Multi-Criteria Approach for Customer Trust Model in Internet Banking: A Case of UTM CIBM Bank

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Abstract: One of the critical factors having influence on accomplishment of internet banking services is the trust of the customer. To achieve customer trust depends on different factors that internet banking struggle to control. The purpose of this research is to clarify the particular interrelationships existing between customer's online trust and other associated variables such as satisfaction, loyalty, competence, integrity and benevolence. In addition, a model of consumer's trust in internet banking which depends on the investigation regarding previous studies has been developed. To examine the model a type of descriptive survey is applied. According to similar studies already done, the survey sample population is selected equal with 318 that is randomly obtained from students in UTM. By testing the correlation, the results of study indicated that most of UTM students are satisfied with internet banking services. Furthermore, the results showed that the trust correlation with satisfaction, competence, loyalty, benevolence and integrity is positive. Moreover, from the multi-criteria perspective, we evaluated the incorporated factors in the developed model and ranked them by TOPSIS method. By TOPSIS the weight of ranking for loyalty, satisfaction, benevolence, competence and integrity were 0.25, 0.213, 0.201, 0.184 and 0.152. We hope the current study could be helpful to eliminate the problems existing around sensitive subject of the trust.
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1. Introduction

The emergence of innovative internet technology in recent years has changed the particular global market setting. Today, the global market is going to be borderless. Companies are going to be expanded to the any corner on the world without putting together a physical company on the targeted location. The online world technology also helps business to supply its business hours to 1 day in almost 365 days annually. Significant studies conducted about internet banking from both technical and also user acceptance viewpoints (Graham, 2003; Patil and Shyamasundar, 2005; Mohd Saleh, 2005; Ramayah et al., 2005; Lim et al., 2006; Rigopoulos and Askounis, 2007; Elly and Kavishe, 2008; Sumanjeet, 2009; Haque et al., 2009; Kim et al., 2009; Özkan et al., 2010; Aw et al., 2011; Chavosh et al., 2011; Harris et al., 2011; Rouibah, 2012). Regarding these studies, several important factors that influence opinion about internet banking are suggested. According to Hataiseree (2008) cash and cheques considered as usual payment styles as consumers are not convinced regarding the advantageous of several internet banking procedures. Abrazhevich (2004)

mentioned that the failure of internet-banking for designing and also developing the system cannot meet user requests and expectations, and on the other hand trust considered as an important concern in this regard. Furthermore, distrust considered as a crucial factor that hinders the use of internet banking among different people (Friedman et al., 2000; Fatimah et al., 2000; Multimedia Development Corporation, 2001; Chellappa and Pavlou, 2002; Wang et al., 2007; Stroborn et al., 2004; Tsiakis and Sthephanides, 2005; Kousaridas et al., 2008; Linck et al., 2006; Md Johar and Ahmad Awalludin, 2011; Benamati et al., 2007; Ren and Hassan, 2008; Oh et al., 2006; Poon, 2008; Sumanjeet, 2009; Teoh et al., 2013; Liébana Cabanillas, 2013).

These studies usually discuss about the affecting factors regarding the perceptions of internet banking. Few studies have been done to examine those effects in one context (e.g. Haque et al., 2009; Özkan et al., 2010) and usually related studies were done in Malaysian context (Raisian et al., 2013). Due to the developments that have been happen in Malaysia during the recent years, it seems interesting to study about those developments in the Malaysian

context, by doing those studies researchers can make several predictions regarding the developments in the future of internet banking in Malaysia.

Usually by using different internet banking procedures, users do not feel secured regarding their financial and also private information that they have to share in the system and usually users feel distrust to use those facilities. Therefore, it is very important to know that how trust can affect internet banking among different customers and also what important factors can affect customer trust.

In different studies that have been done regarding the internet banking transactions in the world, trust considered as one of the most important factors regarding the customer satisfaction. Among the internet banking strategies, starting, generating and also protecting the trust between bank and customer considered as the most crucial factors. Additionally, the concept of trust in the banking industry considered as an important factor in the related sciences all over the world. It should be noted that in the Malaysia, the function of trust in the internet banking did not study a lot and during the current study researcher attempts to identify important factors of internet banking among different users and also identifying the trust factors which can support customer habit toward internet banking. There is absolutely no figure in relation to internet banking use expansion within Malaysia has been identified so far. Nevertheless, researcher are able to get some insights in relation to the amount of World Wide Web banking use within Malaysia from a number of the neighborhood researches within internet banking regarding the past few several years (Suganthi et al., 2001).

