

Predicting Intention to Purchase Digital Stickers in an Application for Instant Communications on Mobile Devices: A Comparative Study

Athapol Ruangkanjanases and Muanfun Wutthisith
Chulalongkorn Business School, Chulalongkorn University, Thailand.
athapol@cbs.chula.ac.th

Abstract—With the widespread adoption of mobile devices such as smartphones and tablets, a large number of people decide to adopt the instant communication application which allows them to communicate by texting and video calling for free. LINE application is one of the most popular messaging application in Asia. Hence, LINE offers special service where users are able to send graphical stickers to express their emotions which can either be purchased or obtained for free to download from the Sticker Shop. The objective of this study is to identify the significant factors influencing the intention to purchase digital stickers of male and female consumers in Thailand. Online questionnaires were distributed to the target population, and only results from respondents with experience of downloading stickers were analysed. Two hundred respondents from each gender group were successfully collected. The result of the study reveals that male consumers are influenced by three factors which are price utility, aesthetics, and social value. On the other hand, female consumers are influenced by price utility, aesthetics, social value and playfulness. The finding of this study has contributed to sticker creators to strategically design stickers to meet the demand of consumers more accurately.

Index Terms—Purchase Intention; Line Application; Stickers; Theory of Consumption Values; Comparative; Thailand

I. INTRODUCTION

LINE is a popular messaging application commonly adopted by a large number of users across Asia. The number of LINE users was a rising phenomenon particularly from people in younger generations. LINE application was originated in Japan where the most substantial number of its users reside. One of the unique selling points of LINE app is its fun and creative graphical stickers. Generally, users send stickers to express their emotions, feelings, and body gestures during the instant messaging conversation [1].

In May 2014, LINE introduced the “Creator Market”, a platform that lets users design their own stickers to be sold online. A tremendous number of creators registered themselves to the market as a mean to share their creativity and generate income. In addition, LINE stickers have been extended to become the primary marketing tool for many corporations. As the messaging platform users skyrocketed, large corporations use stickers as channels to promote their products and services effectively.

To support both individual and corporate stickers’ creators, this study aims to identify factors influencing consumers’ intention to purchase LINE stickers by comparing the results between male and female of Thai customers. The study will

also display the sticker preferences of different gender groups, benefiting to those stickers’ creators to design stickers that will meet customers’ demand.

II. LITERATURE REVIEW

A. Usage of Messaging Application in Thailand

LINE became one of the most popular messaging applications used by Thai people since its first launch in Thailand in 2012. It is reported that nearly 40 million LINE messages are sent by people in Thailand every day [2]. As of September 2014, approximately 33 million of Thai people are registered on LINE application, accounted for 50% of total population in the country. It is undeniable that Thai people love social networks. According to the report from Thailand’s Electronic Transactions Development Agency (ETDA), more than 90% of internet users in Thailand use social media in their daily life. The top three social media channels, as of January 2014, were Facebook (92.2%), YouTube (63.7%), and LINE (61.1%). Additionally, Thai people have positive attitudes toward Japanese products, because they believe products from Japan are always come with vivid design and high quality. LINE, a genuinely Japan-based messaging application, has ultimately gained the competitive advantage from this positive perception value.

B. Characteristics of Stickers

Stickers are described as oversized cartoon-like characters designed to depict various emotions, body languages, and facial expressions such as happiness, sadness, excitement, anger, and love [3]. Starting with Cony, Brown, Moon, James, and Jessica; these cartoon characters are initial sets of stickers that LINE initially launched to the market. Many people download and use stickers as nonverbal cues in a mobile application for communication. Around 2.4 billion stickers and emoji are sent each day by all its users [4]. According to Shu, nearly half (48%) express happiness, however, the rest reflects emotions ranging from sadness (10%), to anger (6%), and surprise (5%) [4]. Stickers can either be paid or downloaded for free. The price of paid stickers falls between \$0.99 and \$1.99 per set, each set consists of 30-40 different stickers.

C. Types and Categories of Stickers

Presently, there are various types of stickers available online in the “Sticker Shop”. Four main types of stickers commonly offered are normal stickers, animation stickers, sound stickers and stickers with words or phrase. Normal

stickers are the oversized cartoon-like still image stickers without any specific features. They are usually free of charge or cost 50 virtual coins depending on the seller's price setting. Animation stickers are stickers with movement or motion effects. The stickers will play automatically when sent during a conversation. Stickers with sounds are stickers that have audible effects. Stickers with words or phrases are stickers simply with words written beside the characters. Nowadays, some stickers even come with multiple features bundled in one set, allowing customers to have a broader range of products to choose.

