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Face-to-Face or Not-to-Face: A Technology Preference for Communication

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Abstract

This study employed the Model of Technology Preference (MTP) to explain the relationship of the variables as the antecedents of behavioral intention to adopt a social networking site (SNS) for communication. Self-administered questionnaires were distributed to SNS account users using paper-based and web-based surveys that led to 514 valid responses. The data were analyzed using structural equation modeling (SEM). The results show that two out of three attributes of the attribute-based preference (ATRP) affect attitude-based preference (ATTP). The data support the hypotheses that perceived enjoyment and social presence are predictors of ATTP. In this study, the findings further indicated that ATTP has no relationship with the behavioral intention of using SNS, but it has a relationship with the attitude of using SNS. SNS development should provide features that ensure enjoyment and social presence for users to communicate instead of using the traditional face-to-face method of communication.

Introduction

THE ANTECEDENTS OF BEHAVIORAL INTENTION of social networking site (SNS) adoption are influenced by an individual's behavior. Meanwhile behavioral intention itself is a function of attitude.[1] There has been a lot of research about SNS, mainly that it concerns a user's eloquent investigation, factors that motivate the usage, character arrangement, the function of SNS in social connections, confidentiality, and information revelation.[2] However, currently there is very little research that examines the alternative preference that affects Internet users' decision making to adopt SNS. It is crucial to elaborate on the dynamic research of FTF as compared to computer-mediated-communication (CMC) because the decision to adopt CMC is only supported when CMC can convey the adequate communication cues, such as those of face-to-face (FTF) features.[3]

Existing frameworks to evaluate a user's intention to adopt SNS are now considered inadequate[4] because such frameworks—for example the Theory of Reasoned Action (TRA),[5] Theory of Planned Behavior (TPB),[6] and Technology Acceptance Model (TAM)[7]—do not explain the critical matter of preference. A further development of theory is required to explain the role of preference in determining the behavioral intention to adopt SNS. Thus, the research questions that this study will address are:

RQ1: What are the factors that influence the behavioral intention of SNS adoption given the alternative preference among SNS users?

RQ2: How do the preference attribution factors affect attitude and behavioral intention toward SNS adoption?

The role of preference in the adoption model

TAM usually employs perceived usefulness and perceived ease of use with additional perceived risk as the prominent modus operandi. However, nowadays, the theory is saturated. As an extension of the existing model, in the early proposal, it is vital to add an unequivocal alternative contrast to define preference. Preferential decision knowledge is due to the existence of superiority—a person favors one thing compared to another.[8] This means that an alternative is available. An attribute is something perceived by technology users in using a system through which they can immediately detect the product's identity that forms their most preferred choice. Cognitively, human beings value an attribute as an assessment prior to decision making.

Scholars' statements cited by Muthitcharoen et al.[4] clarified the brief exposure of preferential behavior in research utilizing the preferential knowledge that consists of attitude-based preference (ATTP) and attribute-based preference (ATRP). ATRP supports the idea that preference structure involves

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comparing the definite alternatives to attribution, while ATTP constitutes the general valuation of alternatives.[9] Users use preference evaluation prior to the decision-making process of whether to adopt certain systems at the explicit level. The comparison of alternatives is made for each attribute, and the decision is based on the summation of all aspects. Eventually, this summation would affect decision making at the implicit level. However, the significance of ATTP and ATRP as factors determining preferential behavior is still in need of further investigation (Fig. 1).

