The Effects of E-Cash Coupons Value and Consumer Involvement on Behavioral Intentions

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Abstract
As online marketing has changed the way of shopping, e-cash coupons have become a popular merchant to attract consumers in competitive markets. E-cash coupons intend to increase sales which provide online customers a discount on some or all items. The convenience of e-cash coupons can attract consumer’s attention and further promote their intention to use it. While high value coupons may attract suggestible consumers, consumer’s perception of coupon value can influence future purchase decisions. Therefore, this study used the technology acceptance model (TAM) as theoretical basis to examine the effects of e-cash coupon value and consumer involvement through perceived usefulness and perceived ease of use on the behavioral intention to use e-cash coupons. 157 valid samples were collected from online customers who have had the experience of using e-cash coupons. The results indicated that all hypotheses are supported. This study concluded by providing limitations along with suggestions for future directions.

Keywords: E-Cash Coupons, TAM, Consumer Involvement, Behavioral Intention

1. Introduction
Under the influence of wireless network and mobile devices, the intensity of the network industry makes the competition in the operational environment become more and more fierce. Online consuming model has also significantly changed. The change of the consumption pattern has a direct impact on the marketing strategy of a business, thus e-cash coupon which is different from traditional coupons emerges an apparent time. In the recent years, consumers have had contact with e-cash coupons through different channels and they have carried out the behavior of using e-cash through printing it out on paper, displaying it on mobile devices or direct online purchasing, Groupon is a very good example [1].

E-cash coupons allow consumers to get reduced prices and savings for a specific product or service at the time of purchase. Consumers have changed their shopping habits over the years, with many consumers becoming more price-conscious and opting to purchase one brand over another if provided with some sort of a discount coupon [2]. The advantages of e-cash are to help retailers with promotion campaigns in a short period through price reduction. The degree of reduction should be appropriate to attract consumer intention to use it while not causing loss to the company [3]. With the discount store industry and foreign supermarkets expanding business into the Taiwan market, market competition has become very intense, thus the use of e-cash coupons to drive sales has become very popular.

However, the consumers who use e-cash coupons are fewer than those who use traditional cash coupons in Taiwan. Using only demographical variables to observe the effects cannot fully explain the usage behaviors of consumers on e-cash coupons. Instead, psychological perspectives should be taken account to find the internal logic, for example, values and attitudes etc. or consumer involvement. For businesses, the marketing effect to cash coupon members can be collected and analyzed instantly, hence accelerating the market decision-making process. Therefore, this study uses technology acceptance model (TAM) to examine the effects of e-cash coupons value and consumer involvement through perceived usefulness and perceived ease of use on user behavioral intention.

The purpose of this study is to understand how the denomination of e-cash coupon, the complexity of using, the attention-drawing mechanism and the exposure effect will affect consumers’ intention to use. According to the above motivations, this study uses literature review, quantitative research and a questionnaire survey to explore...
the impact of e-cash coupons on consumers’ intention to use. In this study, data analysis used descriptive statistics, reliability, validity analysis, correlation analysis, single-factor ANCOVA and regression analysis to explore the relationship between the variables and the impact of e-cash coupons on behavioral intentions.

2.2 Literature Review

2.1 E-Cash Coupons Value

Electronic coupons (e-coupons) differ from traditional paper coupons primarily because of the nature of distribution. E-coupons are usually published on Web pages for interested customers. E-cash coupons have similar functional application and nature on the Internet as cash coupon. The characteristics of e-cash coupons are the low cost of production and propagation and the accurate quantization of propagation effect. E-cash coupons use a series of codes to represent the denomination of cash coupons, which are extensively applied in big B2C e-commerce websites [4].

