Exploring Impact Factors of Mobile Instant Messenger Users' Continuance Intention

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ABSTRACT

Combining uses and gratifications theory and one construct, that is attitude, from the theory of planned behavior, led to the creation of the research model in this study. Structural equation modeling was applied to analyze data from 414 WeChat users. In this research, we aimed to explore the direct impacts of various gratifications on attitude regarding the use of mobile instant messenger. It was also sought to explore the direct and indirect influences of various gratifications on the continuance intention to use mobile instant messenger. According to the results, attitude is essential in deciding mobile instant messenger users' intention to continue using the service. Additionally, results show that process gratification, as represented by entertainment, and technology gratification, as represented by convenience are two main direct predictors of continued intention to use WeChat. Results also show that attitude acts as a full mediator between process gratification (entertainment), technology gratification (media appeal, social presence), and continuance intention of WeChat users. Attitude partially mediates the relationship between technology gratification (convenience) and continuance intention of WeChat users. Attitude is directly influenced by process gratification (entertainment), as well as technology gratification (convenience, media appeal, social presence). This research helps with grasping the inherent connection mechanism between various gratifications and continuance intention. There are a number of important theoretical and practical implications that emerge from this study.

1. INTRODUCTION

According to Thomala [1], WeChat's active user base is constantly growing. In the third quarter of 2022, WeChat had over 1.31 billion monthly active members, placing it fifth in terms of active users globally.

WeChat has grown in popularity in recent years and has dramatically impacted people's lives. Tencent's WeChat, introduced in 2011, offers a few services for people and businesses, incorporating instant messaging, voice communication and social networking services. Due to the existence of other players providing comparable services, the service provider, Tencent, faces fierce competition in China in terms of long-term user retention, despite its large user base and rapidly developing market.

Multifunctional WeChat provides a variety of services, from text messaging to social interaction and mobile payments, and it is continuously adding new options, such as integrated city services, to improve its offerings. WeChat's primary functionalities include short messaging, and sharing of images and videos through the Moments feature. In accordance with WhatsApp's features, its Chinese equivalent provides free video and audio call services, as well as a huge variety of emoticons to express the emotional state of users. When users follow multiple public accounts on WeChat, they may get a wide range of information. As a matter of fact, an increasing number of businesses, colleges, and governments are utilizing WeChat public accounts as a communication and marketing tool.

Although the number of WeChat users proliferated initially, the rate of growth has decreased in recent years [2]. How to keep users engaged and grow their loyalty has become a hot issue in academia. According to Fishbein and Ajzen [3], users' continued usage behavior cannot be objectively detected, but the intention of users to continue using a certain product can be studied. Various gratifications' roles in predicting continuity may vary in distinct study circumstances, according to Chinese academics Gan and Li [4]. Until now, little consideration has been given to the effect of gratifications on the sustained usage of WeChat.

Smart phones and mobile broadband have increased the competitiveness of mobile instant messenger (MIM) as a viable alternative to traditional short message services. MIM has become a platform for leisure, business, and work due to the advancements in mobile communications. MIM apps connect multiple services on one single platform utilizing network impact, mobility, and universality. Users may utilize MIM to keep information updated in real-time wherever and whenever they want. As MIM differs from other services online, variables affecting users' willingness to continue to use MIM, may be different from the previously researched technologies, thus it should be investigated in detail. Competition is quite strong in the MIM sector, with numerous apps currently on the market and new apps being launched all the time. Attracting new audience is easier than maintaining existing users, since people are constantly eager to explore new technologies and products. However, stopping current users from switching to different MIM apps is considered a difficult challenge. The same features shared by all MIM apps significantly lower users' switching costs, making the task

more difficult [5]. As a result, MIM service suppliers must identify the variables that impact users' sustained usage desires to develop successful strategies to enhance users' continuance intention (CI) to use MIM. The strong competition in the MIM market highlights the importance of continued usage of MIM for service providers to expand sustainably.

