## A Causal Model of Structural Factors Predicting College Students' Intention of Using the e-Fund Transfer System as Payment Scheme for Tuition and Other Fees

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#### Abstract

The purpose of the study is to identify important factors that determine UMDC students' usage and behaviors of using the electronic fund transfer system as a payment scheme in paying for their tuition and other fees. It also determined the structural model that best illustrates the relationship of the external factors towards the users' (or students') perceived ease of use of the electronic fund transfer system, their perception on its usefulness and their intentions of using it in payment transactions, following the Technology Acceptance Model (TAM) of Davis and Venkatesh (1996). This study made use of the descriptive-causal method of research and employed quota sampling technique involving 200 students from the seven departments of University of Mindanao in Digos City. Statistical tools involved correlation analysis to examine the interrelationship of the external variables and with the students' perceived usefulness, ease of use and intentions of use; and structural equation modeling (SEM) to determine the causality of the variables. Results of the survey showed that most of the students of University of Mindanao in Digos City are mostly females, enrolled under the College of Business administration and are full-time students who depend on their parents for their tuition payments. The study further revealed that the external variables used in the study (System Quality, Client Convenience, Personal IT Innovativeness, Social Influence and Service Quality) are found to be highly satisfactory as perceived by the students. Furthermore, all of the variables are found to be significant determinants of students' perceived ease of use, usefulness and behavioral intentions in the final structural model derived.

Keywords: Usefulness, Ease-of-Use, Intention, e-Fund Transfer System, Structural Model

### **1. Introduction**

The slogan "It's no e-commerce, if you can't get paid!" led to the rapid development of electronic payment methods in the late seventies. Thus, solely for the Internet, more than a 100 payment methods are available, part of which are still being used commercially. Despite the intensive efforts made by the economy, in particular banks and in recent times also mobile telephone operators, so far none of the innovative electronic payment systems have become generally accepted in the market (Kannen, Leischner & Stein, 2003).

In Ghana, payment for goods and services is characterized by long queues, long distance travelling and time wasting that generally affect business activities and ultimately economic development. Settling utility bills, payment for goods and services, and money transfers has been a major headache for individual and firms in Ghana resulting in declined business activities and huge debt to most of the utility providers. In fact, the country have not yet realize the full benefits of the technological advances in electronic payment such as the use of cards, automated teller machines (ATM), the Internet, mobile phones, among others (Pikkarainen, Pikkarainen, Karijaluoto, & Pahnila, 2004).

In the Philippines, the escalating need of paying either for services rendered, for payables or for transactions without hassles resulted to the creation of more than a 100 payment methods available in the market today, part of which are still being used commercially (Miranda-Petronella, 2009). Despite the intensive efforts made by the economy, in particular banks, fund transfer companies, and, in recent times, mobile phone companies, few of the innovative electronic payment systems have become generally-accepted in the market so far.

In Davao City, the use of electronic payment systems have long been used by various establishments, may they be commercial ones or service providers. Most were in partnerships with financial institutions and remittance centers. In an educational setting, a few institutions of higher learning have made payment of fees and student tuition easier for parents and students in the like through electronic payment schemes in banks. In a university setting, Lubrigas (2013) recently identified salient factors that characterize an electronic payment system and the significant underpinnings towards its usefulness, ease of use and intentions of use. However, the study was not able to model out the intentions of use with the use of such factors. Also, the system he studied was for a proposed e-payment schema.

With these scenarios, the need to model out how students behave towards their intention of using an existing e-payment system spurs the researcher's interest. The study thus roots on the idea that electronic payment system would be of aid to an institution of higher learning like the University of Mindanao towards improvement its services. Such efforts will be quintessential for its stakeholders to determine if the College sees the urge to intensify the adoption of such new technology in the field of commerce and development.