D. Factors Affecting Consumer Behavior

The concept of consumer value regularly revealed to be a significant predictor of customer intention to purchase products or services [5]. Previous studies have shown that factors of consumption values can impact consumer's buying behaviour of virtual products such as cartoon characters in online games [6]. Perceived value can affect consumer's purchasing decision process, and typically consumers will purchase a product with high perceived values [7].

One of the prevailing consumer values theories was developed by Sheth, Newman, and Gross [8]. They introduced five consumption values influencing consumer purchase intention, namely functional value, emotional value, social value, epistemic value, and conditional value. The theory explicated that consumers usually make conscious and unconscious decisions when purchasing specific products according to the consumption values. The impact can either be individual value influential or in multiple values dimension.

For socialised products such as virtual characters or stickers, consumers may consider buying if the product itself is beautiful/attractive, deliver the socialised value, and worth the value of money. The outcome from the previous study by Kim, Koh, and Lee showed that perceived quality, playfulness, and social self-image expression are significant factors influencing consumer's intention to purchase digital items in virtual communities [9]. For this study, the application of functional, emotional, and social values are selectively used as factors to observe the purchasing behaviours of Thai people when buying stickers from LINE messaging application.

III. HYPOTHESES DEVELOPMENT AND RESEARCH MODEL

A. Price Utility

Price utility is one component of functional value as specified by Monroe [10]. As LINE stickers are offered at different price ranges, stickers with a high price tag are generally viewed as being more valuable. For instance, stickers with advanced features and attractive designs are usually sold at higher price. Thus, high prices can ultimately increase the perceived acquisition utility which in turns create a higher chance of purchase decision. Thus, this study hypothesises that:

H1a. Price utility has a significant impact on intention to purchase LINE stickers on male consumers.

H1b. Price utility has a significant impact on intention to purchase LINE stickers on female consumers.

B. Quality Value

Quality, another component of functional value, may refer

to how effective stickers serve as the function for expressing facial mimics and body gestures when chatting with one another [3], [11]. Stickers can help clarify, accentuate, or emphasise textual messages during interactions [3]; some users send stickers instead of typing in order to save time because some stickers can convey the entire message. Therefore, stickers that achieved such outcome can signify superior quality. In summary, stickers with high perceived quality may increase consumer value perception, encouraging higher purchase intention from consumers. Thus, this study hypothesises that:

H2a. Quality value has a significant impact on intention to purchase LINE stickers on male consumers.

H2b. Quality value has a significant impact on intention to purchase LINE stickers on female consumers.

C. Aesthetics

Aesthetic, an element of emotional value, represents the visual appearance of the stickers, which has the potential to attract customer to making a purchasing decision. For e-commerce businesses, which particularly concerns with digital items such as to stickers, visual appearance plays a vital role during the product selection of customers. Thus, this study hypothesises that:

H3a. Aesthetic has a significant impact on intention to purchase LINE stickers on male consumers.

H3b. Aesthetic has a significant impact on intention to purchase LINE stickers on female consumers.

D. Playfulness

Playfulness is the feeling of fun and enjoyment emerged when users send/receive stickers during a conversation. For instance, various stickers contain humorous messages or amusing motion/sound that enhance playfulness may turn users to send them frequently, ultimately stimulating their demand to download more stickers. Therefore, the study hypothesises that:

H4a. Playfulness has a significant impact on intention to purchase LINE stickers on male consumers.

H4b. Playfulness has a significant impact on intention to purchase LINE stickers on female consumers.

E. Social Value

Human beings naturally desire to maintain close relationships with their friends, family and loved ones through exchanging emotional support, companionship, and encouragement [12]. Stickers with meaningful words or gestures could help maintain the social relationship between users and their friends. Thus, this study hypothesises that:

H5a. Social value has a significant impact on intention to purchase LINE stickers on Thai male consumers.

H5b. Social value has a significant impact on intention to purchase LINE stickers on Thai female consumers.

The conceptual model consists of 5 independent variables which are price utility, quality value, aesthetics, playfulness, and social value. The dependent variable is an intention to purchase stickers. The conceptual model is shown in Figure 1.

