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Factors Affecting the Use of Emoji by Social Network Service Users: A Comparison of Taiwan, Japan and Korea

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ABSTRACT

With the development of Internet and mobile devices, social network services (SNS) have become an indispensable part of people's daily lives, and with the popularity of SNS, users have also changed their ways of communication. However, online text communication between people lacks nonverbal cues, which often leads to misunderstandings or ambiguity. Emoji, a common language in the digital age, is often used not only in communication between different social network systems, operating systems and languages, but also by the users of SNS as the first choice for non-speech communication. This study used the technology acceptance model (TAM) and the unified theory of acceptance and use of technology (UTAUT) to find out and verify the factors affecting the use of emoji in social service networks. In this study, 422, 153 and 158 valid samples were collected from Taiwan, Japan and Korea, respectively, and were analyzed by AMOS 21 and PLS (partial least squares). The results showed that the perceived usefulness, perceived ease of use, subjective norms, perceived playfulness and fashion involvement of the Taiwanese samples had a positive impact on usage intention. For the Japanese samples, only perceived usefulness, subjective norms and perceived playfulness had positive effects on usage intention; for the Korean samples, only subjective norms and perceived playfulness had a positive effect on usage intention.

Keywords: Emoji; SNS; Cross-cultural research

1. Introduction

In the digital communication era, people can easily express their creativity and feelings in different ways. The development of social network services (SNS) has driven such phenomena and given users novel ways to communicate with others. In practice, attention should be paid to the use of emoticons (e.g., kaomoji, emoji, stickers, etc.) when using SNS, because these symbols can help users depict and convey facial expressions and gestures when communicating online. Compared with face-to-face communication (F2F), online communication lacks nonverbal cues that can prevent misunderstandings (e.g., body language or facial expression communication, etc.), which can easily cause ambiguity or misunderstandings (Daft & Lengel, 1984; Sproull & Kiesler, 1986). However, we can also use images to assist users to clearly express their emotional state and complete context in communication. Through these cues, individuals can overcome the ambiguity of text messages and improve the quality of communication.

This study focused on the factors that affect

users' intention to use emoji in SNS. Emoji is different from kaomoji/emoticons, as it conveys the mood by combining images with colors. Emoji is a popular language that originated in Japan. It is a combination of え, e and もじ, which is pronounced as moji in Japanese, and which can be understood as meaning "writing that looks like painting". It was first used to let other parties know more about meaning and emotion in the process of communication. Later, computers began to recognize it as a form of text, thus making it a new form of written communication.

SNS has become a global trend, and its use has mushroomed (Boyd & Ellison, 2007). The subjects discussed in this study were from Taiwan, Japan and Korea, all of which are countries with a high proportion of network development, mobile device ownership rates, and SNS usage, etc. (National Development Council, 2019; Ministry of Science and ICT, 2019; Ministry of Internal Affairs and Communications, 2020). It has also been pointed out that with network development, the high usage rate of mobile devices and community services will promote the use of

SNS and indirectly improve the use of nonverbal cues, such as emoji, kaomoji and stickers (Kato, 2018). Some studies have also shown that the use of emoji in SNS has become increasingly frequent (Kato, 2019) and has been evaluated as being attractive, positive, creative and meaningful (Kitamura & Sato, 2009; Kuribayashi, 2010). Therefore, the intention of using emoji in SNS should be discussed. However, there are few researches on users' intention to use emoji in SNS, and there are not many related researches on factors that affect users' intention to use emoji. Therefore, this study intended to fill the gaps in the literature by exploring the behavioral intention of using emoji in SNS.

This study adopted the technology acceptance model (TAM) proposed by Davis (1986) and the unified theory of acceptance and use of technology (UTAUT) developed by Venkatesh et al. (2003), which is based on the TAM. These two models are often used to explain and predict users' patterns in receiving information systems and to explore the behavioral intention of using emoji in SNS. In this study, three variables of TAM (perceived usefulness, PU; perceived ease of use, PEOU; and subjective norms, SN), one variable of UTAUT (behavioral intention, BI), perceived playfulness (PP), and fashion involvement (FI) were introduced to establish the whole research model. This study aimed to explore and compare whether the perceived usefulness, perceived ease of use, subjective norms, perceived playfulness, and fashion involvement of users in Taiwan, Japan, and Korea related to using emoji would affect their usage intention, and the results could be used as a reference for the future research on emoji services in SNS.