In the current study, the theory of uses and gratifications (U&G) and one construct from theory of planned behavior (TPB), attitude (ATT), will be integrated. The author will utilize WeChat as an example to investigate the direct and indirect influence of various gratifications on the CI to use MIM. It will also investigate what role ATT plays in impacting the intention to continue utilizing MIM, as well as what kinds of gratifications have a direct impact on ATT regarding MIM usage.

2. THEORETICAL BACKGROUND

2.1 Theory of uses and gratifications

The theory of U&G aims at determining why and how people actively choose certain media to suit their needs [6]. It is commonly utilized to describe the different motives and reasons for using certain media types. This theory examines the social and psychological factors that influence the selection of certain media. More significantly, the theory of U&G presents a user-centered approach which demonstrates that users can detect their own needs and make value judgements about the media they consume [6]. To assess consumer behavior and better understand their motivation to use various media, the theory of U&G has been widely used. As with any medium, people may have different motives for utilizing the same medium, as well as varied levels of gratification. To put it another way, when people utilize media, they have goals in mind and deliberately select certain media in accordance with their needs and gratifications. Initially, the theory of U&G was used to study the selection and use of conventional medium like newspapers and TV. Recent research has extended this theory to computer-mediated communication technology, including MIM, with the goal of explaining why people use it. Based on earlier studies, Liu et al. [7] describe four main kinds of gratifications, namely content gratification (self-documentation, information sharing, self-expression), social gratification (social interaction), process gratification (entertainment, passing time), and technology gratification (convenience, media appeal, social presence). This study aims to examine the above four different kinds of gratifications.

Individual users' usage of media in various circumstances has been studied using U&G theory. Based on prior research results, this study investigates the continued use intention of WeChat, utilizing theory of U&G as one of the theoretical bases. As a starting point, U&G theory may be applied to personal media usage to better understand how people interact with media. Individuals opt to utilize WeChat to fulfill their different needs on their own will. Consequently, theory of U&G can be used to understand how different gratifications predict an individual's continuing usage of WeChat.

2.2 Theory of planned behavior

According to Ajzen [8], a person's intent to carry out a particular activity is the key component in predicting planned behaviors in TPB. Behavioral intention represents a person's motives as well as the efforts a person is prepared to put forth to accomplish a behavioral target. In general, the greater the intent of an individual to execute an action, the higher the possibility that the action will be performed. TPB suggests three constructs for predicting behavioral intentions. The first construct is the ATT toward behavior, which indicates how much the individual prefers a certain action. The second variable is subjective norm, which denotes the social pressures from other prominent people who believe whether or not we should engage in the action. The third element is perceived behavioral control, which reflects a person's conviction in one's capacity to execute the behavior and the degree to which one can manage one's own execution of the activity. Perceived behavioral control might be internal to a person, such as ability, knowledge, and skills, or external to the individual, such as time, opportunity, and reliance on others [9]. TPB was proposed as a way to investigate the impact of social and psychological elements on customer behavioral intentions. Individuals' ATT toward behavior, according to Wu and Kuang [10], can effectively anticipate their behavioral intentions. Therefore, TPB is also appropriate for this research since it is a theory that may be used to better explain and anticipate human behavior intention.