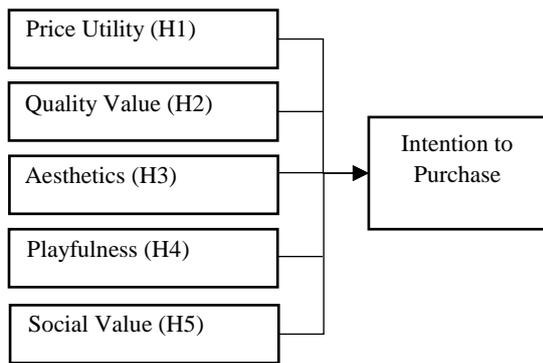


Figure 1: Conceptual model

IV. RESEARCH METHODOLOGY

A. Samples and Data Collection

The target population is Thai people who have downloaded LINE stickers. As of October 2014, there were approximately 33 million people registered for LINE app, accounting for 49% of the total Thai population. In order to estimate the number of users who downloaded stickers, 30 randomly selected people were interviewed. Results came out that 12 out of 30 people have downloaded stickers, equivalent to 40%, or about 13.2 million people. According to Yamane’s formula, set up at 95% confidence level and 5% sampling error, the required sample size equates to 400 respondents [13]. The online survey method was adopted to reach the target sample. The questionnaire has been tested for its reliability among the first 30 male respondents and 30 female respondents prior to the actual distribution. The quota sampling method was applied in this study. The number of respondents has reached the expected sample size of 400, with 200 valid male respondents, and 200 valid female respondents.

B. Research Instrument and Variable Measurement

The questionnaire comprises of 24 questions used to measure five independent variables and one dependent variable. The five-point Likert scales were applied in the survey, ranging from 1 (strongly disagree) to 5 (strongly agree). Furthermore, questions concerning respondent’s demographic information, purchasing behaviour, and sticker preferences were integrated into the survey. These items all applied the multiple-choice questions. Samples of the questions from the survey are shown in Appendix A.

C. Reliability

Table 1 displays the results of Cronbach’s alpha for the question’s reliability. The alpha for all constructs exceeded 0.7. Consequently, the instrument has a high level of consistency and all items are proved to be reliable.

Table 1
Reliability Analysis

Variables	Cronbach's alpha
Price	0.805
Quality	0.806
Aesthetics	0.887
Playfulness	0.849
Social Value	0.883

D. Validity

To validate the survey instrument, factor analysis with varimax rotation was performed. Table 2 displays that all items have factor loading greater than 0.5 with eigenvalues exceeded 1.0. According to Hair et al., this confirmed that all items comprising a scale behave as if they are measuring a common underlying construct and represent each variable commendably [14].

Table 2
Factor Analysis

Construct	No. of items	Factor loading	Eigenvalues	Percentage of variance
Price	3	0.067-0.785	1.323	5.290
Quality value	3	0.706-0.804	1.977	7.909
Aesthetics	4	0.547-0.768	1.593	6.372
Playfulness	5	0.581-0.704	2.653	10.613
Social value	7	0.754-0.774	8.825	35.301

V. DATA ANALYSIS AND RESULTS

Statistical Package for Social Science (SPSS) is used to analyse primary data from questionnaires.

A. Descriptive Statistics

Descriptive statistics on demographic data, mean and standard deviation of each factor, and sticker preferences sectioned by gender are shown in Table 3, Table 4, Table 5 and Table 6.

Table 3
Demographic Profile of Respondents

Demographic Profile	Number	Percentage
<i>Gender</i>		
Male	200	50%
Female	200	50%
<i>Age</i>		
< 21	175	43.8
21 – 34	195	48.8
35 – 54	26	6.5
> 55	4	1.0
<i>Education Level</i>		
Primary/secondary	40	10.0
High school	102	25.5
Vocational school	20	5.0
Bachelor degree	164	41.0
Master degree	63	15.8
Doctoral degree	11	2.8

Table 4
Mean and Standard Deviation of Each Factor

Variable	Male		Female	
	Mean	SD	Mean	SD
Price utility	3.52	0.73	3.52	0.82
Quality value	3.92	0.64	4.04	0.61
Aesthetics	3.71	0.61	3.94	0.62
Playfulness	3.69	0.77	4.03	0.64
Social value	3.45	0.66	3.55	0.61
Purchase intention	3.51	0.67	3.93	0.64

Table 5
Sticker Preference Features

Features	Gender			
	Male		Female	
	No.	%	No.	%
Normal Stickers	68	34	43	21.5
Stickers with Word or Phrase	49	24.5	60	30
Stickers with Animation Effect	59	29.5	62	31
Stickers with Sound	24	12	35	17.5
Total	200	100	200	100

B. Correlation Analysis

Table 7 and Table 8 have shown the summary of correlation coefficient values of all variables on male and female respondents. The results from both tables did not show any threat of multicollinearity issue as the correlation coefficient values among independent variables are below 0.6 which indicates relatively low relationships among the independent variables. All the variables have a positive linear relationship with one another.