Understanding better from the customer wants of internet banking and all external relative factors that effects to the customer to use the service, there is a need to make sure to provide a business model with metal of customer banking.

2. Malaysian internet banking

Two important internet banking is usually used in Malaysia, such as large value payment system that includes real-time electronic transferring of different funds and security system, and retail payment system that has three different categories. First category refers to the retail payment systems (e.g. National check information clearing system, shared Automated Teller Machine (ATM) network, e-debit, net bank GIRO, financial process exchange, and direct debit), and also retail payment tools (e.g. credit card, charge card, debit card, e-money), and until payment channels (e.g. ATM, internet banking, mobile banking, and payment). The mentioned payment procedures usually include trades of to

RM49.5 trillion (USD15.9 trillion) in 2011, that is equal to 58 times of Malaysia's Gross Domestic Product (GDP) (Central Bank of Malaysia, 2012c). Regarding the internet banking dealings made per capita, usually 49 transactions happens in 2011 while comparing it to 14.3 in 2003, and there are extra than 80 percent of retail payment transactions happened by electronic procedure in 2011Central Bank of Malaysia, 2012a). This increase happened because of the more use of electronic money in several transactions (27.8 transactions) and credit cards (10.9 transactions) (Central Bank of Malaysia, 2012b). As it has been discussed earlier, using internet banking in Malaysia reported more than its global rate. In Malaysia usually 20 percent of the total transactions happen online, while the global average is 15 percent (The Malaysian Reserve, 2012). As a result, Malaysia ranked as the 29th country in the world in this regard among the 62 top countries, in the general performance of internet banking acceptance base on the 2011 Government E-payment Adoption Ranking (GEAR) study and the Central Bank is directing to enhance different internet banking transactions per capita in 200 by 2020 (Economist Intelligence Unit Limited, 2012). From the 28 million total population of Malaysia, almost more than half of them are using internet transactions, with 17.5, 44, and 93.9 percent of Broadband, Personal Computer (PC), and mobile penetration rates respectively. By using this amount of internet banking all over the Malaysia, different people in charge were enabled to provide several internet and also mobile banking services by Telecommunications corporations and banking organizations (Teoh et al., 2013).

The statistics that have just been stated has given out some important insights for businesses in Malaysia, particularly the banking industry. From the sales and marketing point of view, the meaning of highlighted numbers is opportunity; an opportunity that bank in Malaysia can utilize to develop their products and services to the all over the Malaysia with even lower costs and higher capability to operate 24 hours a day and 365 days in a year.

To check out the online world financial patronage in Malaysia, identified that this accessibility to computers and also the internet had been substantial for that non-internet lender users when compared to internet lender users. This particularly suggested that researcher now have several potential customers who have access to the online world although who definitely are not necessarily employing World-internet financial solutions.

3. Factors affecting the customer trust in internet banking

3.1Customer Satisfaction

According to Aldas et al. (2011) while benefits meet or exceed the anticipated performance, satisfaction happens from the service encounter. Dissatisfaction emerges where the anticipated act is not attained. While some researchers believe that satisfaction of anticipations solely will result in satisfaction, others believe that it creates an unbiased feeling or unimportance. Inferior expectation and/or developed performance cause better confirmation, that can positively affect customer pleasure and continuance goal. The reverse leads to disconfirmation, dissatisfaction, and discontinuance purpose. Based on the internet banking facilities, satisfaction has positive correlation with loyalty". Raychaudhuri (2013) did a study among different information technology consumers in business administrations in Delhi and NCR, talked the concerns of service excellence and its long-term effects on customer satisfaction from an interaction method and relationship marketing viewpoint in the average size B2B sector. Usually both commitment and also trust refers to the consumer satisfaction. Based on the studies that have been done on this area, a committed and trusted user is the result of consumer pleasure. By having satisfaction we can achieve to trust and by achieving trust we would have commitment. These factors are considered as variables that can join customers, buyers and also sellers to each for making a fence around the social discussion. By having this fence, we would have safe environment that covers the evolution of exchange relationship.