### 2. Description of Research

This study focused on modelling the structure of students' intention of using the electronic fund transfer or payment system currently used by University of Mindanao. The scope of the study hinges on structural equation modelling (SEM) of the five (5) identified factors that influence perceived ease of use, usefulness and intentions of using an e-payment system, which are as follows: (a) personal IT innovativeness; (b) social influence; (c) management support; (d) client convenience; and (5) system quality. To attain this, primary data will be gathered from the undergraduate students of the University of Mindanao in Digos City using a survey method. Time frame of the study will be two months (November 2013 to December 2013). Furthermore, the results will be limited to the responses of the respondents of this study. The reliability of responses depended mainly on the reasonable judgment and honesty of respondents in answering the survey questionnaires given to them.

The study will be a basis for further improvement and implementation of the system on payment of tuition and other fees which will be easier, faster and friendlier than the traditional face-to-face transaction. This will give students as well as parents the full control on their time of settling their enrolment payment and account balances without the hassle of queuing and waiting for a day or more to be enrolled or have paid. Likewise, this will benefit colleges and universities, such that its intention is primary developing a system that will improve the enrolment and collection systems it currently practices. A new system of payment (e-payment) will be beneficial as it will give rise to faster, more efficient service delivery and much secure collection of fees from students. Also, the study will benefit banks as this study will imply increase of number of bank subscribers and additional source of income from feebased transactions. E-payment usually involves a third-party collecting agent like banks and collecting institutions which will be one of the key beneficiaries by means of additional source of income. Lastly, results from this study will provide foundation information for the future researchers who will conduct a deeper study on e-payment as it applies on a university context.

#### **2.1 Research Questions**

This study aims to determine the factors that influence perceived ease of use, perceived usefulness and intentions of using the electronic fund transfer/payment system as a payment scheme of tuition and other fees of students of University of Mindanao in Digos City. Specifically, it seeks to find answers to the following questions:

RQ1. What is the profile of the college students in terms of sex and course?

RQ2. What is the level of perception of students on the e-fund transfer as payment system in terms of the following exogenous factors: (a) Personal IT Innovativeness, (b) Social Influence, (c) Management Support, (d) Client Convenience; and (e) System Quality? RQ3. How do the students of University of Mindanao in Digos City perceive the e-fund transfer as payment system as to the following endogenous factors: (a) Perceived Ease-of-Use, (b) Perceived Usefulness, and (c) Intentions of Use?

RQ4. Are there significant relationships existing between the exogenous variables, (Personal IT Innovativeness, Social Influence, Management Support, Client Convenience, and System Quality)

RQ5. What are the structural factors that determine students' perceived usefulness, perceived ease of use and intentions of using the e-fund transfer as payment system of University of Mindanao in Digos City?

#### 3. Method

#### 3.1 Research Design

This study utilized quantitative research design. This is used to develop and employ mathematical models, theories and/or hypotheses pertaining to phenomena (Given, 2008). The investigation aimed to come up with a structural model using all significant factors that determine perceived ease-of-use, usefulness and intentions of using electronic fund transfer as payment system in University of Mindanao in Digos City as perceived by the students. Moreover, this study also employed the causal design. The causal design was used to explain the dependent variables through the measure of the impact of the independent variables (Cooper & Schindler, 2008). This can be exemplified in this manner: the essential element of causation is that system quality, client convenience, personal I.T. innovativeness, social influence, and management support "produce" perceived ease-of-use, usefulness and intentions of using electronic fund transfer/payment system or system quality, client convenience, personal I.T. innovativeness, social influence, and management support "forces" perceived ease-of-use, usefulness and intentions of using electronic fund transfer/payment system to occur.

#### 3.2 Survey Questionnaire and Data Collection

Primary data were gathered from the students of University of Mindanao in Digos City through the use of survey questionnaires to determine the structural factors that determine perceived ease-of-use, usefulness and intentions of using e-fund transfer or payment system as assessed by the students of University of Mindanao in Digos City. The collected data came from a representative sample of students of the University enrolled in the seven departments, namely Business Administration, Education, Information Technology, Criminology, Technical Course, Liberal Arts and Nursing. A total of 237 students representing the seven programs of University of Mindanao in Digos City participated in the study. They were conveniently chosen as final sample considering the time and effort constraints the researcher has met in the data-gathering phase. This sample size is seen to be the goal for SEM research

as suggested by Kenny (2011), who cited that a minimum of 200 respondents can be a good sample size for a study involving SEM.