For intention to purchase LINE stickers for male consumers, the factor that has the strongest relationship is Aesthetics ($r=0.669$). For intention to purchase LINE stickers for female consumers, the factor that has the strongest relationship is also Aesthetics ($r=0.601$).

Table 6
Preference Styles of Stickers

Styles of Sticker	Gender			
	Male		Female	
	No.	%	No.	%
Cute/ Lovely	26	13.0	48	24.0
Love/ Romance	18	9.0	18	9.0
Mascots	14	7.0	12	6.0
Wacky/Weird	28	14.0	16	8.0
Funny/Humorous	55	27.5	44	22.0
Male Characters	14	7.0	2	1.0
Female Characters	4	2.0	12	6.0
Animal Characters	16	8.0	14	7.0
Food Characters	8	4.0	8	4.0
Family/ Couple	8	4.0	10	5.0
Comedy & TV Stars	9	4.5	16	8.0
Total	200	100.0	200	100.0

Table 7
Correlation among Variables for Male

Variables	PU	QV	AE	PF	SV	PI
Price	1	0.574	0.395	0.308	0.342	0.546
Quality value		1	0.469	0.393	0.395	0.526
Aesthetics			1	0.592	0.535	0.669
Playfulness				1	0.499	0.520
Social value					1	0.616
Purchase Intention						1

Table 8
Correlation among Variables for Female

Variables	PU	QV	AE	PF	SV	PI
Price	1	0.463	0.295	0.310	0.182	0.453
Quality value		1	0.546	0.556	0.241	0.501
Aesthetics			1	0.510	0.390	0.601
Playfulness				1	0.270	0.574
Social value					1	0.454
Purchase Intention						1

C. Collinearity Diagnostics Tests

To confirm that the model does not contain multicollinearity problem, the collinearity diagnostics tests are performed, and the results are shown in Table 9 and Table

10. According to O'Brien, variables that show tolerance value below 0.2 or VIF value higher than 5 are considered to have multicollinearity problem [15]. Hence, the results proved that there are no variables possess a threat of multicollinearity thus validate variables for both samples.

Table 9
Collinearity Statistics of Male

Variable	Collinearity Statistics	
	Tolerance	VIF
Price utility	0.645	1.550
Quality value	0.585	1.710
Aesthetics	0.529	1.889
Playfulness	0.595	1.681
Social value	0.642	1.558

Table 10
Collinearity Statistics of Female

Variable	Collinearity Statistics	
	Tolerance	VIF
Price utility	0.798	1.253
Quality value	0.545	1.833
Aesthetics	0.588	1.700
Playfulness	0.623	1.605
Social value	0.838	1.194

D. Stepwise Multiple Regression Analysis and Hypothesis Test

Table 11 presents the stepwise multiple regression of male respondents. The result shows that three variables significantly affect the intention to purchase stickers; these are aesthetics ($\beta=0.669$, $p=0.000$), price utility ($\beta=0.333$, $p=0.000$), and social value ($\beta=0.310$, $p=0.000$). These three variables are statistically significant at 95% confidence level. The adjusted R^2 is 0.602 which means that these three variables could explain 60.2% of the variance of the dependent variable (purchase intention).

Table 12 shows the stepwise multiple regression of female respondents. Four variables appear to have a significant impact on the purchase intention of stickers. These variables include aesthetics ($\beta=0.601$, $p=0.000$), playfulness ($\beta=0.361$, $p=0.000$), price utility ($\beta=0.248$, $p=0.000$), and social value ($\beta=0.216$, $p=0.000$). The variables are also significant at 95% confidence level. The adjusted R^2 is 0.541 which means that these four variables could explain 54.1% of the variance of the dependent variable (purchase intention).

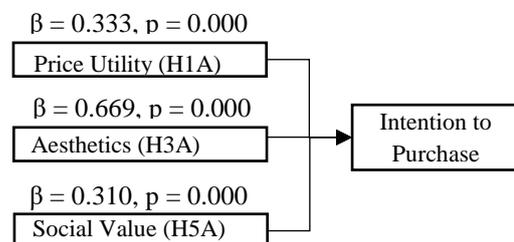


Figure 2: Multiple regression for male respondents

Overall, the result from the stepwise multiple regressions demonstrates that hypothesis H1A, H1B H3A, H3B, H4B, H5A and H5B are supported. The summary of the multiple regression models for both male and female respondents are presented in Figure 2 and Figure 3.