Studies on wealthy exchange relations show that, satisfaction has good effect on the relationships (Blau, 1987; Thibaut and Kelley, 1959). Other studies have investigated satisfaction as well; Mowday (1979) investigated about the employment turnover with satisfaction and commitment as two issues. According to their idea, turnover and the two factors seem "to help single information regarding the relationships of the person to the institute". As you can see a correlation between satisfaction, trust and assurance to worker revenue, they may test this hypothesis in the range of e-commerce. Majority of successful exchanges go beyond anticipations and guide partners for developing their associations by decreasing existing substitutes. Satisfaction considered as a helper in trainings as a former circumstances to a devoted and also trusted user.

Garbarino and Johnson (1999) assumed that the level of trust and commitment are reflective of the level of customer satisfaction. Furthermore, the environment can affect the customer's satisfaction. The client's general result and shop involvement is related with this aesthetic intangible (Bitner, 1990). In the satisfaction multidimensional environment regarding exchange relationships, previous studies

often consider the satisfaction as an influential factor. On the other hand, different descriptions of satisfaction were used for examining this variable. Performance satisfaction includes different interactions regarding several expectations of the partners, such as product and also non-product features (Wilson, 1995). Satisfaction as "a positive influential state resulting from the assessment of all features of a firm's working association with another firm" (Anderson and Narus, 1990)". Satisfaction and also dissatisfaction considered as a feeling of sufficiently or insufficiency being respected for relationship influences (Frazier, 1983). According to other studies, we can see several results about the correlation between satisfaction and also consumer performance.

Table 1. 21 Measurement Tools of Satisfaction by Wang (2001)

Satisfaction	
Customer support	E-services
After-sale service	Adapted with need
Request understanding	High quality services
Rapid response	Payment system
Security	Transaction procedures
Secure feeling	Clear price information& transaction
Safe transaction	
User friendly	Fits your need
Easy to use website	Accurate information
Easy to read output	Reliable information
Innovative service	Up to date information

Many researchers found that these achievements refers to the satisfaction as a primary factor in determining the commitment level of a consumer in an opposing manner; based on the results of those studies we can find different attitudes (e.g., Anderson and Lehmann, 1994; Oliver and Linda, 1981; Pritchard, 1999). Cronin and Taylor (1992), Fomell and Olivia (1992), Oliver and MacMillan (1992) have shared Reichheld (1993) mentioned that that consumer satisfaction "is not a surrogate for customer retention". Garbarino and Johnson (1999) opposed with "low interpersonal customers, whose future purposes are driven by overall pleasure, high relational reliable subscribers are driven by trust and commitment. For high relational clients, overall satisfaction has no important effect on future purposes". Overall satisfaction refers to the amount of purchases and collective purchase practices (Garbarino and Johnson, 1999). These investigators mentioned that weak relations had high pleasure as the "main driver" of overall satisfaction while good relations were associated more by awareness of those who take part, which identified the commitment amount of future impact. As you can see in Table 1,

Wang et al. (2001) developed a comprehensive model with 21 factors for measuring customer information satisfaction for web sites that market digital products and services.

3.2 Customer Loyalty

Table 2. Operational of Loyalty for Internet Banking

Operational of loyalty	Author
Considering the Service Provider	(Gremler and Brown, 1996; Mattila, 2001; Ostrowski et al., 1993 and Zeithaml et al., 1996)
Willingness to Recommend	(Butcher et al., 2001 and Javalgi, 1997)
Strength of Preference	(Mattila, 2001)
Feelings of Attachment to Product, Service, or an Organization	(Butcher et al., 2001)
Drivers of Purchase	(Day,1969)
Exclusive Consideration	(Gremler and Brown, 1996)
Price Tolerance	(Anderson, 1996 and Ruyter et al.,1998)

Aldas et al. (2011) mentioned that loyalty refers to the customer's good opinion towards an e-bank supplier, but behavioral intention has also been reflected, that comprises the purpose to stay doing business with the supplier and the purpose to spread word-of-mouth. Studies show that loyal customers stay lengthier, low expensive to service, provide higher limitations, obtaining more through product lines, spread positive word-of-mouth, specify immunity to the struggle and less price understanding, and are willing to pay a prize to do business with their applied vendors (Baldinger and Rubinson, 1996; Zeithaml et al., 1996; Gremler and Brown, 1999; Reichheld and Sasser, 1990; and Hart, 2004). Therefore, Bowen and Shoemaker (1998), Dowling and Uncles (1997), Reichheld (1996) mentioned that customer loyalty considered as a significant element for business success and long-term achievement. Jacoby and Chestnut (1978), Pritchard (1992), Pritchard et al. (1999) mentioned that outcome-usually repurchase or switching purposes. Additionally, Bansal and Taylor (1999), Dabholkar and Walls (1999), Jones et al. (2001), Sharma and Patterson (2000) analyzed the behavioral approach for insufficient a conceptual base and also for having lots of outcome-based perspective. They deliberated that loyalty is included of both connected attitude and behavioral purposes. Furthermore, customer loyalty is a connection of attitudinal obligation and behavioral purpose for suggesting the company to the other people. Likewise, several researches reflected attitude as a crucial element of loyalty (Dick and Basu, 1994). Referred to as consumers' favorites preferring a trade (Jarvis & Wilcox, 1976; Pritchard, 1991) that pay attention to the loyalty that clients show to the noticeable yields. Early descriptions of loyalty pay

