



# Attitudes of Students Toward Electronic Cash

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## ABSTRACT

This paper presents a comprehensive view of electronic cash and its role in our society. Its origins, development, implementation, and acceptance are discussed from business, technical, and economic points of view. Existing electronic cash systems operating in the business world are also presented along with its current issues and the new technological improvements and the potential future use of this technology in the market. Data from a case study performed with students from the UPR (University of Puerto Rico) is presented in which their attitude towards electronic cash was measured through a survey and the data analyzed using regression. The results suggest that electronic cash would be positively accepted among university students and that merchants needed to focus on incentive-based strategies.

## 1. INTRODUCTION

Electronic cash is a payment instrument that maintains the value of paper money and its characteristics since it provides anonymity and privacy to its user (Lee, Choi, & Rhee 2003). Because electronic commerce has successfully emerged, new ways of payment are needed to complement this success (Golicic, Davis, McCarthy, & Mentzer, 2001). Electronic cash is a new way of payment that can be used for physical and for Internet transactions. It provides anonymous and untraceable payment just as regular cash does (Liu, Wei, & Wong, 2001). 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. Other differences exist and depend on the type of electronic cash used.

## 2. LITERATURE

Cash usage has advantages over credit cards or checks. For example, credit cards reveal the user's identity. In addition, most credit card companies do not keep the customer's information private. Instead, they share their customer information with marketing groups that use customer behavior and preferences to target advertising and sales offers.

Cash eliminates these drawbacks, and is widely used. However, there is no such thing as cash payments for Internet transactions. Goldsborough (2001) discusses buying and selling on the Internet without cash, by using other means of payments such as electronic cash. For electronic commerce to continue to grow, a type of cash is needed which can be used to pay for goods and services on the Internet (Pearson, 1998).

Frankel, Patt-Shamir, and Tsiounis (1997) explain the theory of exact change for electronic cash. When electronic cash is used, exact change is calculated and stored in only seconds, as opposed to regular cash, where a cashier can take a while to count and render change. Electronic cash is much more difficult to steal since only the user and family members have access to the hard disk. Although a hard disk can crash with all the electronic cash stored on it, this problem can be avoided by maintaining a floppy disk copy. One can have as many copies of electronic cash as desired as long as it is used only once. To avoid confusion, all copies of electronic cash should be erased as soon as it is spent. Double spenders may be prosecuted.

Money laundering is prevented because electronic cash is withdrawn and deposited from the same bank, which keeps track of the electronic cash transactions, even though they are anonymous. If a case of money

laundering is found in the bank, the user's identity can be revealed because today there are technological provisions for that specific purpose (Wang & Zhang, 2001).

Off-line electronic cash provides for a faster and cheaper transaction since, in contrast to on-line transactions, do not depend on communication lines for authorization at the time the payment is accepted. Communication lines are costly and sometimes too crowded which slows the processing of payments. However, the increased use of the Internet has made possible the emergence of electronic commerce (Golicic et al., 2001). These new ways of doing business demand new ways of payment. Electronic cash is a substitute for regular cash in cyberspace (Tison-Dualan & Gallegos, 2001).

## 3. THEORETICAL FRAMEWORK

### 3.1 Research Design

The survey was conducted at the UPR in Aguadilla, 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

Table 1. Description of variable names used in this research

| Question Number | Variable Name | Variable Description   |
|-----------------|---------------|--|
| Q28             | MERCHANT      | Electronic cash accepted by merchants as long as students accepted it            |
| Q11             | PAY           | Willingness to pay with electronic cash if the student were to buy something     |
| Q27             | RISKY         | Willingness to carry electronic cash even if it can be lost just as regular cash |
| Q29             | INCENTIV      | Electronic cash accepted because of monetary incentives                          |
| Q30             | MARKETIN      | Electronic cash accepted due to marketing and publicity                          |

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, 2003) was used to conduct all analyses. Table 1 show the variable descriptions used in the hypothesis that was tested.

##### 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 show 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

Table 2. Analysis of variance for the Regression Model

| Model  |            | Sum of Squares | df     | Mean Square | F  | Sig. |
|--|------------|----------------|--------|-------------|----|------|
| 1  | Regression | 23.19          | 123.19 | 33.19       | .0 |      |
|  | Residual   | 145.31         | 208    | .69         |    |      |
|  | Total      | 168.50         | 209    |             |    |      |
| 2  | Regression | 31.09          | 215.54 | 23.42       | .0 |      |
|  | Residual   | 137.41         | 207    | .66         |    |      |
|  | Total      | 168.50         | 209    |             |    |      |
| 3  | Regression | 36.90          | 312.30 | 19.25       | .0 |      |
|  | Residual   | 131.60         | 206    | .64         |    |      |
|  | Total      | 168.50         | 209    |             |    |      |
| 4  | Regression | 41.96          | 410.49 | 16.99       | .0 |      |
|  | Residual   | 126.54         | 205    | .62         |    |      |
|  | Total      | 168.50         | 209    |             |    |      |
| 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                           |            |                |        |             |    |      |

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.

#### 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 Szimigin 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.

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