2. Literature review

2.1 TAM & UTAUT

TAM, proposed by Davis (1986), is based on the theory of reasoned action (TRA) put forward by Fishbein & Ajzen (1975) and the theory of planned behavior (TPB) developed by Ajzen (1991), which is derived from TRA. TAM applies the user's cognition to discuss the acceptance degree and the decisive factors between the user and the use of science and technology. The model indicates that perceived usefulness and perceived ease of use are two important factors affecting the user's intention. Subsequently, Venkatesh & Davis (2000) found that subjective norms have a more significant impact when they are mandatory, and that they affect users' intention to use new things and new systems. TAM has been regarded as a complete model for many years and has been used to

investigate users' acceptance of new technologies, as well as social media, e-commerce, software applications, and other multi-oriented research (Lorenzo-Romero et al., 2014; Zhang et al., 2008).

The UTAUT adopted in this study is mainly derived from the TAM. Venkatesh et al. (2003) reviewed and reconstructed eight models used in previous studies and further developed the TAM. This extended model combines TRA, TAM, the motivational model (MM), TPB, the combined TAM and TPB model (C-TAM-TPB), the model of PC utilization (MPCU), innovation diffusion theory (IDT), and social cognitive theory (SCT). It can explain many behaviors related to the adoption and use of new technologies. The main factors of the UTAUT model include performance expectancy (e.g., perceived usefulness), effort expectancy (e.g., perceived ease of use), social influence (e.g., subjective norms & perceived playfulness), and facilitating conditions. Therefore, this study used UTAUT as our research model.

Many scholars have pointed out that TAM can be used to analyze users' use behavior and intention to use nonverbal cues such as emoji, kaomoji, and stickers. For example, Wang (2013) used TAM to explore the influence of stickers of the online community on the acceptance of digital natives, and the results showed that the stickers of the online community have a positive and significant influence on the perceived usefulness, perceived ease of use and behavioral intention of digital natives. Chen & Chen (2020) discussed users' intention when using ugly stickers, and found that ugly stickers are mostly used by young and extroverted users who frequently use SNS and are influenced by subjective norms. Nysveen et al. (2005) explored the moderating role of gender in the intention to use SNS, and the results showed that subjective norms are the determinant for female users, while perceived usefulness is the determinant for male users. Therefore, this study regarded perceived usefulness, perceived ease of use and subjective norms as disguised forms that affect the use intention of emoji, and put forward the following hypotheses:

- H1: The perceived usefulness of using emoji in social network services has a positive effect on usage intention.
- H2: The perceived ease of use of using emoji in social network services has a positive effect on usage intention.
- H3: The subjective norms of using emoji in social network services has a positive effect on usage intention.

2.2 Perceived playfulness

The concept of playfulness originates from the nonverbal clues of media richness theory. When users have high interest in information technology, they will form subjective attitudes, such as positive emotions and satisfaction, while users who initially lack interest may interact with information technology with positive attitudes and strong motives. Playfulness can also attract participants' attention, trigger their curiosity, and let them be happy with interpersonal interaction (Hung et al., 2016). Chiang et al. (2011), Wang & Chang (2012) and Hung et al. (2016) also pointed out that playfulness is considered one of the keys to the success of SNS on social networking sites. Hedonic traits can give participants personal entertainment and cause fun and joyful emotions. Through the interesting and interactive traits generated by the community, participants can feel positive when interacting with others through social networking sites. Yu et al. (2005) and Chang et al. (2009) indicated that perceived playfulness has a positive and significant impact on the usage intention of information technology. Morosan & Jeong (2008) also found that perceived playfulness is an important predictor of users' intention to visit websites. Therefore, this study regarded perceived playfulness as a disguised form that affects the usage intention of emoji, and put forward the following hypothesis:

H4: The perceived playfulness of using emoji in social network services has a positive effect on usage intention.

