & CONCLUSIONS

7.1 Limitations & Future Research

Limitation of this research is that although the increased interactivity benefits in our sample website, however, high interactivity is not necessarily always good. Sundar et al (2003) have suggested that there is point interactivity affects users negatively; this point may be based on the character of the individual. Future research shall explore the effects of high levels of interactivity on website users.

Another limitation is that our research only focused on textile website, with respondents who were college or university students. Future research should incorporate travel agents, flight agents, blogs and other types of websites etc and should also use research samples from populations other than university students.

Since we determined the designated purposely textile website for the respondents or participants in the interactivity research, for the future research we recommend to open the participants in opting their websites.

The shortcomings such as internet networks that decelerate the internet speed, lack of attractive images and pictures, unresponsive behavior of officer in charge should be taken into account; otherwise, user distrust will be prevalence to use e-commerce.

Limited number of participants or respondents was also the weakness of this research; therefore, future research should involve various internet users.

7.2 Conclusions

This research confirms that improving website interactivity promotes website usability. It extended e-commerce website interactivity theory by testing the relationships with website usability. We found

that perceived interactivity sub constructs of two-way communication, active control and synchronicity were correlated with each other.

Furthermore, result of the research was website interactivity, significantly correlated with usability. However, contrary to the previous research done by Lowry et al; (2006), we found that website interactivity was not correlated with usability sub construct satisfactions.

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