Fortin [5] makes a definition on discount e-coupon. He proposes that, due to technology restrictions and consumers usage habits, the application of discount e-coupons is still an extension of the traditional coupon, in other words, it is using a digital form to release coupons through worldwide web. Discount e-coupon has three different media formats, i.e. printable online certificate, newsletter coupon and pure online coupon. To further elaborate, printable online certificate is defined as to printable discount e-coupon provided by a business and with the capability to enjoy the price reduction at a physical store; Contrary, Newsletter coupons are electronic coupons sent in newsletters to mobile devices of a certain group of users. Currently, only a few merchants and consumers are using this kind of media. Pure online coupon is used by virtual online stores where consumers can obtain the offer by using the link to the coupon.

Raghubir [6] considers that perception of price includes "denomination of coupon" and is also one of the major factors that influence consumers' intention to redeem coupons. Denomination of coupon is an important factor of the characteristics of coupons that impact consumers’ redemption behavior. Leone and Srinivasan [7] also put forward a conformability structure which aims at evaluating the influence of coupon's denomination on brand profitability. Since e-coupon is a form of an e-cash coupon, its denomination refers to the amount it shows on the coupon itself. Therefore we can put coupon's denomination on cash coupons.

However, consumers can print e-coupons for use in brick-and-mortar stores or use in online stores through promotional codes. E-coupon is a form of a discount code or number that can be redeemed on online stories during e-commerce transactions. Kotler [8] defines a discount coupon, indicating that discount e-coupon is a kind of guarantee for the consumers to save money when buying a particular commodity. Schultz and Robinson [9] divide discount coupons into store discount coupons and manufacture discount coupons according to use difference. Discount e-coupon has an extra set of passwords than traditional coupon. By entering the password, a direct reduction will be applied to the commodity.

As E-cash coupons have become a standard mechanism for sales promotions, there are different types of coupons such as e-coupons, e-ticket, and e-wallet that are being used. Fortin [5] indicated that e-ticket has a feature of digital certificate and is becoming more and more diversified on the usage and application. It can be combined with the smart card and mobile devices, it can also be purchased through mobile networks, saving the time of queuing, reducing the incidence of scalping and preventing the risk of loss during mailing. With the increasing frequent usage of e-tickets, security and practical demand should be considered.

The concept of e-wallet is comparatively vague, either prepaid or deposited. It has a good prospect and has the potential to replace the notes produced by the central bank. In nature, e-wallet is a prepaid and stored value commodity. According to the definition of stored value card stipulated in "Regulations Governing Approval of the Issuance of Stored Value Cards by Banks", e-wallet means that card issuers use electronic, magnetic or optimal forms to store monetary value so that card holders can use partial or entire value of the money stored in exchange for goods or services, by being a user of multifunctional payment [10].

For retailers, the goal of using this kind of coupon is to initiate consumers to try the new products or to repurchase the product, thus it can also be regarded as a price reduction for proprietary products. These coupons can be redeemed at the point of sales directly with the purposes of making promotion of special prices. These kind of coupon provides deal-prone consumers with a possibility to use lower prices to buy proprietary brands, thus to enhance consumers sensibility [5].

2.2 Technology Acceptance Model

TAM is mainly formed on the basis of the theories of reasoned behavior and planned behavior. This model
relates to how users come to use and accept a new or different type of technology. While the theory of reasoned action had many measures of attitude, the TAM replaces these with measures of technology acceptance [11]. TAM is extensively applied in discussions about the acceptance degree of information technology related products. Many previous researches also confirm the effectiveness of TAM, verifying that user perceived usefulness and ease of use on technology will definitely affect their acceptance of information technology related products.

The main purposes of TAM are to explain the determining factors of a person's acceptance of technology and to develop an acceptance model of the information technology users. It can be used to learn about the impact of external factors on internal needs, attitudes and intentions, and thus the impact on the usage of technology. In this model, two perceived concepts are introduced: perceived usefulness and perceived ease of use. Perceived usefulness refers to the degree that users consider a specific system can help to promote work performance. Perceived ease of use refers to the easiness that a user considers about the usage of a specific system [12]. Perceived ease of use is actually the perception degree of a user on a specific application system. Both perceived usefulness and perceived ease of use will affect users’ attitude to use the technology and further influence users’ actual behavioral performance. Mishra [13] indicated behavioral intention is defined as the perception of an individual towards performance of a particular behavior [14] and is a considered as most opposite item to predict shoppers’ behavior.