2.3 Fashion involvement

Fashion is a process of accepting symbols that provide individuals with the same identification as others, and these symbols often change (Reynold, 1968). Sproles (1979) defined fashion as a form of behavior that is temporarily adopted by some members of a social group, and which is considered appropriate by society at a certain time and situation. This study discussed the adoption of new popular technologies such as SNS and emoji, as well as the willingness of individuals to use emoji.

In the field of fashion, the degree of fashion involvement refers to the range in which consumers are interested in the types of fashion commodities. Fashion involvement can be used to predict consumers' behavior variables related to fashion commodities, such as the product involvement degree, purchasing behavior, and consumer characteristics (Browne & Kaldenberg, 1997). The higher a user's involvement in

fashion, the higher the user's recognition of the importance of fashion, the easier it is to use fashion in decision-making evaluations, and the more the emotion in use is influenced by the degree of love. O'Cass (2000) found that the degree of fashion involvement is highly correlated with personal characteristics and product knowledge, and that product knowledge can further affect users' use decisions. Watchravesringkan et al. (2010) also found that individuals who use fashion products generally do so to enhance their self-esteem and change their appearance. Therefore, this study regarded fashion involvement as a disguised form that affects the usage intention of emoji, and proposed the following hypothesis:

H5: The fashion involvement of using emoji in social network services has a positive effect on usage intention.

2.4 Research model

Based on the aforementioned related literature, UTAUT has been proven to effectively explain the prediction and performance of the behavior intention of the use of new technology (Blaise et al., 2018). The TAM mainly leads to use intention via perceived usefulness, perceived ease of use and subjective norms (Lorenzo-Romero et al., 2014; Zhang et al., 2008). In the research on information systems, perceived playfulness is found to directly affect the acceptance and use of technology. In the context of general users, perceived playfulness has also been shown to be an important determinant of the acceptance and use of technology (Brown & Venkatesh, 2005). Fashion involvement is a commonly-used statement and motivation that encourages users to adopt popular and novel technological products (Browne & Kaldenberg, 1997). Therefore, this study proposed that the use of emoji in SNS by users would be affected by the variables related to the hypotheses and would promote use intention. As personal characteristics are extremely important for predicting the behavior of technology acceptance and use, this study used UTAUT to explore the relationship between individuals' behavior and the intention to use emoji to establish a structural equation (SEM). The research framework is shown in Figure 1. This article explored the hypotheses and causality among perceived usefulness, perceived ease of use, subjective norms, perceived playfulness and fashion involvement, behavioral intention and other dimensions, and proposed a model of the influencing factors and use intention of users to adopt emoji in SNS.

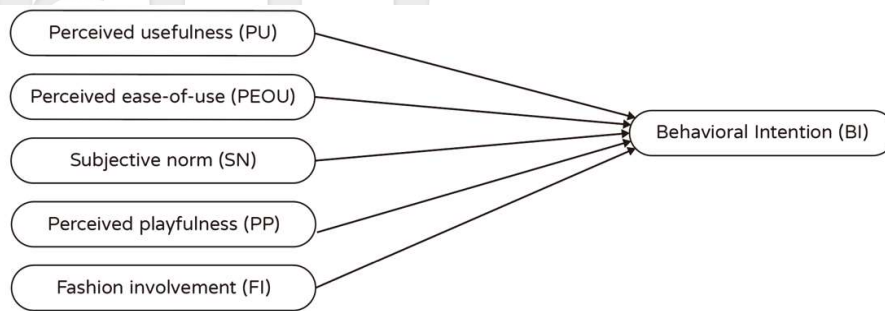


Figure 1. Concept model

3. Methods

3.1 Data collection

From January to February, 2021, this study conducted a network questionnaire survey on the use of emoji in Taiwan, Japan and Korea through SNS and network survey companies. A total of 422, 153 and 158 valid samples were respectively collected, and a total of 733 valid questionnaires were recovered. As shown in Table 1, there were 422 samples from Taiwan, with 54.8% male and 45.2% female, as well as 153 samples from Japan, with 49% male and 51% female, and 158 samples from Korea, with

45.6% male and 54.4% female.