Perceived enjoyment

Perceived enjoyment is the fun and bliss factor of using communication technology to expand interpersonal relationships, which, in the social context, involves a hedonic and instrumental purpose that is separate from whichever performance cost could be predicted.[10] The hedonic element can be referred to as ''enjoyment,''[11] experiential utilization, fun, happiness, and exhilaration.[12] A study conducted by Shin[13] found that online use is affected by enjoyment for entertainment intention. The importance of perceived enjoyment is to build interpersonal communication[14] and the attitude toward a Web site, while perceived enjoyment is an extended feature to explain the adoption of technology.[11]

Convenience

Convenience is a customer's perception concerning the interaction efficiency with sellers.[15] Some authors have emphasized convenience as the ability to conduct online transactions in an efficient way.[12] Szymanski and Rise have also investigated convenience,[16] and in their qualitative study, they summarized convenience as browsing easiness, time economization, information availability, and satisfactory experience. All these assessments emphasized efficiency. The perception of convenience presumably affects attitude because when people feel that something is convenient, it affects their attitude in a positive way.[17]

Social presence

Social presence deals with the quality of the communication medium, in which the degree of social presence varies with the nature of the medium.[18] These variations are vital in shaping the way individuals interact. The definition of social presence is related to the salience and recognition of others, while the meaning of salience is the relative interaction significance of the others.[19] Recognition of others is not the sole issue but more a prequel to social relation dynamics.[20] The importance of social presence in online interaction refers to the alertness of another person in an interface and the consequential positive reception of an interpersonal relationship.[3] Social presence is important in enhancing a Web site's psychological emotions to be similar to human contact—sociable, and personal.[21] Some researchers found that positive social presence improved communication quality in a virtual group.[22]

Development of hypotheses

According to Muthitcharoen et al.,[4] the theory of Information Systems (IS) fails to explain the affective processing system if the choices of preferences are neglected. ATTP, as a whole, is taken as the estimation of alternatives. They also cited a study conducted by Bettman et al.[23] who stated that the user's viewpoint in determining favoritism suggests the mediating function of ATTP and behavioral intention. When an alternative is estimated to be superior, the user engages in an adoption intention of a certain system. Thus, the relationship between ATTP and behavioral intention to adopt SNS can be formulated as follows:

H1: There is a relationship between ATTP and behavioral intention to use SNS.

Previous research[6] found that attitude toward a system/technology controls intentions, and ultimately influences behavior in accordance with that system/technology, as cited by Jackson et al.[24] The approach that connects users' preference and the mediating variable of TAM was formulated by Muthitcharoen et al.[4] Alternatives that are compared specifically in the early stage allow the user to develop preferences toward alternatives (ATTP), which ultimately affect attitude toward using SNS. The authors propose the second hypothesis is therefore:

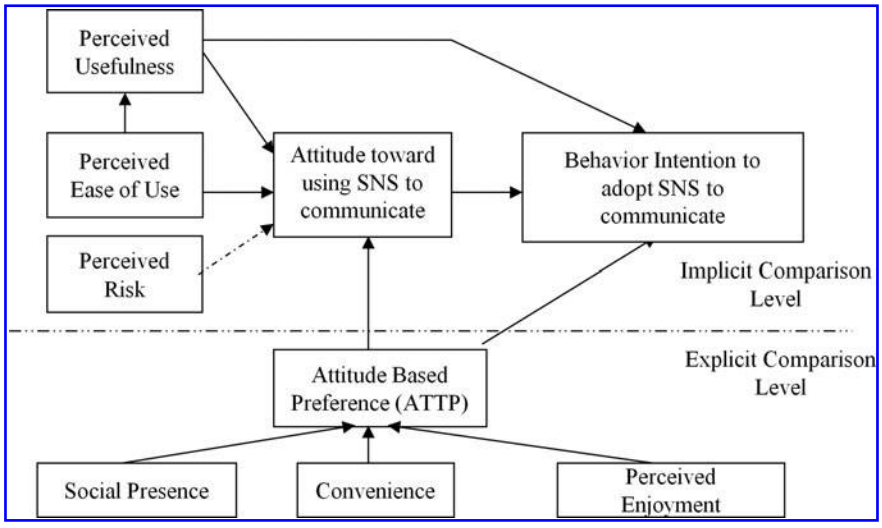

FIG. 1. Research framework, adapted from Muthitcharoen et al.[4]

H2: There is a relationship between ATTP and attitude toward using SNS.