Davis [15] explains that perceived usefulness means that a person thinks that using a specific system can promote his work performance. Sledgianowski and Kulviwat [16] believe that perceived usefulness means that a user thinks that using such a system can increase personal work achievement. Bhattacharjee [17] defines perceived usefulness as the feeling a user has about the advantage of using this system. Davis [15] states that perceived ease of use means a person thinks less effort is needed in achieving goals by using a specific system. Many studies mentioned that perceived usefulness tends to be more influencing than perceived ease of use on satisfaction of the system and the willingness for continued usage. Previous studies show that perceived ease of use, either directly or indirectly, affects behavioral intentions through perceived usefulness [18].

Linda and Steven [19] mainly explore the application of software facility through TAM and the factors that affect individual's acceptance of it. They adopt the factors of perceived usefulness, perceived ease of use and actual behavior in TAM in the study. The main purpose of software facility is to help improve the quality of the software and the process of system development. Findings show that perceived usefulness and perceived ease of use of software facilities are key factors that are needed by applicable facilities for the development of high quality software. Moon and Kim [20] focus on perceived usefulness and perceived ease of use of TAM in their studies and explore the acceptance of external variables on the Internet and put forward their hypotheses, expanding the TAM to Internet contents. Roca and Gagne [21] try to learn about the intention to continually apply digital learning at workplaces. They also use self-determination theory and TAM and the findings have verified previous studies which consider perceived ease of use is an important antecedent of perceived usefulness.

Hong et al. [22] mainly discuss factors that influence the usage of digital repositories and whether the extended interface design is the factor that affects the usage of digital repositories. Their conclusions show that interface design is an important factor that influences digital repositories and human-computer interface has a significant influence on perceived ease of use and intention to use. Users think that digital repositories are useful and easy-to-use while human-computer interface is more important than human factors in the digital repositories.

Farahat [23] mainly discusses the determinants that lead to the acceptance by students to learn online and how these determinants become students' intention to use and further the usage of online learning. His findings show that perceived ease of use, perceived usefulness, attitude and the peer influence are determinants that affect students' usage of online learning. The study of Stantchev et al. [24] aims at investigating the motivation that causes students of higher education to use cloud file hosting to replace learning management system for information sharing and cooperation. They use three major factors, i.e. perceived ease of use, perceived usefulness and attitude. The findings show that the perceived ease of use of cloud file hosting is above the tools and service of learning management system while the perceived usefulness of cloud file hosting is higher than standard learning management tools. The attitude orientation of using cloud file hosting is much higher than using learning management system tools.

Fig. 1 Framework of Technology Acceptance Model (TAM)
TAM has been applied in many research areas, with a main purpose to interpret and predict the acceptance of users on the new information system. It is also one of the most common theoretical models used to study users' technology acceptance behaviors. Therefore, this study aims to take TAM as the theoretical basis to explore consumers' usage of e-cash coupon and the impact on behavioral intention. By using the TAM a company can make a determination about innovation in technology and whether it will be a good fit or something that would be better left alone. Having information in the cloud is not for everyone. It is difficult to argue that ease of use exists, because there is no need to store anything on the company's servers; that uses less space, and the data retrieval is very easy [25].

2.3 Consumer Involvement

Consumer involvement refers to perceived personal importance, or an interest regarding acquisition, consumption or disposition of goods, services or ideas. As the level of consumer involvement increases, the consumer has greater motivation to gather, comprehend, elaborate and assimilate on information. Consumer behavior researchers consider involvement as a moderating variable in a consumer's decision-making process [26]. Zaichkowsky [27] defines involvement as “a person's perceived relevance of the object based on inherent needs, values, and interests”. Consumers' involvement with purchasing influences their purchasing behavior, and different consumer types (i.e. market segments) can be identified on the basis of their involvement.