With U&G and TPB, Zadeh et al. [11] examined motivational values and psychological determinants associated with the intention to co-create on social media. They looked at an underlying mechanism that connects motivational values to co-creation intentions through ATT. The findings reveal that co-creation intentions are driven indirectly by intrinsic motivating factors such as enjoyment and social enhancement via ATT, but not by subjective norms or behavioral control. Similarly, the current research looks at the CI of WeChat usage. As a result, this study will concentrate on ATT from TPB and incorporate it into theory of U&G to examine WeChat's CI.
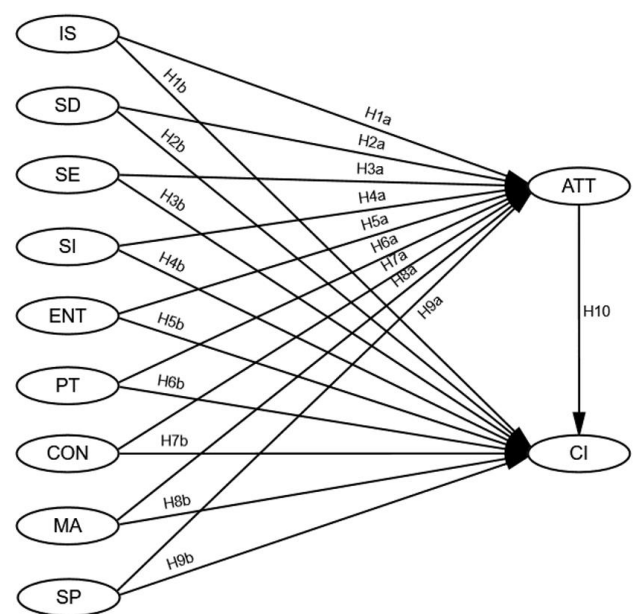

Figure 1. Research model

Note: CI=Continuance Intention; ATT=Attitude; IS=Information Sharing; SD=Self-documentation; SE=Self-expression; SI=Social Interaction; ENT=Entertainment; PT=Passing Time; CON=Convenience; MA=Media Appeal; SP=Social Presence

3. RESEARCH MODEL AND HYPOTHESES

Figure 1 illustrates the model developed for this study. Perceived fulfilment of needs via the usage of media is referred to as gratifications [12]. The current study will utilize the four types of gratifications adopted by Liu et al. [7] based on the U&G paradigm: content gratification (information sharing, self-documentation, self-expression), social gratification (social interaction), process gratification (entertainment, passing time), and technology gratification (convenience, media appeal, social presence).

3.1 Continuance intention

The intention of users to continue using an information system once it has been accepted is referred to as CI [13]. Bhattacherjee [13] suggests that psychological motivations play an important role in people's decision to continue using a certain information system. It is not by its acceptance that an information system will succeed but by its continued usage over time. CI has garnered growing attention as a key behavioral outcome following adoption. As defined herein, CI to use WeChat refers to the possibility of users continuing to use WeChat over a long period of time.

3.2 Attitude

Ajzen [8] presented TPB as the successor to Fishbein and Ajzen's Theory of Reasoned Action. TPB is frequently employed in numerous behavioral intention research domains. Three factors are believed to affect behavioral intention in accordance with the theory, with ATT as an internal factor, that is, an individual's ATT toward a specific behavior. An individual's level of positivity or negativity toward the relevant behavior is defined as ATT.

After Fishbein and Ajzen [3] demonstrated the positive influence of ATT on behavioral intentions, a number of studies examined the relationship between ATT and behavioral intentions. According to Basak and Calisir [14], ATT is one of the best indicators of sustained Facebook usage intention. Adopting the revised Unified Theory of Acceptance and Use of Technology, Dwivedi et al. [15] and Rana et al. [16] established that ATT lies at the heart of people's adoption intention of information systems. In their studies, Dalvi-Esfahani et al. [17] have found that ATT influences students' willingness to continue learning with mobile web 2.0. Thus, we hypothesize the following:

H10: ATT towards WeChat usage exerts a significant positive impact on the CI of WeChat usage.

3.3 Content gratification

The fulfilling of information expectations is referred to as content gratification [18]. Content gratification is comprised of three first-order variables in this study: information sharing, self-documentation, and self-expression. Information sharing in the current study is derived from Trammell's research [19] and refers to the degree to which information is exchanged with others via WeChat. Self-documentation is a term taken from Nardi et al. [20] that describes people's habit of recording various events in their lives through WeChat. Self-expression is comparable to Goffman's self-presentation [21], which relates to the amount to which people utilize WeChat to assist in building a specific self-image, therefore influencing how

others see and treat themselves.