The next hypothesis considers the relationship between ATRP and ATTP. In terms of performing communication using FTF and SNS, perceived enjoyment, convenience, and social presence were identified as ATRP factors because users could label SNS by using those categories, and the properties contained by each variable ensure the preferential factors to be evaluated by users.

The inspiration for building online interaction using SNS includes the factors of entertainment and convenience that affect SNS user attitudes.[17] Perceived enjoyment as an intrinsic factor represents the hedonic element of using SNS. After comparing traditional FTF and SNS for communication in terms of hedonic factors, perceived enjoyment is deemed to shape a user's attitude.[25] Thus, the authors propose the third hypothesis:

H3: ATTP is a function of perceived enjoyment.

The same principle applies to convenience. By the time users find convenience in one of the criteria being compared, the result of the comparison constitutes the ATTP. This formulates the fourth hypothesis:

H4: ATTP is a function of convenience.

The importance of social presence in online interaction was cited by Tu[3] and Walther[26] as the alertness of another person in an interface and the consequential positive reception of an interpersonal relationship. Social presence is an important element in enhancing a Web site's presence so that they resemble human contact—sociable and personal.[21] Previous researchers[27] have cited several theories about how social presence has defined ATTP. They mentioned that

Table 1. Indicators and Sources

Code	*Indicators*	*Sources*
Implicit comparison level:		
PU1	Using SNS enables me to communicate more quickly	Muthicharoen *et al*. (2011)
PU2	Using SNS improves my performance in communicating	
PU3	Using SNS increases my productivity in communicating	
PU4	Using SNS enhances my effectiveness in communicating	
PU5	I find SNS is useful for communication	
PU6	Using SNS is easier to communicate	
PEU1	My interaction with SNS is clear and understandable	Muthicharoen *et al*. (2011)
PEU2	I find SNS is easy to use for communicating	
PEU3	Interacting with SNS to make communication does not require a great deal of my effort	
PEU4	When communicating, I find it easy to get SNS to do what I want it to do	
PEU6	When communicating, I find SNS is flexible to interact with	
PR1	While making communication using SNS, my personal information is at risk	Muthicharoen *et al*. (2011)
PR2	I would feel totally safe while providing sensitive information about myself to SNS	
PR3	Overall, SNS is a safe place to transmit sensitive information	
ATT1	To communicate using SNS is a good idea	Muthicharoen *et al*. (2011)
ATT2	To communicate using SNS is a wise idea	
ATT3	I like the idea of communicating using SNS	
ATT4	Communication using SNS is pleasant	
BI1	I predict that I would communicate using SNS	Muthicharoen *et al*. (2011)
BI2	I intend to communicate using SNS	
BI4	How likely are you to communicate using SNS?	
BI5	How certain are your plans to communicate using SNS?	
Explicit comparison level:		
PE1	Which one do you think is more interesting?	Cyr *et al*. (2007)
PE2	Which one do you think is more entertaining?	
PE3	Which one do you think is more enjoyable?	
PE4	Which one do you think is more pleasant?	
C1	Which one do you think is more convenient?	Szymanski *et al*. (2000)
C2	Do you spend more time on SNS or FTF?	
C3	Which one do you think is easier to communicate with?	
SP1	Which do you think that has much greater sense of human contact?	Cyr *et al*. (2007)
SP2	Which do you think that has much greater sense of sociability?	
SP3	Which do you think that has much greater sense of human warmth?	
ATTP1	Overall feeling	Muthicharoen *et al*. (2011)
ATTP2	Overall attitude	
ATTP3	Overall preference	
ATTP4	Overall positive feeling	
ATTP5	Overall negative feeling	

PU, perceived usefulness; PEU, perceived ease of use; PR, perceived risk; ATT, attitude; BI, behavior intention; PE, perceived enjoyment; C, convenience; SP, social presence; ATTP, attitude-based preference.