Park and Mittal [28] defined involvement as an internal state variable that indicates the amount of arousal, interest, or drive evoked by a particular stimulus or situation, and has been described as the key motivating factor for understanding consumer choices in the market. Mittal and Lee [29] indicated that involvement is the perceived value of the goal object which exists to represent the interest of the goal object. Celsi and Olson [30] defined involvement as “felt personal relevance”. They claimed that a consumer’s level of involvement is determined by the degree to which the consumer perceives the concept to be personally relevant in achieving their personal goals and values.

Arnould et al. [31] indicated that involvement is the psychological outcome of motivation. Blackwell et al. [32] believed that involvement is “the level of perceived personal importance and/or interest evoked by a stimulus within a specific situation”. The degree of involvement is determined by the consumer perception of the importance of product or service. Consumers’ perceived needs for the product or service, the level of consumer involvement in a product or service are more intensely in the decision-making process.

Saleh and Akhavanfar [33] indicated that involvement refers to the importance of consumer involvement of an object or event. There are two types of involvement: Ego involvement and purchase involvement. Ego involvement is a function of past experiences of services and the knowledge about the products and services that a customer gets over time. Purchase involvement or temporary involvement involves time, efforts and invested expense in the shopping that consumer concerns about reduction of risks related with services selection.

3. Research Method Equations

On the basis of above mentioned motivation and purpose, this study first analyzes relevant literatures at home and abroad and then designs and modifies a questionnaire after interviews with scholars and experts according to qualitative research, and finally a questionnaire survey and collection is made to get the research data. Findings are arrived at after the analysis of data and the application of statistical method in quantitative study. By applying the research framework, the issues of this study are explored. After interviewing experts, questionnaires and surveys are designed for the data collection from respondents. The tools adopted and the methods of statistical analysis on respondents and data are illustrated as follows.

3.1 Research Framework

On the basis of motivation and purpose while combining the analysis of relevant literature, this study puts forward the following research framework.

3.2 Research Hypotheses

H1: E-cash coupons value is positively related to perceived usefulness.
H2: E-cash coupons value is positively related to perceived ease of use.
H3: Consumer involvement has significant positive interference effect on the relationship between e-cash coupons value and perceived usefulness.
H4: Consumer involvement has significant positive interference effect on the relationship between e-cash coupons value and perceived usefulness.
H5: Perceived ease of use is positively related to perceived usefulness.
H6: Perceived usefulness is positively related to intention to use.
H7: Perceived ease of use is positively related to intention to use.

3.3 Data Collection

This study mainly explores the e-cash coupons issued by online retailers in Taiwan and consumers’ intention to use such coupons. The objectives of this study are consumers who have experience in using e-cash coupons. The modified questionnaire after the interviews with scholars and experts are designed according to qualitative research, and delete topics that are not clear and are not compliant with existing circumstances to ensure the integrality and significance of the questionnaire. Finally, a questionnaire survey and collection is made to get the research data from respondents.

3.4 Statistical Analysis

The hypothesized models are tested using SPSS for windows statistical package. Descriptive statistical analysis is used to summarize the basic features of the data and factor analysis is adopted to measure the validity and reliability of the questionnaire. Pearson correlation analysis is used to explore the correlation between the two sets of quantitative variables, in other words, to explore whether one set of variables will affect another set of variables. In this study, single-factor ANCOVA and regression analysis is used to analyze the predictive relationship between two variables, which is the core of hypotheses verification, i.e. to explore the operability of the model and whether the explanatory power of explanatory variables are significant, as is the cause-effect relationship between response variable and explanatory variables.

4. Data Analysis and Result

4.1 Descriptive Statistical Analysis

In this study, online customers are adopted as survey respondents for data collection and a total of 157 valid surveys were returned with a participation rate of 79% (157 out of 200). Results showed that 89 participants are male (56.69%) and 68 participants are female (43.31%). Majority of participants (61.15%) have a bachelor’s degree with ages between 20–30 years old while 13.6% participants have master degree. Regarding years of work experience, most of them (49.68%) have had work experience of less than 5 years and 42.36% of the participants had more than 5 years of work experience.