This survey was based on the research ethics standards issued by the Japan Ergonomics Society and the International Ergonomics Association's Code of Conduct for Ergonomists, 2006, and was approved by the Bioethics Committee of Center for Frontier Medical Engineering, Design Research Institute and Graduate School of Engineering, Chiba University (R2-08). While the survey was in progress, the participants could close the browser to give up answering at any time, and their data would not be analyzed. All collected data was processed anonymously.

Table 1 Descriptive Statistics

Variable	Taiwan	Japan	Korea
	N / Percentage %	N / Percentage %	N / Percentage %
Gender			
Male	227 (54.8%)	75 (49%)	72 (45.6%)
Female	195 (45.2%)	78 (51%)	86 (54.4%)
Age			
20-29	196 (46.4%)	31 (20.3%)	57 (36.1%)
30-39	124 (29.4%)	49 (32%)	30 (19%)
40-49	66 (15.6%)	28 (18.3%)	46 (29.1%)
50-59	26 (6.2%)	29 (19%)	17 (10.8%)
60-69	10 (2.4%)	12 (7.8%)	7 (4.4%)
70-79	0	3 (2%)	1 (0.6%)
80-89	0	1 (0.7%)	0
Education			
Primary	2 (0.5%)	0	0
Secondary	49 (11.6%)	39 (25.5%)	29 (18.4%)
University <= 4	286 (67.8%)	101 (66%)	102 (64.6%)
University > 4	85 (20.1%)	13 (8.5%)	27 (17%)
Total	422	153	158

3.2 Measurement

The model constructed in this study adopted a verified scale. The original scales were all in English. We modified the scale to match the emoji, and translated the scale into Taiwanese Mandarin, Japanese, and Korean. The questionnaire mainly consisted of three parts. The first part was used for screening, in which we explained the purpose of the study and provided two questions for the participants to confirm whether they had used emoji and SNS. The respondents could not proceed to the next stage if they failed to confirm their usage, and if "have not used" was checked, the survey would automatically jump to the end screen. The second part of the questionnaire was demographic variables, including gender, age, and educational background. The third part was the scale of potential variables. The scale (Table 2) included the following constructs: perceived usefulness, perceived ease of use, subjective norms, perceived playfulness, and fashion involvement, which were developed from Moon & Kim (2001), Venkatesh et al., (2003), Lin &

Bhattacharjee (2008), Tiger et al. (1976), Lin & Xia (2012) and Venkatesh & Davis (2000). A 7-point Likert scale was used for scoring, with answers ranging from 7 (strongly agree) to 1 (strongly disagree). There were two additional questions, including "How frequently do you read the fashion section in the media?" and "How frequently do you shop in department stores or consumer electronics stores?", for which the answers ranged from "Frequent" to "Very Few".

Before the questionnaire was officially issued, we conducted a pre-test and pilot test to verify the scale. For the pre-test, we invited eight experts to give their opinions and revise the format and wording of the questionnaire. Finally, we collected 75 questionnaires during the pilot test to reduce errors and deviations. In this study, Cronbach's alpha was used to confirm the reliability of all items (PU=0.94, PEOU=0.87, SN=0.85, PP=0.90, FI=0.76, BI=0.75), and according to Tu (2012) recommendation, the results indicated that the revised questionnaire items were credible and valid.