nearly specific attention on the behavioral measurement (Jacoby & Chestnut, 1978; Pritchard, 1992; Pritchard et al., 1999), or an aspect of behavioral attitude replicated with allowing of the copyright owner. Further reproduction is prohibited deprived of permission. Table 2 indicates the attitudinal assessment of loyalty may be functioned in several approaches.

3.3 Customers Trust Beliefs

Trust is usually associated with different objectives (Fishbein and Ajzen, 1975), that refers to the individual cognitive beliefs of the person to the other people (Bromiley and Cummings, 1995; Gabarro, 1978) and also personal safe attitude of the person regarding those beliefs. Thus, these kinds of cognitive beliefs causes' similar mental stability style regarding a new concept among different people. Usually by having good beliefs in the relationship with other people, different people would have trust to their partner, in a special context. By reviewing the literature about the trust, we can find different meanings in this regard like individual's trustworthiness, good negotiations with others, honesty, competence, as well as predictability (Mcknight et al., 1995).

The most important factor, regarding the trust refers trust of belief; in this regard, people would have certainty about their future relationships. Trust of beliefs divided to three main parts: competence (capable of trust and component of trust), kindness (trust keeping and reproduction of doing trust) and honesty (Consistent and honest of trust). McKnight and Chervany (2002) and Feizi (2010) divided trust belief in three factors which presented in Table 3.

Table 3: The Component of Trusting Beliefs (McKnight and Chervany, 2002)

Trusting Beliefs	
Competence	Competence, Expertness, Dynamism
Benevolence	Benevolence, Goodwill, Responsiveness
Integrity	Integrity, Morality, Credibility, Reliability, Dependability

In addition, according to McKnight and Chervany (2002), Salam et al. (2005), Lee and Turban (2001), usually customer trust in the online context refers to the belief that allows consumers to willingly become exposed to web circumstances, and they would be familiar to internet retailers. In line with the hope that the e- business can work inside the customer's acts and also act in certain direct and also reliable methods.

This definition is consistent with the construct of trust as an outstanding belief that includes well trust (compassion) and credibility (honesty, reliability, and truthfulness). Using McKnight and Chervany's (2002) trust typology, this study measured

customer trust through the perspectives of trust beliefs (namely competence, compassion, honesty, and predictability). The four categories of trust beliefs and also two categories of trust meanings are established in Table 4.

Table 4: Definition of Trust Model's Components
(Mcknight and Chervany, 2002 and Salam et al., 2005)

Trust Beliefs	
Competence	Believes the other person has the ability or power to do for one what one needs done; e.g., ability in order processing, customer problem solving, etc.
Benevolence	Believes the other person cares about one and is motivated to act in one's interest; e.g., good will, caring, responsiveness, concern, etc.
Integrity	Believes the other person makes good faith agreements, tells the truth, and fulfills promises; e.g., honesty, credibility, reliability, dependability and discretion, etc.
Predictability	Believes the other person's actions (good or bad) are consistent enough that one can forecast them in a given situation; e.g., predictability and consistency in the vendor's actions, reducing perceived risks, etc.
Willingness to depend	Be volitionally prepared to make oneself vulnerable to the other person in a situation by relying on them.
Subjective probability on depending	The extent to which one forecasts or predicts that one will depend on the other person.