4.2 Results and Findings

In this study, the factor analysis showed the factor loadings are greater than 0.5 and each item of the corrected item-to-total correlation had a value greater than 0.4. The value of Cronbach’s coefficient alpha for each variable is between 0.8 and 0.9. The value of Pearson’s correlation coefficient for each variable ranges from 0.321 to 0.652. The results of the correlation coefficients all reach statistical significance levels and indicated that there are correlations between each variable and itself. In addition, one-way ANCOVA is used to analyze the effect of interference between the independent variables and dependent variables. Levene’s test is used to assess homogeneity of variance, the result showed that the significance level of Levene’s test is greater than 0.05, which indicated that the variance for the groups are the same and have equal variance assumption. As shown in table 1, the results of ANCOVA indicate that consumer involvement of e-cash coupons value has a significantly positive impact on perceived usefulness (F=23.920, p<0.001) and the power of test is 0.998. E-cash coupons value has a positive effect on perceived usefulness (F=5.677, p<0.001) and the power of test is 0.978. R2 is 0.346 and the ratio of explained to total variance is 32.5%. From the above results, the hypothesis H3 and H4 is supported.
For hypotheses testing, a simple regression analysis is used to predict a relationship between the variables. D-W (Durbin-Watson) is used to test self-correlation and VIF (Variance Inflation Factor) is used to detect multicollinearity in the explanatory variables. For H1, E-cash coupons value is positively related to perceived usefulness ($R^2=0.158$, Adj-$R^2=0.152$, $F=28.830$, $\beta=0.397$, $p<0.001$, D-W=2.042, VIF=1.000). For H2, E-cash coupons value is positively related to perceived ease of use ($R^2=0.131$, Adj-$R^2=0.137$, $F=24.437$, $\beta=0.370$, $p<0.001$, D-W=2.020, VIF=1.000). The results indicated that the greater the e-cash coupons value the higher the perceived usefulness and perceived ease of use. Therefore, H1 and H2 are supported. For H5, perceived ease of use is positively related to perceived usefulness ($R^2=0.128 \cdot \text{Adj-} R^2=0.122 \cdot F=22.530$, $\beta=0.357$, $P<0.001$, D-W=1.650, VIF=1.000). The higher the perceived usefulness, the more likely that perceived usefulness will be high. Thus, H5 is supported. For H6, perceived usefulness is positively related to intention to use ($R^2=0.193 \cdot \text{Adj-} R^2=0.188 \cdot F=36.856$, $\beta=0.439$, $P<0.001$, D-W=1.689, VIF=1.000). For H7, perceived ease of use is positively related to intention to use ($R^2=0.067 \cdot \text{Adj-} R^2=0.061 \cdot F=10.982$, $\beta=0.258$, $P<0.001$, D-W=1.819, VIF=1.000). The higher perceived usefulness and perceived ease of use, the more likely that intention to use will be high. The H6 and H7 are supported for this study.

### 5. Conclusion

This study used TAM to explore the effects of e-cash coupons value, involvement, perceived usefulness, and perceived ease of use on customers’ behavioral intention. This study distributed questionnaires for sample survey and established the path for relationships and impacts among different perspectives. In this study, the results showed that e-cash coupons value is positively related to perceived usefulness and perceived ease of use. Consumer involvement has a significant positive interference effect on the relationship between e-cash coupons value and perceived usefulness. In addition, consumer involvement has significant positive interference effect on the relationship between e-cash coupons value and perceived ease of use. Perceived ease of use is positively related to perceived usefulness. Perceived usefulness and perceived ease of use are positively related to intention to use. However, this study develops the measurement method suitable for e-cash coupons and discusses the impact of the factors for decision making of using e-cash coupons on perceived usefulness and perceived ease of use of e-cash coupons on consumers and further on their intention to use. This study hopes to provide a reference for future researchers. E-cash coupons can increase consumers’ attention on commodity and the willingness to buy. Generally, consumers tend to choose commodities with e-cash coupons. For e-commerce operators, consumers are more willingly to buy at stores that issue e-cash coupons. Therefore, the e-commerce websites which often use e-cash coupons will increase its exposure for this reason to attract consumers’ attention.