Table 2. Descriptive Analysis of Indicators

Implicit comparison level			*Explicit comparison level*		
	Mean	*Std. deviation*		*Mean*	*Std. deviation*
PU1	5.605	1.219	PE1	3.365	1.969
PU2	4.865	1.402	PE2	3.706	1.915
PU3	5.015	1.318	PE3	3.507	1.888
PU4	4.965	1.354	PE4	3.344	1.832
PU5	5.628	1.156	C1	4.780	1.824
PU6	5.476	1.186	C2	4.235	1.854
PEU1	5.044	1.264	C3	4.254	1.868
PEU2	5.457	1.128	SP1	2.317	1.606
PEU3	5.416	2.932	SP2	3.233	1.941
PEU4	5.077	1.230	SP3	2.297	1.512
PEU5	5.254	1.197	ATTP1	3.601	1.789
PR1	2.688	1.464	ATTP2	3.644	1.655
PR2	4.924	1.733	ATTP3	3.830	1.743
PR3	5.054	1.680	ATTP4	3.622	1.749
ATT1	5.151	1.236	ATTP5	4.330	1.367
ATT2	4.832	1.324	ATRP	3.506	1.288
ATT3	5.107	1.255			
ATT4	5.062	1.237			
BI1	5.095	1.288			
BI2	5.035	1.361			
BI3	5.352	1.282			
BI4	5.225	1.308			

online interaction needs social presence because it facilitates direct and indirect human interpersonal contact and also defines its sociability.[28] When given the preferential factors about another's presence, social presence is representative and still reliable in defining ATTP.[29] This understanding shaped the authors' final hypothesis:

H5: ATTP is a function of social presence.

Figure 1 shows the research framework used in the study.

Materials and Methods

Data collection

Data were collected using a self-administered questionnaire. The questionnaire had four parts. The first part was the introduction to the study. The second part aimed to capture the respondent's response on items concerning the implicit comparison level. Structured statements for the second part were prepared using a 7-point Likert scale for each statement, ranging from 1 = ''strongly disagree'' to 7 = ''strongly agree.'' The third part captured the respondent's answers on explicit comparison level. The wording structure was modified to fit the intention of the study to include alternative preference. As proposed by Muthitcharoen et al.[4], the modification was constructed from 1, describing the less novel preference to FTF, to 7, describing a novel way to communicate using SNS. The last part aimed to capture the demographic characteristics. Table 1 shows the list of indicators that were employed in this study and their sources.

Sampling frame and respondents

The target population of this study was Malaysians with a SNS account. Data for the study were collected in the Greater Klang Valley (GKV), the area around Kuala Lumpur that covers 10 municipalities. The distributed questionnaires consisted of two types: paper based (PBA) and Web based (WBA). A total of 300 PBA were distributed in public places, such as shopping malls, public transportation hubs, and recreational parks. Out of these, 278 questionnaires (92.66%) were returned and usable. A total of 300 WBA questionnaires were distributed. The list of WBA respondents was acquired from the registered resident societies who have online communities within GKV. The WBA received 236 responses. In total, 514 responses were received and used in the analysis.

Data analysis

Structural equation modeling (SEM) using software for analysis of moment structures (AMOS) version 19 was used to analyze the data collected from the survey. SEM is appropriate for this study because of the different allocation of relationships among the independent constructs, and the separation of multiple regression to be run together in simultaneous ways is accommodated.[30]

Results

The majority of the respondents were female (56.23%), between 20 and 29 years old (47.67%), of Malay race