The survey questionnaire is composed of three parts. Part I asked the respondents' demographic profile; Part II instructed the respondents to rate from 1 to 7 the questions their perceptions on scenarios characterizing an e-payment features, abilities and usage; and Part III instructed the respondents to rate from 1 to 7 the e-payment's perceived usefulness, perceived ease of use and intentions of using the electronic fund transfer/payment system, based on the underpinnings of this study's conceptual frameworks. The questionnaire adopts the following authors' works: Cronin (1992), Japarson, Sambamurty & Zmud (1999), Agarwal & Prasad (1998), Davis, et. al. (1989) and Faunillan (2011), with additional items added in context with each factor. The items were rephrased to suit with the use of it in the university context.

#### **3.3 Data Analysis**

Descriptive statistics which include frequency and percentage were used to determine the profile of the students in terms of sex and course/program.

Weighted mean was used to measure the level of the structural factors which includes system quality, client convenience, personal I.T. innovativeness, social influence, and management support, as well as the level of perceived ease-of-use, usefulness and intentions of using electronic fund transfer/payment system.

Multiple linear regression analysis was used to determine the significant determinants of perceived ease-of-use, usefulness and intentions of using electronic fund transfer/payment system.

Finally, structural equation modelling (SEM) was employed to assess the determination of the fit model of perceived ease-of-use, usefulness and intentions of using electronic fund transfer/payment system. In evaluating the goodness of fit of the model, the following indices were computed: CMIN/DF, Tucker-Lewis Index (TLI), Comparative Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA) and P of close fit (PCLOSE).

#### 4. Results of Analysis

#### 4.1 Profile of the Respondents

Found in **table 1** is the data that showed the profile of the respondents in terms of sex and course/program they are enrolled in. In terms of sex, there are 70 male respondents constituting 29.5 percent and 167 females that constitute 70.5 percent.

On the other hand, in terms of courses/programs, there are 83 Business Administration students representing 35 percent of the entire sampled respondents, followed by 56 Education students that constitute 23.6 percent; 41 Information Technology students, constituting 17.3 percent, 34 Criminology students that constitute 14.3 percent, 8 Technical students,

constituting 3.4 percent, 9 Nursing students, constituting 3.8% and 6 Liberal Arts students that constitute 2.5 percent. Data further implies that in the overall level, most of the respondents are females and predominantly enrolled in the College of Business Administration.

Table 1. Profile of the Respondent Students

Profile	Frequency	Percent
Profile	237	100.0
Male	70	29.5
Female	167	70.5
Course	237	100.0
Business Administration	83	35.0
Education	56	23.6
Information Technology	41	17.3
Criminology	34	14.3
Technical Course	8	3.4
Liberal Arts	6	2.5
Nursing	9	3.8

# 4.2 Students' Level of Perceived Agreement on the Structural Factors of e-Fund Transfer System

Enumerated in **table 2** are the structural factors that are hypothesized to determine use and intentions of using the electronic fund transfer system as payment scheme in University of Mindanao in Digos City. These structural factors, serving as the exogenous variables of the study, included personal IT innovativeness, social influence, management support, client convenience and system quality.

**Personal IT Innovativeness.** In terms of personal IT innovativeness, the overall weighted mean is 5.40, which is interpreted as *Somewhat Agree*. This further entails that the situations that entail to measure how they behave or do when confronted with situations asking their competency in IT or technology is on the initial phase of agreement or above the average. This further means that students of University of Mindanao in Digos City may have the tendency to improve more in terms of their IT skills, competencies or knowledge that may be important in interacting with an IT-laden environment.

**Social Influence.** In terms of social influence, the overall weighted mean is 5.21, which is interpreted as *Somewhat Agree*. This further entails that influence of family and other people towards the decision-making of students cannot be denied.