3.4 Customer Integrity

Integrity usually discusses about the view of internet users on the morality and promise care of internet dealers, regarding the reliable activities and similar with its own arguments, and whether its dealings with its customers are fair (Zendehdel et al., 2011). Description of integrity refers to the trust or insights of internet user on the morality of the e-vendor (Tan and Sutheeland, 2004; Lee and Turban, 2001). A good business between user and also e-vendors are an important characteristic that may help to the high level of honesty regarding the of sellers' integrity. A customer evaluates the service encounter and promise that was initially made to him with the service they expected according to the promise that was initially made to him with the service they actually received upon the fulfillment of promise (Papadopoulou et al., 2001). The way customers perceive the e-vendor in term of their integrity has importance effect on the users' trust regarding the internet shopping (Lee and Turban, 2001). The danger of poor financial choice through an incapability for comparing the prices, causes inability for returning to a product, or not getting a product paid for are among the qualities that will establishes to a low honesty that can hampers the consumers for online shopping (Javenpaa et al., 1999).

3.5 Customer Competency

Related studies about customer trust regarding e-vendors' capability exemplified that the skill and capabilities of the e-vendors are amongst the factors which can contribute to the honesty among the internet operators who intend to do online shopping (Cheung and Lee, 2002). The Internet setting, vendor status and supposed quality of web distribution are central component to the insight e-vendors' capability (Mayer et al., 1995; George, 2004). Lin (2011) mentioned that perceived relative benefit, ease of use, compatibility, compassion, capability and truth significantly affect attitude, that can lead to behavioral intention for adoption (or continue-to-use) mobile banking. Furthermore, through using multi-group examination with data, the results establish that the antecedents of attitude toward mobile banking vary between potential and repeat clients. On the other hand, George illustrated that the obtainability, reliability and also response period of the e-commerce web among the important attributes that effect the insight of e-vendors' capability.

3.6 Customer Benevolence

Benevolence relates the concept that how much sellers willingly are eager to give helpful things and service to their clients for increasing both profit sale and also improving their clients' satisfaction amount (Zendehdel et al., 2011). Hoy and Tarter (2004) mentioned that kindness specifies, "One may use of the good will perhaps on the some other to behave through a person's finest interest. Additionally, Ba and Pavlou (2002) mentioned that thought of compassion along with reliability would be in chiefly appropriate towards single case associated with automated banking, when associated to different other parts linked with e-commerce, as it requires expertise along with preceding communication. In case all of us glance at the different businesses related with e-businesses, many buyers in addition to traders typically are fresh entrants in the industry with no established brands in addition to recognition; however majority of the online world banks are really with bazaar using periods associated with customer connections.

Also, benevolence relates to how much the vendors are deeply to give useful goods and service to their clients to not only enhancing incomes of sales but also development of customers' satisfaction amount. Furthermore, the current perspective of e-commerce literature believes that trust has a straight positive effect on attitudes and behavior (Pavlou, 2003; Jarvenpaa et al., 2004; Teo and Liu, 2007). If consumers believe that shopping sellers are large, and offer the capability, skills, honesty, and trustworthiness, they are would will to use online shopping. Therefore, perceived generousness, integrity, and aptitude are willing to be linked with

positive beliefs toward online shopping (Pavlou, 2006). A positive view regarding virtual shopping creates consumer trust in internet shopping and enhances shopping purpose. Trust has a notable effect on purpose through attitude. Then, attitude may interfere between trust and purpose (Palvia, 2009). Therefore, attitude may mediate between trust and also purpose. Additionally, based on the Verhagen et al. (2006) McKnight et al. (2003) Hahn and Kim (2009) also confirmed the positive association existing between online trust and online buying purpose. Table 5 enlists main studies indicating main factors.
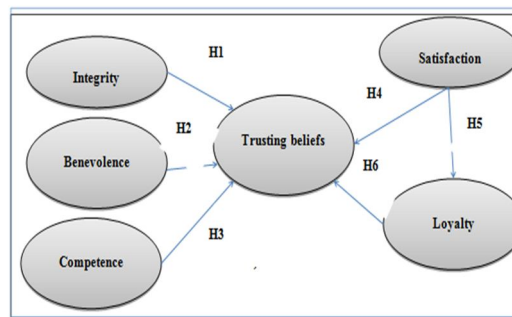

