Relationships Between Consistency of CRM and User Preferences in E-Commerce

A. Ant Ozok

University of Maryland Baltimore County, Dept of Infor. Systems, 1000 Hilltop Circle, Baltimore, MD, USA, ozok@umbc.edu

Kristen Oldenburger

Booz Allen Hamilton, McLean, VA, USA

Gavriel Salvendy

Purdue University, School of Industrial Eng., West Lafayette, IN, USA & Tsinghua University, Beijing, PR China

OBJECTIVE AND SIGNIFICANCE

The recent advent of e-commerce can be seen as an acceleration factor in the growth of CRM. Until the inception of the Internet and e-commerce, business-to-consumer shopping processes mostly involved going to a store and interacting with a salesperson to execute a shopping transaction, or doing mail ordering. With e-commerce becoming extremely popular starting from the late nineties, the U. S. online retail sales exceeded the $40 billion mark in 2002 (Jupiter Communications). The customer relationship concept has significantly evolved from the perspective of online vendors, where almost all of customer communication before, during and after the purchase happens on the vendor Web page. In most cases communication occurs without the involvement of live sales- or service people. Although customer treatment in e-commerce occurs almost entirely through the company Web page, similar attributes as in face-to-face CRM apply online as well. Just as their offline counterparts, consumers expect a high level of responsiveness to their questions, good prices, easy contact options and ease of receiving information from their online vendors (Bradshaw and Brash, 2001).

This study is concerned with one particular aspect of CRM, that of *consistency*, and its effects on the customers in B2C e-commerce. Consistency of CRM is mainly concerned with whether customers are treated in the same manner before, during and after their purchase. This paper explores whether customers expect consistency in those activities. It should be noted that all of the items presented in this paper are explored from their consistency perspective. The primary motivation behind choosing this particular aspect is twofold: First, while the concept of CRM has been thoroughly explored as a business decision and from the business and management perspectives, the literature search indicated that little attention has been paid to improve CRM based on the user's perspective and user needs. Second, specifically, previous literature has given little to no emphasis on whether treating customers consistently among each other, as well as treating them consistently within the span of the shopping procedure (pre-purchase, purchase, and post-purchase) are items of importance for electronic shoppers and whether they affect user satisfaction.

Policies and product-related items are not the only items that affect CRM. The usability environment provided to customers where they do electronic shopping is also part of how customers are treated, meaning it is also part of CRM (Resnick, 2001). Therefore, for example, providing customers with very poor Web page design and navigational options are believed to negatively affect customer treatment and CRM. Consistency of customer treatment is a term including the pre-purchase, purchase, and post-purchase activities, such as consistency in *providing price quotes, product availability, and product variety* as part of the pre-purchase process; consistency in *shopping and navigation steps, security, and ease of use* as part of the **purchasing** process; and consistency in *providing customer service, help desk, and return policies* as part of **post-purchase** process. These elements of consistency are based on previous literature, as discussed in the next section, as well as a pre-experiment survey conducted on area experts, as explained in Section 3.

The researchers chose a sample of e-commerce experts from academia as the participant group because of potential unfamiliarity with CRM issues in e-commerce by the common public. Implementing the survey to a group of experts allowed the researchers to empirically determine the main consistency factors in CRM because this particular participant group is both highly familiar with CRM issues and, at the same time, a representative sample of e-commerce customers.

