

Managing E-Loyalty through Experience Design

A. Summary of Proposed Research

E-business is a new frontier for buying and selling in the New Economy. To date, little attention has been paid to how trust and e-loyalty are developed in e-business contexts, especially with reference to cross-cultural differences. Consumer trust and loyalty have long histories as vital elements of building successful businesses. This research aims to move beyond traditional commerce theory and applications to look at conditions unique to building loyalty and trust in online environments. Trust and loyalty are complex ideas. The goal of the research is not to fully redefine these concepts, but rather to examine specific elements of trust unique to e-business, and recommend practices that enhance business success.

In particular, this investigation examines the user experience and user interface in three interrelated realms:

- (1) Trust Development in E-business - From a social-psychological perspective, the research will examine how trust and e-loyalty are built in online environments. This includes an examination of how relationships are built with customers related to service providers, products, and the company. The goal is to build a causal model of e-loyalty where cultural differences are tested for their differential influences.
- (2) Culturally Sensitive Interface Design – The user experience will be examined with careful attention to trust and loyalty-building features that draw from cultural symbols and styles. Components of this design involve language translation, but go beyond this to include cultural values, symbols, aesthetics (color, patterns, shapes), icons, graphics etc. that build a familiar, supportive experience for consumers.
- (3) Adaptive Designs for Mobility – As e-business migrates to mobile or wireless technologies (such as cell phones, Personal Data Assistants, and wearable devices), this research will investigate how the integrated design of such products and their interface can build loyalty and trust. Personal, wireless devices commonly made to fit definite engineering limits present interface and design challenges (e.g. for space or navigation) to support the multiple needs posed by diverse cultures and consumer contexts.

The research team at TechBC is uniquely positioned to undertake interdisciplinary research on these topics. Representing program areas of Management and Technology, Interactive Arts and Information Technology, the team has skills sets that are complementary and span the boundaries of integrated technology. In addition, the university has two major laboratory environments that support the research project. The Interactivity Lab at TechBC provides a backdrop for exploring man-machine interaction as an integral element of the user experience, while the EC3 Usability Lab provides a facility to assess and evaluate interface/user experience trials based on social, cultural, and affective criteria as well as more traditional performance related outcomes.

Numerous opportunities exist for partnerships with industry, drawing from the current industry contact base of the research faculty involved in this proposal. Potential partners include: The Design Management Institute; Dell Computer; Oracle; Microsoft; Nokia; and Philips; Samsung, among others. Further, at TechBC development of a Management and Design Institute is proposed that will provide programs that intersect management and design. This will be a unique initiative in Canada, and provides numerous developmental opportunities for learners in undergraduate, graduate and professional degree programs. In sum, the research provides an opportunity to explore and identify multidimensional characteristics of e-loyalty. If, as many scholars suggest, trust and e-loyalty will increase customer satisfaction and site revisits, then this investigation serves to promote Canada in the vanguard of e-business and design innovation, learning and development.

B. Program of Research

Objectives

The New Economy¹ poses complex opportunities and challenges in the realm of management and entrepreneurship. In recent years there have been profound shifts in how business is conducted, as well as how the consumer experience has been impacted by innovations in products and services. In this investigation it is proposed an interdisciplinary approach is required to investigate the customer or user experience related to how e-loyalty is constructed and maintained in e-business. This includes the development of trust on multiple levels including social-psychological tenets of trust building, user interface design issues, and the design for mobility. The proposed research has significant cross-cultural dimensions², although culture adaptation (termed localization³) of content in the context of e-business, and user interface design have received very little attention to date.

Consumer trust and loyalty have long histories as vital elements of building successful businesses. This research aims to move beyond traditional commerce theory and applications to look at conditions unique to building loyalty and trust in online environments. Trust and loyalty are complex ideas. The goal of the research is not to fully redefine these concepts, but rather to examine specific elements of trust unique to e-business, and recommend practices that enhance business success. More specifically the objectives of the research are:

1. Trust Development in E-business – In this portion of the project, issues around the development of trust in and between cultures is examined. The goal is to build a model of e-loyalty taking different cultures into account. As part of this research, topics of privacy, security and ethics are investigated as they relate to trust and e-loyalty. Key research question: *How are e-loyalty and trust built in online environments from a social-psychological perspective?*
2. Culturally Sensitive User Interface Design – It is expected building B2B (business to business) or B2C (business to consumer) trust on the Web will require user interface characteristics appropriate for culturally diverse audiences. Components of localized Web design involve translation, but go far beyond this to include colors, icons, graphics, symbols, page layout, navigation formats, etc. that comprise the overall user experience Key research question: *How does culturally-relevant user interface design cause growth in trust and loyalty in electronically-based businesses?*
3. Adaptive Design for Mobility – As electronic business migrates to mobile commerce or wireless technologies such as cell phones, personal data assistants, or wearable devices there is a requirement to determine how the integrated design of product and interface can accommodate user needs including trust concerns. Key research question: *How can product technologies be better designed to utilize cultural factors to build trust and e-loyalty among customers?*

¹ “New economy” refers here to the growing importance of Web-based, online business that is of increasing influence both to institutions and individuals, in Canada and internationally.

² A long and broad legacy of national culture exploration exists in the literature (Hofstede, 1980; Kluckhohn and Strodtbeck, 1961; Triandis, 1972). In the present context the focus of discussion is on the relationship of trust and national culture. However, the term national culture requires definition. Over the years the term has varied somewhat, and is now increasingly blurred as a result of globalization and economic integration (Fukuyama, 1995). As used here, the definition of national culture is aligned to that used by Doney et al (1998:607), and is “not a characteristic of individuals or nation states but of a large number of people conditioned by similar background, education, and life experiences.”

³ Localization is the process of adapting a product or service to a particular language, culture, and desired local “look-and-feel.” In localizing a product, in addition to idiomatic language translation, such details as time zones, currency, local color sensitivities, product or service names, gender roles, and geographic examples must all be considered. A successfully localized service or product is one that appears to have been developed within the local culture.

Context

E-business is the new frontier for buying and selling on the Internet. Proposing an inclusive view based on definitions presented in the literature, e-business is “the carrying out of business activities that lead to an exchange of value, where the parties interact electronically, using network or telecommunications technologies” (Jones et al, 2000). Not only is the exchange of goods and services part of the equation, but also important are transactions involving sharing of information and experience which may be valuable to partners in specific commercial activities. The authors add, “The new paradigm of e-commerce is but not just on transactions but on building, sustaining, and improving relationships, both existing and potential.”

The number of Internet users is growing exponentially, and has implications for e-business. From 1998 to 2003, market growth is expected to be 23% in the U.S., and 32.6% for non-US regions. The number of Web users outside the U.S. should exceed 60% in 2001 (IDC, 2000). Non North American regions represent the highest growth areas for the Internet and its applications, increasing the need to address culture and localization requirements to effectively sell Canada-based goods and services overseas. The global nature of the Web suggests Web site managers, online marketing executives, Internet product managers, and Internet companies generally must increasingly “think globally and act locally” (Clancy, 2000; Ger, 1999; Werbach, 2000).

Developing Trust and E-loyalty

Despite variations in business formats introduced by on-line sales and after sales service, earning the trust and loyalty of valued customers remains a valuable requirement. However, as Reichheld and Schefter (2000) acknowledge, the rules of the game are changing. In a traditional business context, trust is built through face-to-face contact or physical access to products. On the Web, where there is necessarily greater reliance on images and promises, Web shoppers tend to seek “a Web site I know and trust” (p. 107). Other attributes such as cost and selection lagged behind whether the site and vendor could be trusted.

The changing context of e-business necessitates new models for trust development. According to Jones et al. (2000), e-business is provoking a “radical reconceptualization” of the way in which business operates. The authors further note, “traditional views of key concepts such as trust and security must be reexamined and redefined for use in the new context.” In this vein, a trust workshop was held amongst members of the European Community resulting in the following findings: (1) the transition to a digital virtual environment suggests traditional bases for trust (i.e. physical characteristics of people, premises, or products) are absent, (2) businesses rely increasingly on digital assets which must be protected from new threats, (3) large scale open infrastructures imply greater vulnerability to cyber crime and fraud, and (4) increased possibility for and exploitation of opportunities for global activity make it harder for business to win trust due to geographical distribution of partners, and lack of understanding as to how differences in national legal frameworks may be accommodated (Jones et al., 2000). When customers do develop trust with on-line vendors, they are more likely to share personal information. That information permits the company to form more intimate relationships with customers, offering products and services that are desirable and tailored to customer preferences, and as a result engendering increased trust.