**Management Support.** In terms of management support, the overall weighted mean is 5.25, which is interpreted as *Somewhat Agree*. This further entails that support of UMDC's administration, officials and management on the implementation and practice of e-fund transfer as payment scheme is manifested and is essential as viewed by the students.

**Client Convenience.** In terms of client convenience, the overall weighted mean is 5.01, which is interpreted as *Somewhat Agree*. The overall result implies that e-fund transfer system as a payment scheme is somewhat agreeable to provide convenience to its clients (student- or parent-/guardian-payers). However, the level of affirmation on this factor is observably smaller, which may be attributed that e-payment/e-fund transfer system is not that intensively practised or adopted in the College and that they have been accustomed to pay directly in the Cashier's Office.

**System Quality.** In terms of system quality, the overall weighted mean is 5.55, which is interpreted as *Agree*. This further entails that the quality of the system, its technicalities and its properties as a technologically-accepted framework is generally agreeable as perceived by the students. This further entails that the electronic fund transfer/payment scheme is seen to be on a good level by the students when quality is assessed.

Exogenous (Structural) Factors	Mean	Interpretation
Personal IT Innovativeness	5.40	Somewhat Agree
Social Influence	5.21	Somewhat Agree
Management Support	5.25	Somewhat Agree
Client Convenience	5.01	Somewhat Agree
System Quality	5.55	Agree

Table 2: Perceptive Level of Agreement on the Exogenous (Structural) Factors

## 4.3 Level of Students' Perceived Ease-of-Use, Usefulness and Intention of Using the Electronic Fund Transfer System

Indicated in **table 3** are the results of the students' level of perceived ease of use on the electronic fund transfer system as payment scheme in University of Mindanao in Digos City. Results reveal that the overall level of ease of use of the e-fund transfer/payment system as a payment scheme has a computed weighted mean of 5.44, interpreted as *Somewhat Agree*. This means that students perceive the current and existing e-payment system practised in the University of Mindanao and in University of Mindanao in Digos City in particular to be to be somewhat agreeable to be easy to use.

Also, shown in **table 3** are the results of the students' level of perceived usefulness of the electronic fund transfer system as payment scheme in University of Mindanao in Digos City. Results reveal that the overall level of perceived usefulness of the e-fund transfer/payment system as a payment scheme of University of Mindanao in Digos City has a computed weighted mean of 5.43, interpreted as *Somewhat Agree*. This means that students perceive the current and existing e-payment system practised in the University of Mindanao and in University of Mindanao in Digos City in particular to be to be somewhat agreeable in terms of usefulness to the students and with other stakeholders who are using it.

Lastly, gleaned in **table 3** are the results of the students' level of intentions of using the electronic fund transfer system as payment scheme in University of Mindanao in Digos City.

Results reveal that the overall level of level of intentions of using e-fund transfer/payment system as a payment scheme of University of Mindanao in Digos City has a computed weighted mean of 5.40, interpreted as *Somewhat Agree*. This means that students behave in the manner of agreeing somewhat on the implementation and practice of e-fund transfer/payment system as a payment scheme at University of Mindanao in Digos City. Also, the results signify that the said payment system is on an acceptable rate.

Endogenous Variables	Mean	Interpretation
Perceived Ease of Use	5.44	Somewhat Agree
Perceived Usefulness	5.43	Somewhat Agree
Intention of Use	5.40	Somewhat Agree

Table 3: Perceptive Level of Agreement on the Endogenous Variables

## 4.4 Structural Model of Perceived Ease-of-Use, Perceived Usefulness and Intentions of Using Electronic Fund Transfer as a Payment Scheme in UMDC

Results of the regression analysis as seen in **table 4** reveal that social influence ( $\beta$ =.226, p=.000), client convenience ( $\beta$ =.101, p=.017), perceived ease-of-use ( $\beta$ =.207, p=.001) and perceived usefulness ( $\beta$ =.427, p=.000) are the significant variables that determine college students' intention of use of the e-fund transfer system in paying tuition and other fees.