LITERATURE REVIEW

The importance of CRM within the business-to-consumer as well as business-to-business domain is strongly emphasized by e-commerce vendors and e-tailers as well as customer-centric research. However, literature regarding consistency within the concept of CRM is non-existent. Therefore, the literature search conducted covered current research in the CRM area as it most closely relates to consistency. Bose (2002) indicated that CRM is a brand-new challenge for customer-centric marketing and sales, and improving customer service and satisfaction relies on developing and establishing long-term relations with customers. Stefanou, Sarmaniotis and Stafyla (2003) similarly pointed out that customer satisfaction and the level of customer service are especially significant in establishing trustworthy relationships with customers and retaining a competitive advantage. Sophisticated, global organizations already rely on CRM software systems to accumulate and analyze customer-focused information. According to Karimi, Somers and Gupta (2001), company relationships with customers can also be greatly improved by employing information. These relationships can be greatly improved by utilizing customization and deployment of sophisticated CRM software, according to Dewhurst, Martinez-Lorente, and Dale (1999). Companies have recently come to the realization that to develop successful and meaningful relationships with customers, companies should focus on developing customer-specific strategies. CRM enables firms to deploy such strategies by managing individual customer relationships with the support of customer databases and technologies (Verhoef and Donkers, 2001). It is apparent in previous research that CRM is strongly being taken into consideration by e-commerce companies and that the appropriate technologies to integrate CRM is in place in a number of companies globally. Additionally, according to Stefanou et al. (2003), empirical findings suggest that

customer satisfaction, the underlying notion of relationship marketing, is a crucial point in achieving and retaining a competitive advantage for e-commerce companies. In order to acquire and monitor customer knowledge, a number of practices, instruments, and measures have been suggested that include assessments of customers, carrying out customer satisfaction research, obtaining knowledge from customers, and interviewing customers (Beijerse, 1999).

The retail industry is a logical place to examine CRM in e-commerce (Gomez, 2001). Retailers are at the front end of the supply chain and consequently are the "interface" through which consumers shop (Feinberg and Kadam, 2002). According to Feinberg and Kadam (2001), retailing is also at the forefront of e-commerce, and e-retail sales in 2000 amounted to $32.6 billion. The use of retail Web sites for purchases by customers therefore proves the importance of Web sites as CRM tools.

The literature search indicated that no explicit study has been conducted concerning e-commerce customer treatment consistency and its possible implications. Hence the primary motivation of this study was to indicate the role of consistency in the area, and once the importance of consistency in CRM within the e-commerce area is established, to determine the individual elements of consistency in CRM.

METHODOLOGY

In order to determine, understand and validate the underlying factors of consistency in e-commerce customer relationship management and to construct the questions measuring the consistency of customer treatment for customer acquisition and customer retention in e-commerce, a tool was developed in the form of a questionnaire measuring the elements of consistency in e-commerce and was implemented to academic e-commerce experts. The participant group consisted of one hundred university professors in the areas of management and industrial engineering with the specialty in e-commerce. This particular sample was chosen mainly to easily determine the main factors of consistency in e-commerce from a group of experts who know the area well but at the same time are also e-commerce customers.

Customer Relationship Management Consistency Questionnaire (CRM-CQ)

The Customer Relationship Management Consistency Questionnaire (CRM-CQ) was constructed based on the points of high importance concerning consistency in e-commerce in the previous literature and the points that were emphasized in the pre-experiment open-ended questionnaire. The questions were formed to measure the individual opinion of e-shoppers regarding consistency. The CRM-CQ consisted of sixteen individual items, two of which were included for measuring the internal consistency (Cronbach's Alpha) value.

An internal consistency analysis using two pairs of duplicate questions resulted in a Cronbach's Alpha value of 0.81, which led to the conclusion that the internal consistency value of the questionnaire was relatively high. The remaining fourteen items corresponded to fourteen conceptual factors that were derived based on the pre-experiment questionnaire and previous literature. The factors conceptually corresponded to the items of importance underlying consistency of customer treatment in e-commerce. It should be noted that the definitions concerning the consistency of CRM elements are all deemed as positive contributions to the shopping experience of the user, and do not mean in any of the elements that the customer is being treated "consistently bad." For example, "consistency in price quoting" indicates giving consistently good prices to all customers. These factors have been identified as:

- 1. Consistency of Price Quoting; 2. Consistency of Steps to Execute a Transaction; 3. Consistency of Page Design; 4. Consistency of Site Navigation: 5. Consistency of Promotions Offered; 6. Consistency of Indication of In-Stock Products; 7. Consistency of Product Variety; 8. Consistency of Alternative Product Suggestions; 9. Consistency in Fraud Protection; 10. Consistency in Presented Guarantees Involving the Product; 11. Consistency of Fairness of the Site; 12. Consistency of Help Offered by the Site;