Building loyalty in e-business on the Internet requires a rethinking of previous business models. Relationship building is important to trust building, and is challenged in an Internet environment due to conditions such as infrastructure vulnerability leading to cyber fraud and other forms of digital threat. Geographic dispersion of partners or customers poses difficulties related to a lack of harmonization in legal systems, and therefore safeguards. Despite this, e-loyalty can be instilled through integrative solutions that focus on providing superior customer experience. A new topic of exploration, research in

this area has implications for e-business generally, and more specifically for Canadian business aiming to create sites that are relevant and revisited by customers.

Related to these topics, Dr. Dianne Cyr has worked in the area of national culture differences applied to international business for approximately ten years. Most recently, her research has been in the area of e-business. In a forthcoming book (*E-business Innovation: Cases and Readings* published by Prentice-Hall, 2002), she included cases and readings on the topic of localization. Cases are original and based on Canadian companies including DNA Media, CreoScitex, and Pivotal. She has recently written a paper titled “Building E-loyalty Across Cultures and Organizational Boundaries in E-Business” (with Trevor-Smith) that was presented at the European Group for Organizational Studies conference. Other work has included the development of a model and survey for investigating trust development in e-business. Dr. John Bowes has research interests that focus on influences of digital media technologies in everyday life, and policy issues that develop from it. Central issues are trust, privacy, and security as underpinnings of loyalty to vendor and brand. In turn, these ideas link importantly to consumers’ sense of community and common good where consumer and seller share a social contract that products are safe and useful.

Culturally Sensitive User Interface Design

The goal of localizing user interfaces is to provide a “technologically, linguistically and culturally neutral platform from which to launch global e-commerce initiatives while allowing a framework that incorporates local content and functionality” (Shannon, 2000). Internationalization and accessibility have been acknowledged as important issues for e-business, however current studies have focused only on specific cases, businesses or cultures (Alvarez, Kasday, and Steven, 1998; Barber and Badre, 1998; Lagon, 2000). In addition, many books on Web design provide technical approaches, “but an approach to website design from a comprehensive communication perspective is missing” (van der Geest and Spyriadakis, 2000; Spyriadakis, 2000).

As use of the Internet as a tool for business evolves, there is increased necessity to recognize and address issues beyond easily quantifiable factors of utility and performance. Winograd anticipated this shift as early as 1996 and stated, “[D]esigning for the full range of human experience may well be the theme for the next generation of discourse about software design.” (p. xix) Building B2B or B2C trust on the Web will require user interface characteristics appropriate for more discerning and culturally diverse audiences (Fernandes, 1995; Marcus and Gould, 2000). At present there are still significant problems in this area (Lee, Kim and Moon, 2000) who note, “the performance ambiguity of service exchanges in Internet shopping stems largely from the characteristic of the customer interfaces.” As a result, there is increased importance to develop methods, techniques and strategies that focus more effectively on issues of user-centered design as a means to build e-loyalty (Johnson, 1997; Laurel, 1993; Picard, 1998). Careful consideration of the user experience through consistent use of language, careful explanation, clarity of process and action all address issues of user preference, individual choice, and cultural difference. The components of localized Web design involve translation, but go far beyond this to include cultural values, symbols, units of measure, aesthetics (color, patterns, shapes, textures), icons, graphics, page layout, navigation formats, etc. that comprise the overall user experience (Preece et al, 1994; Shneidermann, 1998).

As advances in technology provide tools and techniques to create more sophisticated websites that begin to address these issues, there is a need to more fully understand the relative importance of the elements that make up the user experience. At the moment there is much speculation on what is good or better. Typical data collection provides number of users and time spent on a specific site, but the implications are not easily interpreted. The object of the research is to more clearly identify and analyze issues associated with e-loyalty for attracting and retaining customers across cultures.

At present, Dr. Dianne Cyr and a graduate learner are conducting an exploratory study of website localization (Trevor-Smith and Cyr, 2001). The intent of this study is to determine culturally preferred design elements used on the Internet in Germany, Japan, and the U.S. Results of the study will be used to gain insights on user interface characteristics, and provide researchers with insights for future directions for a more comprehensive Web design study involving a large sample of countries and participants. This work will serve as a benchmark for Jim Budd's research in the use of interactive tools for design communication and collaboration. Russell Taylor's on-going research in Interaction Experience Design includes behavioral aspects of the user experience of visual interface design and the relationship to form, content and message communication.