Figure 1. Proposed Model of Trust

Table 5: Clustering sorts of Trusting Beliefs

Article	Competence			Benevolence			Integrity Satisfaction Loyalty				
	Competence	Expertness	Dynamism	Goodwill	Benevolence	Responsiveness	Integrity	Morality	Credibility		
Wang,, 2009								×	×	×	
Srinivasan, 2004				×			×	×	×	×	×
Urban and Shankar, 2002 Shaw and Callaghan, 2002 Tan, 2004	× ×	× ×		×		×	×	×			×
Mcknight and Kamer, 2003 Luran and Lins, 2003				×		×	×	×			
Feizi, 2010	×	×		×	×		×		×	×	×
McKnight and Chervany, 2002	×	×	×	×	×	×	×	×	×	×	
Haque et al., 2009	×	×	×	×	×	×	×	×	×	×	×
Foon et al.,2011	×	×	×	×	×	×	×	×	×	×	
Nor et al., 2009							×	×	×		
Turban, 2001							×	×	×	×	×
Papadopoulou et al.,2001				×			×	×	×		
Cheung and Lee, 2001	×	×	×		×		×	×	×		
Lin, 2011		×		×	×	×		×	×		×
George, 2004	×	×	×							×	
Hoy and Tarter ,2004				×	×	×					
Ba and Pavlou ,2002				×	×	×					
Teo and Liu, 2007				×	×					×	
Palvia, , 2009							×	×	×	×	×
Hahn and Kim, 2009				×	×		×				
Verhagen et al.,2006										×	
Kim ,2009	×			×			×				×
McKnight et al.,2003 Zendehdel et al., 2011 Pavlou, 2003 Raychaudhuri, 2013 Aldas et al., 2011 Sharma et al., 2000 Hart, 2004	×						× ×	× ×	× ×	× × × × ×	× × × ×
Total	10	9	5	14	9	8	16	16	14	16	12

4. Proposed Model

The quantitative study method had been useful for this research. Figure 1 shows the proposed model of this research to know the effects of the factors (satisfaction, loyalty, competence, integrity and benevolence) on customer trust in internet banking. This model presents the relationships between trust factors and indicates how those components are positively associated with trust. It also indicates how those components are positively associated with trust. This model further described the hypothesis that are imposed within Chapter one. This model served to check the hypothesis using SPSS computer software. The final results involving SPSS tested the correlation of those factors with trust. The relationships involving trust factors relied on the hypothesis. Figure 1 exhibits the particular associations concerning these factors and trust as well. Questionnaires were arranged to be determined by these factors. This section supplied the reason on the six factors independently and together with their investigation from the questions gotten by respondents of the research. This reason was taken by the researcher to come up with a model as it is presented in Figure 1. The model combines those factors that had not really been connected from the previous researcher. The researcher examined impacts of each component trusting in suggested model through conducting an additional study in the various firms from the previous one.

5. Demographic of Respondents

Table 6 has represented the demographic profile for respondents based on questionnaire: includes description of the gender, grow older, nationality, experience, frequency of buying and using of internet banking. These results display the frequencies of responders' answers. This demographic characteristic summarized of respondents shows as follows.

Table 6. Frequencies of Demographic Respondents

Measure	Item	Frequency
Gender	Male	135
	Female	183
	Total	318
Group Age	18-24	43
	25-34	210
	35-44	53
	45-54	12
	Total	318
Nationality	Local	197
	International	121
	Total	318

Experience	10 or more	124
	2-3 years	40
	4-5 years	27
	6-7 years	66
	8-9 years	40
	Up to 1 year	15
	Total	312
Frequency of buying	Once a week	86
	Once a month	109
	Once in 3 months	34
	Once in 6 months	46
	Once in a year	43
	Never	0
	Total	318
Using of internet banking	Fund transfer	137
	Bill pays	59
	Balance Inquiry	44
	Statement view	35
	Other	43
	Total	318

6. The Relationship of Trust Factors

Earlier this study was mentioned that loyalty, satisfaction, integrity, competence and benevolence as main factors of proposed trust model. Therefore, this section aims to examine the correlation of these seven factors with interpersonal trust. Common produced variances are all above the advised 0.5 degrees, Fornell et al. (1981) stated that supporting the discriminate validity of measurement scales supporting the discriminate validity of measurement scales. Correlation indicates the strong of a linear relationship between two variables. The created correlation coefficients that symbolize the strength of these relationships relating to the research variables are shown in Table 7.