Table 3. Summary of Statistical Analysis and Correlations

No.	*Variables*	*No of items*	*Mean*	*Std. deviation*	*Cronbach's alpha*	*CR*	*AVE*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1	Social presence	3	2.62	1.42	0.80	0.82	0.6	**0.78**								
2	Perceived usefulness	6	5.26	1.04	0.89	0.87	0.53	0.18	**0.73**							
3	Perceived ease of use	5	5.25	1.12	0.80	0.87	0.58	0.18	0.90	**0.77**						
4	Perceived risk	2	4.99	1.57	0.82	0.82	0.69	−0.47	−0.27	−0.25	**0.84**					
5	Attitude	4	5.04	1.14	0.92	0.92	0.74	0.25	0.88	0.81	−0.38	**0.87**				
6	Behavior intention	4	5.18	1.21	0.94	0.93	0.77	0.20	0.87	0.81	−0.33	0.92	**0.88**			
7	Perceived enjoyment	4	3.48	1.66	0.89	0.89	0.68	0.66	0.38	0.43	−0.35	0.43	0.42	**0.83**		
8	Convenience	3	4.42	1.58	0.81	0.81	0.59	0.44	0.48	0.49	−0.12	0.46	0.50	0.66	**0.77**	
9	Attitude-based preference	5	3.81	1.26	0.78	0.93	0.77	0.60	0.51	0.46	−0.30	0.50	0.48	0.68	0.45	**0.88**

Table 4. Estimation for Regression Weights

Hypotheses	*Exogenous variables*	*Direct path*	*Endogenous variables*	*Estimate*	p	*Remark*
H1	ATTP	→	BI	0.017	0.481	Not supported
H2	ATTP	→	ATT	0.089	0.003	Supported
H3	PE	→	ATTP	0.513	***	Supported
H4	C	→	ATTP	0.039	0.476	Not supported
H5	SP	→	ATTP	0.233	***	Supported

***$p = 0.000$

ATT, attitude; BI, behavior intention; PE, perceived enjoyment; C, convenience; SP, social presence; ATTP, attitude-based preference.

(58.17%), and single (52.72%). In terms of education level, most had a bachelor degree (77.82%), were full-time students (30.35%), with a monthly income < US$629.15 (29.57%). Most of the respondents had been using the Internet for 11–15 years (37.94%), and accessed the Internet between one and five times per day (28.99%). In terms of hours spent using the Internet each day, the majority of the respondents spent between 4 and 6 hours (39.30%), with 1–2 hours spent on SNS (57.78%). Types of SNS included Facebook, which was the most popular SNS (465 respondents; 31.63%), followed by YouTube (22.24%), LinkedIn (9.25%), and Twitter (7.07%).

Table 2 gives a descriptive analysis of all the indicators used in the study. In the explicit comparison level column, 10 out of 15 of the indicators have mean values >3.5. This indicates that SNS users prefer SNS to FTF for communication. In addition, the summative ATRP has a mean value of 3.506.

Table 3 summarizes the statistical results for the SNS users. The reliability tests measured by Cronbach's alpha values show that all the variables have acceptable values >0.7, as suggested by Nunnally,[31] except for the variable ''perceived risk'' (0.36). After dropping one indicator (P1), the Cronbach's value increased to 0.82. In respect of the standardized regression weights, all the items have acceptable factor loadings that exceed the threshold value of 0.6 except PR1 (0.12) and ATTP5 (0.01). Hence, the indicators employed were reduced from 37 to 35. Confirmatory factor analysis shows that all the variables exceed the threshold suggested by Hair et al.[30] (CR >0.7 and AVE >0.5).

Measurement modeling resulted in a chi-square value/df of 2.45, and a ρ value <0.05. Several fitness indices show an acceptable level of fitness based on Hair et al.[30] for CMIN/df (2.452), GFI (0.876), RMSEA (0.053), CFI (0.948), TLI (0.941), and AGFI (0.849). Only GFI did not pass the threshold (0.876 < 0.9). Meanwhile, for structural modeling, the results are relatively the same: a chi-square value/df of 2.54 and a ρ value <0.05. The values of the fitness indices are CMIN/df (2.549), GFI (0.876), RMSEA (0.055), CFI (0.943), TLI (0.937), and AGFI (0.846). The ρ value of <0.05 means the acceptance of the hypothesis that there is a difference between the measured and observed data. According to Hair et al.,[30] the acceptance of a null hypothesis is allowed due to the complexity of the research framework and the number of indicators employed (35 indicators). The goodness of fit for both the measurement and structural modeling also supports this.