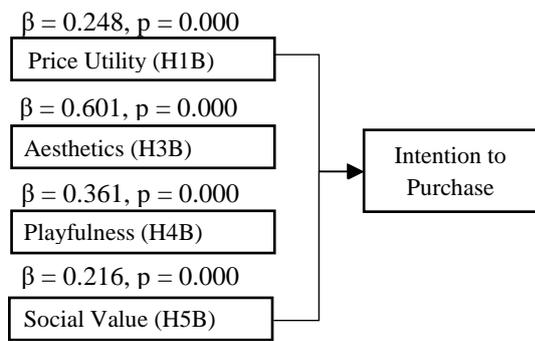


Figure 3: Multiple regression for female respondents

VI. CONCLUSION AND DISCUSSION

Among the top three most favourite sticker styles for each gender, Funny/Humorous and Cute/Lovely are top choices for both male and female. The difference is that male users favour Wacky/Weird stickers while female users pick Love/Romance stickers in their top three choices. Also, the sound is the least favourite sticker feature for both male and female customers.

The significant finding of this study reveals that price utility (H1A), aesthetics (H3A), and social value (H5A) are significant factors influencing the intention to purchase LINE sticker among male consumers. Meanwhile, female

consumers are influenced by price utility (H1B), aesthetics (H3B), social value (H5B), and playfulness (H4B). The similarity of factors influencing both gender groups is price utility, aesthetics, and social values. Aesthetics turned to be the most influential factor for both male and female consumers. The design and visual appearance of stickers affected the first impression for customers when selecting stickers to buy. Design, colours, graphics, and animated features are essential for creators to consider during the designing process.

Price utility is also another critical factor for Thai people when purchasing a non-necessity product such as stickers. Therefore, sticker’s creators must carefully balance between price and aesthetics to optimally trigger consumer’s purchase intention. Lastly, the third significant factor, social value, indicates that stickers can actually boost social connections among Thai consumers.

Interestingly, playfulness plays a significant role in the purchase intention of Thai female consumers only. This indicates that women are more emotional and sensitive when it comes to buying decision as suggested by Liang, Chen, and Duan [16]. Women use greater sensational instinct when making a purchase decision than men. For example, fun stickers can create values for female consumers, enhancing perceived benefit towards the product, which ultimately facilitates their purchase intention.

Table 11
Stepwise Multiple Regression for Male

Variable	B	β	t	Sig.	R	R ²	Adj. R ²	Overall F	
Criterion	Purchase Intention								
Predictor:	Aesthetics	0.627	0.669	12.667	0.000	0.78	0.608	0.602	101.268
	Price utility	0.261	0.333	6.345	0.000				
	Social value	0.273	0.31	5.766	0.000				

Note: Significance at 0.05 level

Table 12
Stepwise Multiple Regression for Female

Variables	B	β	t	Sig.	R	R ²	Adj. R ²	Overall F	
Criterion	Purchase Intention								
Predictor:	Aesthetics	0.544	0.601	10.571	0.000	0.742	0.551	0.541	111.748
	Playfulness	0.284	0.361	5.925	0.000				
	Price utility	0.182	0.248	4.659	0.000				
	Social value	0.175	0.216	4.111	0.000				

Note: Significance at 0.05 level

APPENDIX

Appendix A. Questionnaire

Price Utility

1. I purchase stickers as they represent great value for the money.
2. The stickers sold in the sticker shop are selling at reasonable price.
3. The stickers sold in the sticker shop are considered economical in terms of price.

Quality Value

1. The stickers sold in sticker shop have an acceptable quality.
2. The process of purchasing sticker is fast.
3. I often send stickers instead of typing in order to save time.
4. Stickers help me express my emotions and facial reaction

Aesthetics

1. I think stickers sold in sticker shop are lovely.
2. I think stickers sold in sticker shop have attractive features.
3. I think stickers sold in sticker shop have beautiful graphic design.
4. I think stickers sold in the online shop have nice colors.

Playfulness

1. When using stickers, I enjoy the conversation more.
2. Stickers with animation effect make my chat more playful.
3. Stickers with sound effect make my chat more playful.
4. Stickers with fun word or phrase make my chat more playful.

Social Value

1. Sticker improves my self-expression to others.
2. Stickers enhance my self-image to others
3. Stickers improve the way I am perceived.
4. Stickers enable me to form interpersonal bonds with others.
5. Stickers help me maintain my social relationships with others.
6. Stickers enhance my social relationship with others

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