It is obvious from Table 7 that the correlation coefficients on the connections between research variables can be found strong. In addition, within Table 7, the correlation coefficient value is 0.672 between Integrity (Inti) and Trusting Belief (Trst) variables that indicates these variables are strongly correlated since it is greater than 0.5. Satisfaction (Satis) is found to be strongly related to Trst and the correlation coefficient value is 0.733. Benevolence (Bene) is found to be strongly related to Trst with correlation coefficient equal with 0.701. Furthermore, Competence (Comp) is found to be strongly correlated to Trst having correlation coefficient equal with 0.694, and Loyalty (loya) is strongly related to Trst with the correlation coefficient value of 0.792. Last correlation is between Satis and Loya that is very strong with a coefficient value of 0.831 as well. The results still support our proposed model and hypothesis which are imposed in Chapter 1. While our results show that whole factors on the internet banking are indeed distinct constructs and it also appears that all factors are well correlated with trust beliefs.

Table 7. Inter-Item Correlation

Correlations						
	Inti	Satis	Bene	Comp	Loya	Trst
Inti	1	0.680	0.826	0.780	0.791	**0.672****
Satis	0.680	1	0.720	0.845	0.831	**0.733****
Bene	0.826	0.720	1	0.794	0.649	**0.701****
Comp	0.780	0.845	0.794	1	0.780	**0.694****
Loya	0.791	**0.831****	0.649	0.780	1	**0.792****
Trst	0.672	0.733	0.701	0.694	0.792	1
** Correlation is significant at the 0.01 level (2-tailed).						
a. Listwise N = 318						

7. TOPSIS method

Recently, MCDA (Multiple Criteria Decision Analysis)/MCDM (Multi-Criteria Decision Making) has been an active research for solving real-world decision problems (Nilashi and Ibrahim, 2014; Tsaur et al., 2002; Tzeng et al., 2005; Meysam Mousav et al., 2012; Onut and Soner 2008; Önüt et al., 2009; Fard et al., 2014; Ahmadi et al., 2014;

Nilashi et al.2011; Ibrahim et al., 2011). Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) developed by Yoon (1980) as presented in his thesis titled "Systems Selection by Multiple Attribute Decision Making" and echoed by Hwang (1981), is one the major techniques in dealing with multiple criteria decision making (MCDM) problems.

TOPSIS makes full use of attribute information, provides a cardinal ranking of alternatives, and does not require attribute preferences to be independent. To apply this technique, attribute values must be numeric, monotonically increasing or decreasing, and have commensurable units.

The procedure of the TOPSIS method consists of the following steps Hwang (1981):

Step 1: Construct normalized decision matrix:

$$n_{ij} = r_{ij} / \sqrt{\sum_i (r_{ij})^2} \ for \ i = 1,...,n \ ; j = 1,...,m \quad (1)$$

where r_{ij} and n_{ij} are original and normalized score of decision matrix respectively with n alternatives and m indicators.

Step 2: Construct the weighted normalized decision matrix:

$$v_{ij} = w_j r_{ij} \quad (2)$$

where w_j is the weight for j criterion.

Step 3: Determine the positive ideal and negative ideal solutions:

$$A^* = \{v_1^*,...,v_n^*\} \ \textit{Positive ideal solution} \quad (3)$$

where $v_j^* = \{\max(v_{ij}) if \ j \in J; \min(v_{ij}) if \ j \in J' \quad (4)$

$$A' = \{v_1',...,v_n'\}, \ \textit{Negative ideal solution} \quad (5)$$

where $v' = \{\min(v_{ij}) if \ j \in J; \max(v_{ij}) if \ j \in J' \quad (6)$

$$A^* = \{v_1^*,...,v_n^*\} \ \textit{Positive ideal solution}$$

$$\textit{where } v_j^* = \{\max(v_{ij}) if \ j \in J; \min(v_{ij}) if \ j \in J'\}$$

$$A' = \{v_1',...,v_n'\}, \ \textit{Negative ideal solution} \quad (7)$$

$$\textit{where } v' = \{\min(v_{ij}) if \ j \in J; \max(v_{ij}) if \ j \in J'\}$$

Step 4: Calculate the separation measures for each alternative. The separation from positive ideal alternative is:

$$S_i^* = [\ (v_j^* - v_{ij})^2 \ ]^{1/2} \ i = 1,...,m \quad (8)$$

Similarly, the separation from the negative ideal alternative is:

$$S_i' = [\ (v_j' - v_{ij})^2 \ ]^{1/2} \ i = 1,...,m \quad (9)$$

Step 5: Calculate the relative closeness to the ideal solution C_i^*:

$$C_i^* = S_i' / (S_i^* + S_i') , \ \ 0 \le C_i^* \le 1 \quad (10)$$

Select the Alternative with C_i^* closest to 1.