13. Consistency of Return Policies; 14. Consistency in Keeping the Customer's Personal Information.

The items in the questionnaire were formed as sentences (although they are sometimes referred to in this text as "questions"), and a 5-point Likert scale was used in the questionnaire, with the score of 1 corresponding to the response "Strongly disagree" and the score of 5 corresponding to the response "Strongly Agree." Question 1 was a "reversed question" of which the responses were reversed in the analysis phase, with a response of 1 being reversed to 5, a response of 2 being reversed to 4, etc. The question pair 3 and 15 and the pair 6 and 16 were "duplicate" questions about the same item in order to measure the internal consistency of the questionnaire.

The participants included university professors (Assistant and Associate) from academic institutions around the world and graduate students (Master's and Ph. D.) from the Department of Industrial Engineering at Purdue University. All participants had extensive expertise in e-commerce research. A total of one hundred and seven surveys were returned, seven of the surveys were eliminated because of incomplete responses, leaving a total of one hundred surveys. Ninety of the surveys included responses from university professors, and ten of them included responses from graduate students. An Analysis of Variance procedure showed no significant differences between mean responses given by graduate students and university professors. All participants had made a purchase at least twice from the same on-line shopping Web site in the prior year.

RESULTS AND DISCUSSION

Overview

Descriptive statistics including mean and standard deviation values were obtained for each item in the questionnaire in order to identify the items of consistency in e-commerce CRM that carried the highest level of importance for customers. Then, a multivariate principal components analysis was conducted to cluster the important items in CRM on-line consistency under meaningful groups.

Descriptive Statistics

The descriptive statistics are presented in Table 1. Consistency in Keeping the Customer's Personal Information (Mean = 4.73, Std. Dev. = 0.566) and Consistency in Fraud Protection (Mean = 4.73, Std. Dev. = 0.584) came out as the most important items for e-shoppers. It can be concluded that the security issues play a foremost important role in consistency in CRM, as they do in many other areas of electronic commerce. The issue of the customers' demand that they are protected from fraud like everyone else is an expected outcome because of the high emphasis given on security by e-customers worldwide and is consistent with the findings of Lightner, Yenisey, Ozok and Salvendy (2002). Additionally, it can be argued that people care a great deal for their shopping history and the consistent availability of this information to them. Economical expectations from CRM consistency follow according to the descriptive statistics findings by the survey, with the indication regarding whether a product is available for immediate shipment (Mean = 4.66, Std. Dev. = 0.572, Duplicate Question Mean = 4.59, Std. Dev. = 0.534) indicating a tendency on the customers' part to have consistent availability information regarding the product they are shopping for. Also, the values for the item regarding consistency in guarantees presented (Mean = 4.50, Std. Dev. = 0.704) indicates that customers require consistent CRM including post-purchase activities from all of the products sold on the site. Finally, the analysis indicates that consistent site navigation also played a large role in CRM consistency, which can be attributed to the expectation of usability on the site (Mean = 4.42, Std. Dev. = 0.669). This usability issue indicates an expectation on the customers' part regarding the transfer of knowledge from one transaction to the other, resulting in improved performance, and is consistent with the findings of Ozok and Salvendy (2001) where

the consistency of site navigation was determined as one of the significant factors in user performance improvement. Additionally, it was determined that the price issue was an item with a relatively low score (Mean = 4.28, Std. Dev. = 0.866) which indicates that the customers may be thinking beyond pricing issues when thinking about consistency in CRM.

Principal Components Analysis and Identification of New Factors
This analysis had the primary goal of identifying the major issues of consistency in e-commerce CRM by finding large-scale clusters (similar to usability and sociability clusters in on-line communities, Preece, 2001), and also eliminating some of the items that cannot be articulated by any group. For this purpose, principal components procedure was executed. The principal components analysis was chosen because of its relative accuracy in identifying initial factors compared to the maximum likelihood procedure (Wei and Salvendy, 2001). The factor loadings are also presented in Table 1.