Adaptive Design for Mobility

While investigating issues of user interface design it is imperative to consider the influence wireless technology will have on the world of computing in the next few years. As e-business increasingly migrates to mobile commerce or wireless technologies, a new generation of electronic communication devices designed to explore the potential of mobile networking is beginning to emerge. Beyond cell phones and personal data assistants, are appearing the first dedicated information appliances as well as more exotic wearable computing devices. According to Mohageg and Wagner (2000), "[P]roponents of these [information] devices claim the user experience of information appliances will be superior to general purpose personal computers because all aspects of the product can be especially designed to meet the needs of a more-restricted device" (p. 28). The implications for e-business is significant, and issues related to the development of a "humane" and appropriate user interface are multiplied.

Designing for cultural diversity is a particularly critical aspect of mobility and mobile-commerce. As Ruuska and Vaananen (2000) describe, "[T]he cultural background of a user or a group of users plays a key role in the adoption of new devices. Personal devices, such as communicators and mobile phones, face challenges across social strata in different cultures as they strive to support personal communication and information management, and therefore have to be personal enough for each individual consumer." In this context, there is an important requirement to determine how the combined product and interface design can accommodate user needs, including trust concerns. A pressing issue is how product technologies can evolve to support e-loyalty in customers.

Professor Thecla Schiphorst has research interests that focus on the design of wearable technologies particularly with regard to multi-modal and multi-sensory interfaces. Research outcomes include an extension of the base hardware technology along with the development of software applications, which augment modes of navigation in the mobile and wearable markets. Professor Budd has more than 20 years experience with the private sector in product design, development and manufacturing including ten years for the electronics and telecommunications industries in product design and development for business telephone systems, cellular telephones, GPS Systems, remote monitoring equipment and advanced computer control consoles. Most recently, he coordinated a series of sponsored research projects to develop innovative concepts for next generation computing/telecommunications products for companies including Dell Computer, Intergraph Systems and the Kodak Corporation. Professors Schiphorst and Budd will utilize their expertise in the development of new generation products and services. Russell Taylor has been working in and teaching interdisciplinary design for ten years. He is working with key members within the American Institute of Graphic Arts (AIGA) Experience Design Community of Interest to develop and communicate to industry and education sectors the parameters of the emerging field of interactive design, with references to cultural parameters. Dr. Hassan Farhangi is an Electronic Engineer with more that 20 years experience in private sector R&D, engineering and managing the design and development of innovative and highly successful electronic systems. His

expertise includes abstract-level and behavioral modeling, simulation, pre-production prototyping, and test system development. He will lend these skills to the user-product interface.

Summary of Conceptual and Practical Outcomes

The research aims to build a causal model of online trust and e-loyalty where cultural differences are tested in an e-business environment. This moves research and theory beyond traditional exchanges (typically with service people) to establish information and relationships electronically. To supplement this topic, the research investigation also carefully examines key elements in culturally sensitive interface design that result in trust and loyalty in electronically based business. Together these topics provide both a psycho-social as well as a site design basis for e-loyalty. Finally, and supporting the previous work, the research will look at emerging product technologies, and how they can better utilize cultural elements in their design. Outcomes are both in the development of new theory, as well as providing recommendations for specific practices that enhance business success.

Methodology

Developing Trust and E-loyalty – The format for this portion of the study is to distribute a survey via the Internet to e-businesses to determine trust levels in B2B contexts. A draft survey has already been developed, and is based on earlier work by Plank et al. (1999). In one of the few articles in which trust is explicitly addressed in B2B sales, Plank et al. suggest trust on the Web involves salesperson trust, company trust, and product/services trust related to multiple forms of fulfillment. Individual components of trust form the buyers' perspective, and are defined by Plank et al. in the following way: (1) salesperson trust is the belief that the salesperson will fulfill his/her obligations as understood by the buyer; (2) product trust is the belief that the product/service will fulfill its functions as understood by the buyer, and (3) company trust is the belief that the company will fulfill all its obligations as understood by the buyer. The authors then proceed to develop and validate a scale for measuring trust building on the previous work of others. However, an important observation is that no attention is paid to the issue of culture. In the present research, work by Plank et al. is extended to address e-loyalty in different cultural contexts. In addition to the survey, a limited number of company site visits will be undertaken, with interviews conducted to gain further case insights into how trust is developed. Analysis of variance will be conducted on the survey results. Interview data will be content analyzed. The survey is attached as Part A of the Supporting Document. Expected results will be to outline key characteristics in online trust development related to after sales customer service, products, and the company and how these differ across cultures. This has implications for how companies interact with international customers.