Table 2 Model Constructs and Items

<i>Item</i>	<i>Scale</i>
Perceived usefulness (PU) (Moon & Kim, 2001; Venkatesh et al., 2003)	
PU1	I like to use emoji.
PU2	I hold a positive attitude towards the use of emoji.
PU3	Using emoji brings me a lot of convenience.
PU4	The use of emoji can accurately express feelings other than words.
PU5	Using emoji helps to express my thoughts.
PU6	It is useful to use emoji.
Perceived ease of use (PEOU) (Venkatesh et al., 2003; Lin & Bhattacharjee, 2008)	
PEOU1	It was easy for me to learn how to use emoji when chatting at first.
PEOU2	The emoji I use at present are popular.
PEOU3	It is easy to chat with emoji.
PEOU4	It is a very simple thing to use emoji.
Subject norm (SN) (Venkatesh, & Davis, 2000)	
SN1	Colleagues/classmates in the workplace/school think I use emoji.
SN2	Peers outside the workplace/school think that I use emoji.
SN3	My family thinks I use emoji.
SN4	My friends think I use emoji.
Perceived playfulness (PP) (Moon & Kim, 2001; Venkatesh et al., 2003)	
PP1	Chatting with emoji makes me feel very interested.
PP2	Chatting with emoji will stimulate my imagination.
PP3	Chatting with emoji gives me a kind of intimacy to communicate with others.
PP4	Chatting with emoji makes me feel happy to talk with others.
PP5	Chatting with emoji makes me have a sense of presence face-to-face with people.

Fashion involvement (FI) (Tigert et al., 1976; Lin & Xia, 2012)	
FI1	I am a person who can keep up with fashion.
FI2	How frequently do you read the fashion section in the media?
FI3	How frequently do you shop in department stores or consumer electronics stores?
Behavioral intention (BI) (Venkatesh et al., 2003)	
BI1	I expect to continue to use emoji in the future.
BI2	I will use emoji as often as I do now.
BI3	I will recommend my relatives and friends around me to use emoji.

4. Results

This study used AMOS 21 statistical software to analyze the data from Taiwan, and used partial least squares (PLS) to analyze the data from Japan and Korea. As for Taiwan, in the first stage, first-order and second-order confirmatory factor analysis (CFA) was used to confirm the goodness-of-fit of models in the literature, as well as the reliability and validity of the observed variables and potential variables. In the second stage, structural equation modeling (SEM) was used to test the hypotheses. As for Japan and Korea, the model was analyzed through two steps: (1) reliability and validity to evaluate the quality of the model; and (2) structural model hypothesis testing.

4.1 Measurement model

In this study, the measurement model was evaluated according to criteria for the reliability, convergent validity, discriminant validity, construct validity and model-fit (Table 3). For these three models, the Cronbach's α of all items was higher than 0.7, indicating that the items of each variable had reliability (Fornell & Larcker, 1981).

Next, the factor loadings and the average variance extracted were used to test the convergence validity. The factor loadings of the project needed to be greater than 0.5, and the average variance extracted (AVE) had to exceed 0.5 (Hair et al., 2006). As shown in Table 3, the factor loadings of all models were higher than 0.6, and the AVE was also higher than 0.5. In addition, the AVE of Fornell & Larcker (1981) was also used to obtain the AVE value for each construct. When compared with the square of the correlation coefficient of the construct, the AVE

should be greater than the square of the partial correlation coefficient to prove the existence of discrimination validity. The correlation coefficients of each construct of the three models in this study all conformed to the above principles. Therefore, there was discrimination validity between constructs, as shown in Tables 4–6.

In terms of the construct validity, the component reliability (CR) for perceived usefulness, perceived ease of use, subjective norms, perceived playfulness and fashion involvement were respectively 0.93, 0.88, 0.92, 0.78, and 0.86 in Taiwan; 0.95, 0.93, 0.95, 0.94, 0.87, and 0.89 in Japan; and 0.97, 0.96, 0.96, 0.97, 0.94, and 0.93 in Korea. All coefficients were greater than 0.7 (Hair et al., 2006). In addition, in order to ensure that each scale could measure the degree of the constructed theory, confirmatory factor analysis was used to test the fitness of the measurement model.