Table 5. Squared Multiple Correlations

Endogenous constructs	*Estimate*
ATTP	0.511
PU	0.831
BI	0.858
ATT	0.784

PU, perceived usefulness; ATT, attitude; BI, behavior intention; ATTP, attitude-based preference.

The structural modeling clarifies the relationship between the exogenous and endogenous constructs of the estimated model, as summarized in Table 4. The results support H2, H3, and H5. H1 and H4, however, were not supported by the result. The exogenous variables' capability in determining the variance of the endogenous variables is shown by the squared multiple correlations provided in Table 5.

Discussion

Table 5 summarizes the results. TAM performed very well in the implicit comparison level. In the explicit comparison level, ATTP is predicted by perceived enjoyment and social presence. The ATTP's squared multiple correlation is 0.511, which means that 51.1% of variance of ATTP can be described by perceived enjoyment and social presence. Meanwhile, behavioral intention obtains more squared multiple correlation values. In that sense, 85.8% of the variance of behavioral intention was explained by constructs for both the explicit and the implicit levels.

In this study, preference is represented by the ATTP as the general evaluation of alternatives and ATRP, which shows the preference structure involving the comparison of alternatives attribution.[4,9] As online interaction is a novel way of communication,[31] the hedonic role plays its part in defining users' evaluation toward performing communication via SNS. When users are faced with availability of alternatives, especially with enjoyment, SNS users believe that the factor of entertainment shapes their attitude.[17] The importance of perceived enjoyment in building interpersonal communication and as an extended feature to explain the adoption of technology is supported by the results of this research.[11,14] Social presence has always attracted the attention of IS scholars in explaining online medium interaction.[32] It is believed that social presence,[33] supported by the Media Richness Theory,[34] is a factor that enables online communication.[20,34,35] The condition enables the variable of social presence to have a significant effect on ATTP. This is because others' presence evaluation is reliable in defining the ATTP.[29] In that sense, valuation in the early stage of adoption shapes the special attitude that contains the valuation toward the overall, attitude, preference, and positive and negative feelings.[36] Finally, after users choose their preference, the attitude smoothly affects the adoption behavior of IS properties.

Implications

In this study, the MTP research framework also passed the two stages of data analysis of SEM, which were measurement and structural modeling, with moderate and acceptable results. By evaluating the availability of alternatives, the strength of the existing variables of TAM by Davis[7] is also increased. The idea of ATRP brings the choice to users prior to making the decision to adopt SNS. This study succeeded in incorporating the variables of perceived enjoyment and social presence in MTP.

Consequently, SNS practitioners can use the findings of this research for their interest, especially to encourage SNS users to optimize their existence in using SNS. Knowing that intrinsic and hedonic factors determine users' special attitude after considering preference, SNS developers can increase the features of SNS that bring enjoyment for users. SNS practitioners must ensure the factors of entertainment, entertaining, and joyful to be perceived by SNS users by the time they communicate with others. Meanwhile, the significance of social presence in explaining the adoption of SNS strengthens the capability of online interaction to bring others' salience.

Suggestions for future research

Further research can elaborate upon the preferential factors of other IS artifacts. For example, studies to compare bank customers' preferences between traditional banking and mobile banking for financial transactions are still scarce. Many studies can be performed on SNS comparison. An interesting comparison would be between Facebook and LinkedIn[37] or Facebook and MySpace.[38] A comparison between two SNSs could also be done based on the features contained in each SNS that enable users to have online interaction, such as instant messaging, e-mail, blogs, message boards, online forums, bulletin boards, video- and photo-sharing, comment posting, and even video conferencing.[39–42]

Limitations of research

The study has a few limitations. First, the sample used in the study was only from the high Internet penetration area with 10 municipalities. Thus, the findings are not generalizable to the total population of SNS account users. In addition, only three attributes were used in the study, although there are many more attributes that affect the attitude of SNS users. Despite the limitations of this study, the adequate squared multiple correlation for this study, which is 85.8%, is proof that the exogenous constructs employed were suitable for explaining the variance of behavioral intention to adopt SNS, especially for communication.

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