The loading threshold was chosen as 0.40, which is almost always chosen in similar multivariate analyses, meaning if a particular questionnaire item had a loading of 0.40 or greater on a factor, it was concluded that this item belonged to that particular factor. The analysis indicated that consistencies of promotions, in-stock indication, product variety, fraud protection, presented guarantees, site fairness, and return policies were clustered into Factor 1, and consistencies of shopping steps, site design, and navigation were clustered into Factor 2. The factors could easily be named as Customer Treatment Factor (Factor 1) and Technical Factor (Factor 2). The multivariate analysis indicates that there are two general items when it comes to consistency in Customer Relationship Management in e-commerce. The technical factor deals with items relating to the design of the site, such as whether the steps to execute a transaction or to navigate across the site are consistent, the designs of individual pages within the shopping site are consistent, etc. The customer treatment factor is concerned with whether all the customers are treated fairly and consistently before, during, and after the shopping process, such as whether the same promotions, product variety, fraud protection, guarantees, etc. are offered to every customer. The clustering by the multivariate analysis was thought to result in interesting findings concurring with the conceptual factors regarding customer treatment consistency. Additionally, four items, consistency of price quoting, consistency of alternative product suggestions, consistency of help offered by the site, and consistency in keeping the customer's personal information, were eliminated by the analysis because they did not have

loadings of 0.40 or higher on either of the factors. The researchers concluded that as a stand alone item of consistency, consistency in price quoting is important, as evidenced by its high mean of 4.28. However, the consistency of price quoting is not a major item within the CRM scope of the two categories, but rather possibly a separate major item, possibly not directly relating to CRM. Since the objective of this study is to determine the major categories of consistency within the scope of CRM, consistency of price quoting is concluded to be a non-CRM item and therefore not included in the final guidelines.

This study aimed at determining the major factors to improve CRM in online retail shopping. For that reason, two main categories have been determined, and the main items that cause a positive customer experience have been determined. It should be noted that in this study "consistently good" seller actions have been in focus, not "consistently bad" actions, and factors causing consistency in functionality of the e-commerce sites has been explored. It should also be noted that the sample size consisted of academicians and students and may indicate a potential limitation of applicability of the results. Future research can explore CRM involving business-to-business e-commerce transactions, as well as determine other factors besides consistency that may positively affect CRM in e-commerce.

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Table 1. Descriptive Statistics and Principal Components Factor Loadings for Consistency Items

Item Description*	Mean	Std. Dev.	Factor 1** (Treatment Factor) Loading	Factor 2 (Technical Factor) Loading
Consistency of Price Quoting	4.28	0.866	0.33	0.06
Consistency of Steps to Execute a Transaction	3.82	1.086	0.15	**0.64**
Consistency of Design of the Shopping Web Page	4.17	0.865	0.05	**0.82**
Consistency of Site Navigation	4.42	0.669	0.18	**0.69**
Consistency of Promotions Offered	3.87	0.960	**0.46**	0.13
Consistency of Indication of In-Stock Products	4.66	0.572	**0.70**	-0.10
Consistency of Product Variety	3.85	1.038	**0.53**	0.17
Consistency of Alternative Product Suggestions	4.22	0.719	0.37	0.16
Consistency in Fraud Protection	4.73	0.584	**0.43**	0.16
Consistency in Presented Guarantees Involving the Product	4.50	0.704	**0.52**	0.22
Consistency in Fairness of the Site	4.18	0.730	**0.42**	0.30
Consistency of Help Offered	4.05	0.845	0.33	0.25
Consistency of Return Policies	3.91	1.036	**0.43**	0.10
Consistency in Keeping the Customer's Personal Information	4.73	0.566	0.15	0.32
Consistency of Design of the Shopping Web Site	3.95	0.845	--***	--
Consistency of Indication of In-Stock Products	4.59	0.534	--	--

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