According to the statistical analysis, the results of the confirmatory factor analysis for Taiwan's six constructs of perceived usefulness, perceived ease of use, subjective norms, perceived playfulness, fashion involvement, and usage intention showed the following indicators: $\chi^2 = 739.03$; $df = 260$; $\chi^2/df = 2.84$; $RMSEA = 0.07$; $GFI = 0.84$; $AGFI = 0.87$; and $CFI = 0.94$, all of which were higher than the standards previously considered acceptable by scholars (Bentler & Bonett, 1980; Schumacker & Lomax, 2004; Hu & Bentler, 1999; Doll et al., 1994; MacCallum & Hong, 1997) ($\chi^2/df < 5$, $RMSEA \leq 0.08$, $GFI \geq 0.80$, $AGFI \geq 0.80$, $CFI \geq 0.90$), indicating that the measurement model could be appropriately adapted to the data of this study.

Table 3 Scale Measurement Properties

		Factor Loading			Cronbach's α			CR			AVE		
		T	J	K	T	J	K	T	J	K	T	J	K
PU	PU1	0.82	0.80	0.87	0.93	0.94	0.96	0.93	0.95	0.97	0.67	0.76	0.84
	PU2	0.78	0.76	0.91									
	PU3	0.86	0.93	0.95									
	PU4	0.80	0.90	0.92									
	PU5	0.81	0.93	0.92									
	PU6	0.85	0.91	0.93									
PEOU	PEOU1	0.72	0.73	0.91	0.88	0.89	0.95	0.88	0.93	0.96	0.65	0.76	0.86
	PEOU2	0.80	0.87	0.94									
	PEOU3	0.87	0.94	0.95									
	PEOU4	0.83	0.94	0.92									
SN	SN1	0.89	0.95	0.93	0.92	0.93	0.94	0.92	0.95	0.96	0.74	0.83	0.85
	SN2	0.87	0.92	0.93									
	SN3	0.79	0.88	0.91									
	SN4	0.89	0.92	0.91									
PP	PP1	0.83	0.83	0.92	0.90	0.93	0.96	0.90	0.94	0.97	0.65	0.77	0.85
	PP2	0.74	0.87	0.93									
	PP3	0.86	0.91	0.93									
	PP4	0.88	0.90	0.93									
	PP5	0.70	0.88	0.90									
FI	FI1	0.83	0.89	0.93	0.78	0.78	0.90	0.78	0.87	0.94	0.55	0.68	0.83
	FI2	0.75	0.85	0.92									
	FI3	0.63	0.74	0.89									
BI	BI1	0.90	0.93	0.95	0.83	0.82	0.89	0.86	0.89	0.93	0.67	0.74	0.82
	BI2	0.87	0.93	0.92									
	BI3	0.66	0.70	0.85									

Note: T=Taiwan; J=Japan; K=Korea; PU = perceived usefulness; PEOU = perceived ease of use; SN = subjective norm; PP=perceived playfulness; FI = fashion involvement; BI = behavioral intention.

Table 4 Correlation of Constructs – Taiwan

	PU	PEOU	SN	PP	FI	BI
PU	0.85					
PEOU	0.79	0.86				
SN	0.71	0.72	0.90			
PP	0.80	0.74	0.66	0.85		
FI	0.42	0.47	0.47	0.51	0.84	
BI	0.77	0.76	0.80	0.77	0.53	0.87

Table 5 Correlation of Constructs – Japan

	PU	PEOU	SN	PP	FI	BI
PU	0.87					
PEOU	0.72	0.87				
SN	0.68	0.69	0.91			
PP	0.70	0.60	0.59	0.88		
FI	0.26	0.31	0.29	0.30	0.83	
BI	0.76	0.62	0.72	0.67	0.31	0.86

Table 6 Correlation of Constructs – Korea

	PU	PEOU	SN	PP	FI	BI
PU	0.92					
PEOU	0.85	0.93				
SN	0.78	0.79	0.92			
PP	0.85	0.84	0.83	0.92		
FI	0.63	0.66	0.69	0.70	0.91	
BI	0.77	0.77	0.84	0.86	0.68	0.91