3.3.1 Information sharing

The usage of WeChat to exchange information with others is referred to as information sharing [4]. According to past research, the primary motivator for users to utilize social media is information sharing [22-24]. A study by Malik et al. (2016) found that Facebook usage is motivated by information sharing. Gallego et al. [22] discovered the experiences of sharing has a substantial impact on users' CI in using Second Life for e-learning. The study of Tsai and Fang [24] adds to our knowledge of the significance of information sharing in MIM. WeChat users, meanwhile, may swiftly and efficiently share information with others. Users, for example, can send private messages to contacts with various forms of material, such as fascinating news, articles, images, and videos. Furthermore, WeChat users may upload useful contents in Moments and share them with their peers. There is greater likelihood that people will continue using WeChat if they believe sharing information with others is more gratifying. Thus, we hypothesize the following:

H1a: Information sharing exerts a significant positive impact on ATT towards WeChat usage.

H1b: Information sharing exerts a significant positive impact on CI of WeChat usage.

3.3.2 Self-documentation

The use of WeChat to record events in people's life is referred to as self-documentation [4]. Self-documentation can satisfy users' urge for self-expression, hence improving their CI [7]. According to Alhabash et al. (2014) [25], individuals use Instagram to gratify their needs for self-documentation [26]. Self-documentation has also been linked to the intensity with which people use Facebook and Instagram, according to research conducted by Alhabash and Ma [27]. WeChat users may record their everyday activities in Moments whenever they like. The preceding explanation suggests that a person's motivation to continue using WeChat will be influenced by self-documentation. Thus, we hypothesize the following:

H2a: Self-documentation exerts a significant positive impact on ATT towards WeChat usage.

H2b: Self-documentation exerts a significant positive impact on CI of WeChat usage.

3.3.3 Self-expression

Self-expression refers to the use of WeChat to create a certain image of a person that influences how others view and treat them [4]. Individuals prefer to conduct well and project a positive image to others, leading others to believe they are friendly and stylish [28]. Earlier research found that self-expression predicts individuals' desire to utilize social media, including social network sites, social networking games and microblog. Based on the reasons presented above, this study predicts that users would continue to utilize WeChat for the sake of self-expression. Thus, we hypothesize the following:

H3a: Self-expression exerts a significant positive impact on ATT towards WeChat usage.

H3b: Self-expression exerts a significant positive impact on CI of WeChat usage.

3.4 Social gratification

In this study, when utilizing WeChat, social gratification results from the fulfillment of social interaction motives.

Sustaining friendships or making new friends is referred to as social interaction [29]. It involves social interaction to use WeChat to achieve personal social gratification. Cheung et al. [30] highlighted the importance of social interaction in the continuous usage of social media. In the study, the authors discovered online social interaction impacts the way individuals contribute information in social groups. According to Li's research [31], social interaction influences a person's willingness to continue playing social networking games. WeChat's MIM capabilities enable its users to communicate with each other and form social relationships by utilizing features such as "Likes", "Comments" and voice messages. Those who experience greater social gratification through social interaction may be more eager to utilize WeChat in the future. Thus, we hypothesize the following:

H4a: Social interaction exerts a significant positive impact on ATT towards WeChat usage.

H4b: Social interaction exerts a significant positive impact on CI of WeChat usage.

3.5 Process gratification

This study defines process gratification as the fulfillment of utilizing WeChat as a sort of action [18]. As per this research, the formative components of process gratification are entertainment and passing time. The term entertainment is derived from perceived enjoyment [32] and relates to the degree to which WeChat usage is deemed pleasurable. Using media when there is nothing better to do is described as passing time [33].

3.5.1 Entertainment

Florenthal [34] did a thorough literature analysis and identified one of the U&G elements, entertainment, as a possible driver of social media activities. Camilleri and Falzon [35] identified entertainment as one of the variables affecting the use of online streaming services. According to Ryan and Deci [32], people utilize social media primarily for entertainment. Gallego et al. [22] have shown that people will continue using a certain social media platform more frequently if it is pleasing, enjoyable and entertaining to use. Individuals may find enjoyment and fun in the WeChat environment if they are exposed to a variety of fascinating postings from personal and official accounts, such as short films, images, and amusing stories. The more fun and delight people experience when using WeChat, the more likely they will continue to utilize WeChat. Thus, we hypothesize the following:

H5a: Entertainment exerts a significant positive impact on ATT towards WeChat usage.