Culturally Sensitive User Interface Design - There are two parts to the research on user interface. (1) The instrument used in the exploratory study on cultural web design in Germany, Japan and the U.S. (Trevor-Smith and Cyr, 2001) will be refined and distributed on the Internet to a much larger company sample in the same three countries already in the study. Items considered are use of symbols and graphics, color preferences, site features (links, maps, search functions, page layout), language and content. These items are examined on fifteen municipal sites in each country and are coded using established protocol. The prototype for the exploratory investigation is attached as Part B of the Supporting Document. In addition, a limited number of company site visits will be undertaken, with interviews conducted to gain further case insights into user interface characteristics. Analysis of variance will be conducted on the survey results. Interview data will be content analyzed. (2) The EC3 Usability Lab at TechBC⁴ will provide the facility to assess and evaluate interface/user experience trials based on

⁴ The EC3 Lab is a facility especially constructed to contrast and measure e-business web presentations for usability and for testing informational constructs. Other lab facilities support the statistical reduction and analysis of large data sets for developing patterns of Web use and attitudinal frames supporting them.

localized criteria as outlined above. The core of the EC3 facility is a sophisticated logging and synchronous audio-visual recording capability for user behavior while engaged with test websites.⁵ The research will aim to design and prototype variations in the user interface based on the analysis of initial test data. User responses on original control sites will be compared to modified sites under monitored conditions to evaluate a range of user preference criteria. As a form of contextual inquiry, ethnographic and participatory design methods are combined to provide designers with grounded and detailed knowledge of user experience as a basis for product or site design. This work will have implications for better development of user interfaces generally, and with reference to cultural difference in e-business or other contexts.

Adaptive Design for Mobility – This element of the research program will provide the opportunity to explore the impact of design for mobility on issues of e-loyalty and trust. More specifically, the research will investigate how an integrated approach to product and interface design utilizing new techniques in authoring and interaction design can generate a more effective and culturally sensitive user experience within the limited constraints of the mobile product and interface. The facilities, equipment and resources of the Interactivity Lab will allow prototyping and testing of a range of product/interface alternatives for e-business applications. This will include appropriateness and usability of screens and navigation tools on items such as cellular phones, visors, pocket PCs etc. The EC3 Usability Lab will allow testing and evaluation of the performance of the mobile alternatives relative to the benchmarks developed for the more traditional desktop computing devices in the User Interface Design research. The evaluation methodology for this phase of the project will use the same benchmarks and follow the procedures established for the user interface design and assessment research.

Communication of Results

There are a number of avenues for dissemination of this research:

Within the Academic Community – The topics considered are unexplored and at the interface of disciplinary boundaries. Research results will be of interest in a wide variety of referred journals in Management, Information Technology and Design. In addition, results will be presented at conferences such as the Academy of Management, the International Academy of E-Business, the Design Management Institute, The American Institute of Graphic Arts, The Industrial Designers Society of America, Computer in Art & Design Education, Graphic Designers of Canada among others. Specific targeted journals include: The Journal of the Industrial Design Society of America; The Journal of Interaction Design Education; The Journal of Design for the Network Economy; Academy of Management Journal; Journal of International Business; and Organization Science.

Outside the Academic Community – The research will be of great interest to companies and practitioners who aim to be competitive in attracting and retaining customers through e-loyalty. The research on user interface and product development will provide competitive advantage to Canadian companies. The Center for E-business at TechBC is an ideal forum through which to disseminate research findings to industry. In addition, the investigations will be of interest to policy makers in the ill-defined area of e-business, particularly related to security issues and ethics. The public will benefit from improved site design, and localization of content and processes. Various industry associations will have access to information accruing from the research investigation and include: Software Developers Association; Electronics Industry Association; Canadian Advanced Technology Association; Economic Developers Association; Association of Canadian Industrial Designers; Industrial Designers Society of America; and American Institute of Graphic Design.

⁵ Participant's behavior and methods of usability analysis will be examined through verbalization of actions and intentions, recording keystrokes and other movement on the interface, and categorizing and analyzing the data. In recent studies of Human Computer Interaction, the interfaces have been instrumented to automatically record all computer user interaction (Ericson and Simon, 1980; Ullman et al. 1987; Shneiderman, 1992).

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