4.2 Structural model

This section describes the validation of the hypotheses of our study. Table 7 lists the results for all path coefficients, R^2 values, and significance levels. For Taiwan, the results of the research and analysis showed that perceived usefulness ($\beta = 0.157$, $p < .001$), perceived ease of use ($\beta = 0.14$, $p < .01$), perceived playfulness ($\beta = 0.235$, $p < .001$), fashion involvement ($\beta = 0.094$, $p < .05$), and subjective norms ($\beta = 0.388$, $p < .001$) all had positive effects on usage intention in H1, H2, H3, H4, and H5, which supported the research hypotheses. The R^2 value was 76.5%, indicating that the model explained a good degree of potential transformation. As for

Japan, the R^2 value was 66.3%, which showed that the model explained the potential transformation degree well, but that only H1, H3, and H4 were supported, with perceived usefulness ($\beta = 0.406$, $p < 0.01$), perceived playfulness ($\beta = 0.179$, $p < 0.05$), and subjective norms ($\beta = 0.348$, $p < 0.01$). As for Korea, the R^2 value was 78.9%, which also showed that the model explained the potential transformation degree well. However, it only supported H3 and H4, with perceived playfulness ($\beta = 0.502$, $p < .001$) and subjective norms ($\beta = 0.364$, $p < .05$). These results once again confirmed the validity of the model and its applicability to the use of emoji.

Table 7 Structural Model Results

	<i>Taiwan</i>	<i>Japan</i>	<i>Korea</i>
PU	0.157**	0.406**	-0.019
PEOU	0.14**	-0.036	0.042
SN	0.388***	0.348**	0.364*
PP	0.235***	0.179*	0.502***
FI	0.094**	0.063	0.058
Participants (N)	422	153	158
R^2	76.5%	66.3%	78.9%

Significant levels: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

5. Discussion and conclusion

This study mainly used the TAM and UTAUT to explore whether perceived usefulness, perceived ease of use, subjective norms, perceived playfulness and fashion involvement affect use behavioral intention in Taiwan, Japan and Korea. The research hypothesis validation results indicated that the five concepts of perceived usefulness, perceived ease of use, subjective norms, perceived playfulness and fashion involvement had different influences on the intention to use emoji in social network services in Taiwan, Japan and Korea. The analyses and results illustrated the phenomenon of different countries, showed their practical significance and resulted in a number of suggestions for future non-verbal clues. We also used the differences in the three models of the research

results to argue that cultural background should be adopted as the basis for using and adopting products of transnational technologies in the future. This result corresponded to the studies of Prada et al. (2018), Garrido & Prada (2021), Lu et al. (2016), Park et al. (2014), Takahashi et al. (2017) and Barbieri et al. (2016), who pointed out that different cultural geographies, backgrounds and environments will result in differences in the use of emoji. The contributions of the results of this study to the development of theory and practice were as follows:

H1: The analysis of the research results showed that perceived usefulness in Taiwan and Japan regarding the use of emoji in SNS has a direct and positive effect on the usage intention. H1 was therefore partially valid; however, Korea rejected H1. The results were partially consistent

with those of Venkatesh et al. (2003) and Wang (2013). The perceived usefulness of emoji directly affects the user's behavior intention. It could be seen that the usability of emoji is important to users. If users feel that emoji is functional and practical, it will increase users' willingness to use it. As for Japan, it was found that perceived usefulness has a greater influence on usage intention than perceived ease of use and subjective norms. This means that if Japanese people think emoji can improve the efficiency of their nonverbal cues in SNS, they will be more willing to use it. Kato (2015) pointed out that when Japanese individuals use SNS, they will use emoji to communicate with others in order to avoid embarrassing situations, which further promotes the use of SNS and reflects the usefulness of emoji. The failure of Korea was also inconsistent with the research results of Venkatesh et al. (2003) and Jung & Bae (2016). It shows that in Korea, users who use emoji do not interfere with the influence of perceived usefulness on usage intention.

