Electronic Cash as a Facilitator for Electronic Commerce

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Abstract

This paper presents electronic cash as a catalyst to electronic commerce. Electronic Cash facilitates business transactions not only between customers and merchants, but also between customer to customer transactions. This paper discusses a survey regarding electronic cash that was done in University of Puerto Rico in 2004. This survey analyses what the students think about electronic cash as a facilitator for electronic commerce transactions. The findings suggested that students would accept electronic cash.

Keywords: electronic cash, electronic commerce, cash, payment.

1. Introduction

Electronic commerce is a relatively fast moving field. Most research done about it is useful for its growth. This paper underlines the necessity of new ways of payment systems for its substantial progress. Electronic cash is an alternative payment system that offers privacy and anonymity for on-line transactions. This paper discusses a survey done with students and their behavior related to such kind of payment.

2. Literature

Electronic commerce is an instance of the many changes that business has undergone (Pearson, 1998). New ways of payment are needed to complement the electronic business emergence (Golicic, Davis, McCarthy, & Mentzer, 2001). Electronic cash is an alternative way of payment for the physical and for Internet transactions. It functions like a debit card, which stores cash value, but is different from a debit card because it does not identify the user. Unlike a debit card, electronic cash is untraceable because the bank cannot identify the person who performed the transaction. People value privacy, especially if they fear they will suffer undesirable consequences if it is invaded. Other differences exist and depend on the type of electronic cash used.

A general description of electronic cash is presented by Panurach (1996). It has anonymity, privacy, and liquidity. Anonymity and privacy refer to the fact that nobody, with the exception of the seller, will know the identity of the buyer or details of the transaction. Liquidity refers to the ease with which electronic coins can be reused.

Cash is ready to be used and re-used, and electronic cash needs to provide similar liquidity. Electronic cash is more liquid than credit or debit cards because both require verification through a clearing process. This process is time consuming for the seller who obtains funds with credit or debit cards. However, in order for an electronic cash system to succeed, it will require acceptance by a significant percentage of merchants. As Panurach (1996) continue explaining, electronic cash operates in the form of pre-paid rechargeable cards. It can be used to pay in different places in the physical world and in cyber space.

An electronic cash system should incorporate technical safeguards that prevent double spending. Double spending occurs when a customer uses the same electronic cash coin more than once. The system provides for unveiling the customer’s identity only if he/she has double spent. McAndrews (1999) provides more explanations concerning the risks associated with electronic cash systems.

From the economic standpoint, electronic cash can lead to an increased speed of transactions, which

can cause prices to go up for goods and services. In addition, interest rate margin costs, in the money market, can be reduced substantially because it is an electronic transaction. This could lead to dramatic changes in the structure of the banking industry. Another economic aspect of electronic cash is that consumers must re-examine their concept of money, cash and value. Giannakoudi (1999) and Yan, Paradi, and Bhargava (1997) give details regarding Internet banking.
From the business perspective, electronic cash fills a niche in the market facilitating micro-payments. Electronic cash might not completely replace traditional means of payment, but it could certainly be useful for those who are involved in businesses that require low value or micro-payments.

Lee, Choi, and Rhee (2003) say that electronic cash systems not only facilitate business transactions between customers and merchants, but also between customers, which are also known as customer-to-customer transactions. This transfer payment between individual parties is very useful for people who would like to do business but are not established merchants. Customer-to-customer transactions are very common in the Internet world.

3. Theoretical framework

3.1 Research Design

The survey was conducted at the UPR in Aguadilla in 2004, and the sample consisted of students from the Department of Business Administration. Two hundred surveys were completed. Research has shown that University students are a good sample to test when trying to find the tendencies of usage of a product innovation (Szmigin & Bourne, 1999): in this case electronic cash is the product innovation.

3.2 Limitations

There are limitations to the reliability and validity of the data collection instrument and study design common to cross-sectional studies (Bourque & Fielder, 2003). One limitation of the study was that of external validity. The survey sample of 200 was not randomly selected from the target population of 841 students. Only a truly random sample could hope to contain a representative cross section of the target population. The less random the sample, the less its results can be generalized to the whole population. The sample selected is a convenience sample and therefore the findings should generalize with caution to the target population. Therefore, generalizations from this study were made with caution.

4. Importance of the study

This study is relevant to the emerging electronic business market, which aspires to become part of a global economy. It is especially useful to banks and other financial institutions that are considering electronic cash as a new financial product. This study provides information about electronic cash and whether it will be accepted and used by students in the future as an alternative way of payment.