8. Ascertaining the entropy weight vector

Information entropy is an uncertainty measure in information theory. Using the entropy method, objective weights are calculated.

Objective weights of the objective ratios can be determined by Shannon's entropy concept (Shannon and Weaver, 1947). In this research, the concept of entropy is applied to determine the criteria weight. According to Ding and Shi (2005) and Zeleny (1982), entropy is a term in information theory, also known as the average amount of information. The criteria weights are calculated by the entropy method. According to the degree of index dispersion, the weight of all indicators is calculated by information entropy.

Entropy method is highly reliable and can be easily adopted in information measurement (Zou et al., 2005).

Formally, the entropy method begins with a normalization process using the values of matrix $N = (n_{ij})_{n \times m}$ (n alternatives and m indicators) by the following specific formulation Hwang (1981):

$$n_{ij} = r_{ij} / \sum_{i=1}^{n} r_{ij} \quad (11)$$

The following equation calculates entropy measure of every index:

$$E_j = -K \sum_{i=1}^{n} \left[n_{ij} ln(n_{ij}) \right] \ \forall_j = 1, 2,...m$$

$$K = \frac{1}{ln(n)} \quad (12)$$

The degree of divergence d_j of the intrinsic information for each criterion C (j = 1, 2, …, n) may be calculated as:

$$d_j = 1 - E_j \quad (13)$$

The value d_j represents the inherent contrast intensity of c_j. The higher the d_j, the more important the criterion c_j is for the problem. The objective weight for each criterion can be obtained. Accordingly, the normalized weights of indexes may be calculated as:

$$W_j = \frac{d_j}{\sum_{k=1}^{m} d_k} \qquad (14)$$

Since E_j is less than or equal to one, the entropy weights are therefore always positive.

9. Results of TOPSIS

In this paper TOPSIS was used to rank effective parameters on features in the first tier. Based on the 5 parameters in Figure 1, the questionnaire was developed to gather data from 318 online customers. Afterwards, TOPSIS was applied for ranking of the participants' responses and were categorized using a 5 point Likert scale that classified them as: not important, important, low important, moderate important and very important. Finally, 5 parameters were chosen based on their priority using the TOPSIS method. Using the entropy method, objective weights were calculated as follows:

$w_1 = 0.02$, $w_2 = 0.06, w_3 = 0.15, w_4 = 0.33$

$and \ w_5 = 0.44$

Therefore matrix W can be defined as:

$$W = \begin{bmatrix} 0.02 & 0 & 0 & 0 & 0 \\ 0 & 0.06 & 0 & 0 & 0 \\ 0 & 0 & 0.15 & 0 & 0 \\ 0 & 0 & 0 & 0.33 & 0 \\ 0 & 0 & 0 & 0 & 0.44 \end{bmatrix}$$

And finally the ranks of all the 5 parameters of the internet banking for trust were calculated as shown in Table 8.

Table 8. Final ranking

Factor	Rank
Inti	0.152
Satis	0.213
Bene	0.201
Comp	0.184
Loya	0.25

10. Limitations and Future Work

As researcher selected UTM as a case study for this research, the different and solid results could be obtained for the larger populations. Considering this limitation of present research, in the future work, attempt are made in investigating more factors with gathering information from larger populations as it is a gap for the present research.

Additional researches must be made in order to check out and adapt the findings with the bigger part of organizations going through different issues. Recent study does not include strategic steps that should be performed as a way to target and diminish the post-execution challenges as determined.

11. Conclusion

Trust is an important factor that makes success for internet banking. This study has developed a model to explain trust and its relationship with other important factors in internet banking services. The statistical population of the study covers only the students of UTM who are the users of internet banking services. This research also clarifies this purpose and its relationship with trust within six crucial constructs in e-commerce. By testing the correlation, the results of study indicated that most of UTM students are satisfied with internet banking services. In addition, the results showed that the trust correlation with satisfaction, competence, loyalty, benevolence and integrity is positive. Furthermore, from the multi-criteria perspective, we evaluated the incorporated factors in the developed model and ranked them by TOPSIS method. By TOPSIS the weight of ranking for loyalty, satisfaction, benevolence, competence and integrity were 0.25, 0.213, 0.201, 0.184 and 0.152. We hope the current study could be helpful to eliminate the problems existing around sensitive subject of the trust.

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