H2: The analysis of the research results showed that Taiwan's perceived ease of use of emoji in SNS has a direct and positive effect on usage intention. H2 was therefore partially valid; however, Japan and Korea both rejected H2. The results were partially consistent with those of Venkatesh et al. (2003). As shown in current research on TAM, it is easy to understand that users regard emoji as something they could operate and use. Previous studies have also pointed out that perceived ease of use, and this study also pointed out that results will vary in different countries. The author considered that the people of Japan and Korea are relatively formal and restrained in terms of both language and life when compared to Taiwan. Accordingly, they must adopt different respectful sentences for language performance when facing different situations and objects, as the use of emoji is not necessarily an easy behavior. Similarly, they must also face the same problems when using emoji on SNS, as it is not easy to choose the appropriate emoji to use. From a practical aspect, emoji can be easily installed into the operating systems of today's computers, mobile phones and mobile devices, and many SNS developers also offer the function of automatically recommending emoji. Although emoji is a system invented in Japan, many emoji based on local cultures have also been developed in response to globalization. In the future, if operating system operators and SNS developers can create or strengthen their choice of non-verbal cues corresponding to various cultures, it will definitely increase emoji's ease of use.

H3: The analysis of the research results showed that the subjective norms of Taiwan, Japan and Korea when using emoji in SNS have a direct and positive influence on usage intention, therefore H3 held true. This result was consistent with that of Venkatesh et al. (2003). Subjective norms play an important role in the usage intention of emoji, and subjective norms (such as people's hope to establish or maintain a good image in the group) may enhance an individual's position in a group. It can be seen that other people's evaluation and opinion on emoji and the popularity of emoji will affect the user's intention to use emoji. In Taiwan, besides perceived usefulness and perceived ease of use, subjective norms are another important factor affecting users' usage intention. Nowadays, written communication between people is based on SNS. Users pay more and more attention to the connection relationship in the community. When using SNS, the recognition and degree of other people's views will affect users' usage intentions in the community.

H4: Taiwan, Japan and Korea have a higher degree of perceived playfulness in the presentation of usage intention when using emoji in SNS, and these results supported hypothesis 4. This result was consistent with the results of Venkatesh et al. (2003) and Moon & Kim (2001). Perceived playfulness is recognized by most subjects. Therefore, the pleasure of using emoji is an important factor affecting users, and the value of perceived playfulness is biggest motivation to promote the use of emoji. As for Korea, perceived playfulness is the most important factor affecting usage intention, which was consistent with Jeon's (2011) research results. Therefore, the popularity of emoji depends on how many users can perceive its playfulness. Internet utilization in Korea is quite high, and Internet cafes have become quite popular, thus providing an environment in which individuals can easily use SNS through network services anywhere. Therefore, it could be considered that emoji has perceived playfulness in Korea.

H5: The analysis of the research results showed that Taiwan's fashion involvement in using emoji in SNS has a direct and positive effect on usage intention. H5 was therefore partially valid, while Japan and Korea rejected H5. The results were partially consistent with those of Venkatesh et al. (2003) and Hou et al. (2010). Surprisingly, for users in Japan and Korea, fashion involvement has no effect on usage intention. The results showed that users in these two countries pay less attention to fashion involvement when using emoji in current SNS. On the contrary, in Taiwan, such findings could provide practical

implications for how SNS can attract users to use emoji by shaping fashion trends. This phenomenon could also correspond to the fact that many enterprises in Taiwan promote their products or corporate images through free software stickers.

Although this study strove to be rigorous, it still had a number of limitations. First of all, this study mainly focused on emoji, and it is necessary to carefully consider whether the research results can be generalized to other nonverbal clues in follow-up studies. Moreover, emoji may become outdated in the future; therefore, researchers should try their best to understand the influence of emoji, as well as communication using other nonverbal cues. More importantly, researchers should pay more attention to the characteristics of users, for example, this research focuses on the comparison of countries, and does not analyze the moderator variable of UTAUT such as gender, age, and experience. For example, this study explored the differences among people living in Taiwan, Japan and Korea; however, there will be other differences in countries or cultures outside Asia. Therefore, future research should explore whether the use of emoji in other regions will have different relationships, add different constructs, or conduct investigation from the perspective of social interaction, so as to discuss the changes and expansion of the research model and gain a wider and deeper understanding of the use of emoji.

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