5. Research findings

Two hundred and ten usable surveys were analyzed, with no missing values. Multiple regression was used to predict the preference for use of electronic cash. The Statistical Package for the Social Sciences, version 12 (SPSS, 2001) was used to conduct all analyses. Table 1 shows the variable descriptions used in the hypothesis that was tested.

Table 1: Description of variables names used in this research

<table>
<thead>
<tr>
<th>Question Number</th>
<th>Variable Name</th>
<th>Variable Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q28</td>
<td>MERCHANT</td>
<td>Electronic cash</td>
</tr>
<tr>
<td>Q11</td>
<td>PAY</td>
<td>Willingness to pay</td>
</tr>
<tr>
<td>Q27</td>
<td>RISKY</td>
<td>Willingness to carry</td>
</tr>
<tr>
<td>Q29</td>
<td>INCENTIV</td>
<td>Electronic cash</td>
</tr>
<tr>
<td>Q30</td>
<td>MARKETIN</td>
<td>Electronic cash</td>
</tr>
</tbody>
</table>

Hypothesis 1

Null Hypothesis: The linear combination of independent variables (PAY, RISKY, INCENTIV, MARKETIN) does not predict the variation in the dependent variable (MERCHANT).

Alternative Hypothesis: The linear combination of the independent variables (PAY, RISKY, INCENTIV, MARKETIN) does predict variation in the dependent variable (MERCHANT).

Table 2 shows the ANOVA for the regression model and the results for the four different models generated. The stepwise method tests the dependent variable with each independent variable one at a time. The most important model to examine is model 4 because it includes all of the independent variables selected by the stepwise method. The final model, F (4, 205) = 16.993, p < .001, suggests that this linear
combination of variables explains a significant amount of variation in the dependent variable. Therefore, the null hypothesis of hypothesis 1 is rejected. Further, at the bivariate level, there does not appear to be any risk of multicollinearity (Hair, Anderson, Tatham, & Black, 1998).

In conclusion, when examining their attitudes towards using electronic cash at receptive merchants, risk was perceived as no greater than that of regular cash, and students were open to monetary incentives for using electronic cash.

In this overall research study, the results only apply to this sample, and any implications for the target population of students should be made with caution.

Table 2

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Regression</td>
<td>23.19</td>
<td>3</td>
<td>7.73</td>
<td>23.19</td>
</tr>
<tr>
<td>2 Regression</td>
<td>31.09</td>
<td>3</td>
<td>10.36</td>
<td>31.09</td>
</tr>
<tr>
<td>3 Regression</td>
<td>36.90</td>
<td>3</td>
<td>12.30</td>
<td>36.90</td>
</tr>
<tr>
<td>4 Regression</td>
<td>41.96</td>
<td>3</td>
<td>13.99</td>
<td>41.96</td>
</tr>
</tbody>
</table>

a Predictors: (Constant), MARKETIN
b Predictors: (Constant), MARKETIN, PAY
c Predictors: (Constant), MARKETIN, PAY, RISKY
d Predictors: (Constant), MARKETIN, PAY, RISKY, INCENTIV

e Dependent Variable: MERCHANT

6. Discussion of Findings

The purpose of this study was to explore the attitudes of students from the UPR at Aguadilla toward electronic cash. The research question assessed the ability of selected items (PAY, RISKY, INCENTIV, MARKETIN) to predictive students attitudes' towards merchants who offer electronic cash as a payment alternative (MERCHANT). These predictor variables were selected because, according to Szmigin and Bourne (1999), those represent some of the major characteristics that describe electronic cash. The findings suggested that, if merchants offer electronic cash as a form of payment, students' preferences for using this alternative increases as it is perceived as (in order of importance): having no additional risk over regular cash; including incentives to encourage use; a viable means of payment for desirable items; and is marketed and promoted.

7. Conclusions

This study is relevant to the business world because electronic cash can be a convenient alternative method of payment for consumers, according to the research documented in the literature. It also suggests directions for how to do the marketing of this value-added service to a market (college students) who reported a willingness to use electronic cash. This research suggests merchants needed to focus on incentive-based strategies coupled with good merchandising. Furthermore, it is suggested that marketing efforts did not have to include a “reassuring” message that electronic cash is “safe.” For this market, the riskiness of electronic cash was not perceived as an obstacle.

This study also has implications for banks and other financial institutions, as electronic cash is another potentially lucrative financial product. It contributes to the rapidly emerging electronic business market, which is approaching the status of a global economy. In addition, this study suggests that, for the student market, electronic cash would be accepted and used in the future. Technological provisions already exist for the establishment of a successful electronic cash operation. A study like this may contribute to the development of programs that focus on features acceptable to potential consumers.

References