Table 4: Structural Factors that Significantly Determine College Students' Intention of Using the e-Fund Transfer System as Payment Scheme

Variables	β	t	p-value
(Constant)	.369	4.108**	.000
Personal IT Innovativeness	.012	.218	.828
Social Influence	.226	3.903**	.000
Management Support	070	-1.180	.239
Client Convenience	.101	2.395*	.017
System Quality	.090	1.704	.090
Perceived Ease of Use	.207	3.236**	.001
Perceived Usefulness	.427	6.853**	.000

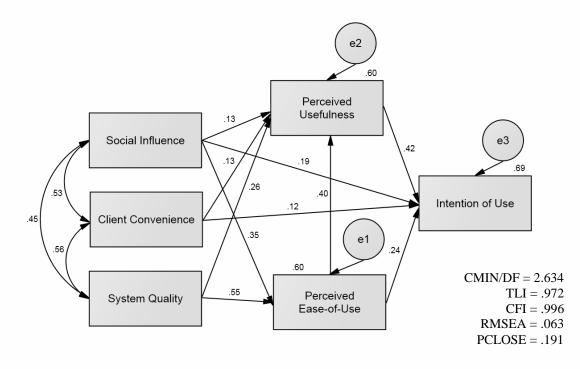
\*\* Significant at 99% confidence \* Significant at 95% confidence

Also, the causal model below delineates the final model after series of statistical tests employed on the variables of the study. Presented on **figure 1** are the final exogenous variables that are found to display significant causal influence of the endogenous variables. It was found out that the squared multiple correlation coefficient value of the factors towards intention of using the e-fund transfer system is .69. This entails that the combination of the variables explain 69% of the intention of the students' intention to use the system in paying for their tuition and other fees. In the same manner, the structural factors were also found to explain 60% of the perceived usefulness and 60% of the perceived ease of using the e-fund transfer system.

In the same manner, the causal paths of the exogenous variables towards the usefulness, ease of use and intention of using the e-fund transfer system were found to be significant at 0.05 level of significance. The final causal model proves to have excellent, if not very good fit

indices, with minimum chi-squared (CMIN/df) value of 2.634 (which must be lower than 3.0), Tucker-Lewis Index (TLI) and Comparative Fit Index values of .972 and .996, respectively (which must be greater than .95), Root Mean Square Error of Approximation (RMSEA) value of .063 (which must be lower than .08), and P of close fit (PCLOSE) value of .191 (which must be greater than .05).

Figure 1: Causal Model of Factors Predicting College Students' Intention of Using e-Fund Transfer as a Payment Scheme



### 5. Conclusions

Basing on the statistical findings and discussions, the study thus developed a structural model on intentions of using the electronic fund transfer system as a payment scheme in University of Mindanao in Digos City.

The practices that characterize situations concerning use of electronic fund transfer as payment scheme, which are incorporated on the five factors, namely systems quality, client convenience, personal IT innovativeness, social influence and management support, are found to be somewhat agreeable as perceived by the students. This entails that such practices need to be improved further to attain a strongly agreeable level.

Results of the structural equation modelling reveal there are factors that explain students' perceived ease-of-use, perceived usefulness and intentions of using the electronic fund transfer system as payment scheme. However, only system quality, social influence and client convenience were found to be the factors that can be incorporated in the structural model that epitomize intentions of use of the electronic fund transfer as payment scheme of students of University of Mindanao in Digos City.

Based on the findings and conclusions of the study, the University of Mindanao administration must review the derived model and adopt the findings of the study to be a basis for further development, improvement and promotion of the use of electronic fund transfer as payment scheme. The structural model will likewise be a basis for University of Mindanao in Digos City and the University of Mindanao system as a whole in developing a roadmap towards institutional development, incorporating accessibility and ease of students in the enrolment, payment and settlement of balances.

Furthermore, the most significant factors in the structural model must be focused by the University officials and management for further system development and improvement. It must likewise formulate programs and activities that embody the three core exogenous factors (social influence, system quality and client convenience. A strategic plan in the form of key result area, action plan or logical framework can map priority areas and allocations for such projects or activities in consonance with the use, promotion and maintenance of the electronic fund transfer services.

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