The research objectives are mainly general consumers, while it is not possible to collect all matrix data in reality. Due to the method of subjective identification, the objectiveness might be weakened by reason of different subjective feelings of the respondents. During the actual distribution of questionnaires, consumption ability differed with different occupations, for example, students’ purchase ability was weaker, and thus e-cash coupons were more attractive to student groups. Meanwhile, those who had entered into the working society would pay more attention to quality, thinking that e-cash coupons were just a reference and the quality of a commodity was more important. Many consumers were still doubtful about transactions on the Internet thus they wouldn’t choose to purchase on e-commerce websites.

However, this study is restricted by many objective conditions and cannot explore all issues in detail; therefore, it can propose several suggestions for reference for other scholars in the future. Although this study has reached the effective sample size, for the sake of the integrity of sample data, it is suggested that the following research scholars in the future extend the scope of empirical population of the survey respondents and conduct stratified random sampling for customers of different background variables to further discuss the acceptance of customers of different background variables of E-cash coupons. Furthermore, this study adopts E-cash coupons value, consumer involvement, perceived usefulness, and perceived ease of use as external variables to discuss user behavioral intention, yet the literature analysis results show that many other relevant external factors such as service quality, network literacy, organizational influence and external support have can be applied to related research. Therefore, it is suggested that future researchers should bring more external variables into research and discussion, which can make this study more complete. In addition, researchers may focus on the preference of consumers for the particular type of coupons.

### Table 1. The results of ANCOVA

<table>
<thead>
<tr>
<th>Variables</th>
<th>Dependent</th>
<th>$R^2$</th>
<th>Adj-$R^2$</th>
<th>$F$</th>
<th>Power</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANCOVA-Involvement</td>
<td>Perceived Usefulness</td>
<td>0.317</td>
<td>0.294</td>
<td>23.920</td>
<td>0.998</td>
<td>0.000***</td>
</tr>
<tr>
<td>Independent-e-cash coupons</td>
<td>Perceived Usefulness</td>
<td>0.346</td>
<td>0.325</td>
<td>38.151</td>
<td>1.000</td>
<td>0.000***</td>
</tr>
<tr>
<td>ANCOVA-Involvement</td>
<td>Perceived Ease of Use</td>
<td>0.294</td>
<td>0.275</td>
<td>5.677</td>
<td>0.978</td>
<td>0.000***</td>
</tr>
<tr>
<td>Independent-e-cash coupons</td>
<td>Perceived Ease of Use</td>
<td>0.317</td>
<td>0.294</td>
<td>7.317</td>
<td>0.999</td>
<td>0.000***</td>
</tr>
</tbody>
</table>

- $R^2$ = 0.158, Adj-$R^2$ = 0.152, $F=28.830$, $\beta=0.397$, $p<0.001$, D-W=2.042, VIF=1.000.
- $R^2$ = 0.131, Adj-$R^2$ = 0.137, $F=24.437$, $\beta=0.370$, $p<0.001$, D-W=2.020, VIF=1.000.
- $R^2$ = 0.128, Adj-$R^2$ = 0.122, $F=22.530$, $\beta=0.357$, $P<0.001$, D-W=1.650, VIF=1.000.
- $R^2$ = 0.193, Adj-$R^2$ = 0.188, $F=36.856$, $\beta=0.439$, $P<0.001$, D-W=1.689, VIF=1.000.
- $R^2$ = 0.067, Adj-$R^2$ = 0.061, $F=10.982$, $\beta=0.258$, $P<0.001$, D-W=1.819, VIF=1.000.

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