H5b: Entertainment exerts a significant positive impact on CI of WeChat usage.

3.5.2 Passing time

Using media to kill time when there are no other things to do is defined as passing time. It relates to the use of WeChat to occupy free time in the current study. Previous research has found passing time to influence the behaviors of users under a variety of circumstances. According to Papacharissi, passing time is a key motivator for people to maintain their web pages [33]. When users are bored or have free time, WeChat can offer users entertaining postings and allow them to pass the time, demonstrated by Zong et al. [36]. People may continue to use WeChat if it enables them to pass the time. Thus, we hypothesize the following:

H6a: Passing time exerts a significant positive impact on ATT towards WeChat usage.

H6b: Passing time exerts a significant positive impact on CI of WeChat usage.

3.6 Technology gratification

The fulfillment of employing MIM as a technological innovation system platform is referred to as technology gratification. In the present research, technology gratification is made up of three variables: convenience, media appeal, and social presence. According to Chou et al. [37], convenience is the ease with which something may be obtained, including the expense of utilizing the media. Media appeal means that individuals may publish whatever they want, whenever they want [38]. Users' perception that the atmosphere is personal and human-like is referred to as social presence [39].

3.6.1 Convenience

Convenience was proven to be a major motivator in previous social media studies. According to Ko et al. [40], convenience is a significant motivator driving Internet access. In the study by Jun and Lee [41], convenience was named as one of the crucial motivations for utilizing mobile media. In their study, Haridakis and Hanson [42] emphasized the importance of convenience in utilizing YouTube. Research also discovered that convenience encourages users to engage in the consumption of social networking services [43]. The study carried out by Dalvi-Esfahani et al. [17] revealed one of the key gratifications that students seek is the technological convenience of mobile web 2.0 learning, which impacts their intention to continue learning with mobile web 2.0. WeChat users may interact with others for free by sending text and audio messages. Furthermore, group chat allows users to effortlessly communicate with a larger number of individuals [44]. More functionalities will be added to WeChat in the near future as technology advances, and convenience as well as other gratification predicting elements may become more essential. Thus, we hypothesize the following:

H7a: Convenience exerts a significant positive impact on ATT towards WeChat usage.

H7b: Convenience exerts a significant positive impact on CI of WeChat usage.

3.6.2 Medial appeal

The degree to which WeChat allows people to interact with others quickly and effortlessly is referred to as media appeal [4]. It is critical for people to have access to media services wherever and whenever people need them, as stated by Meuter et al. [45]. Media appeal was identified as a major motivation for blogging activity by Gulvady [46]. Cheng and Jiang [47] proved that the most prevalent and conspicuous gratification obtained from chatbot services is media appeal. Users may utilize WeChat's services at any time and from any location. For example, WeChat offers users a constantly accessible environment, in which WeChat may be accessed through a variety of devices, including mobile phones and desktop computers. Furthermore, WeChat users may connect with others by voice, video, or text messages. From this vantage point, this study assumes that media appeal may aid in increasing users' willingness to continue using WeChat. Thus, we hypothesize the following:

H8a: Media appeal exerts a significant positive impact on ATT towards WeChat usage.

H8b: Media appeal exerts a significant positive impact on CI of WeChat usage.

3.6.3 Social presence

The psychological experiences of people connecting physically with others and developing personal relationships on WeChat are referred to as social presence [4]. Certain social networking platforms featuring a strong social presence are more likely to be chosen by users [48]. It is easy to establish social presence through MIM [24]. According to prior research, social presence exerts a significant influence over user behavior in a variety of circumstances. Lin et al. [49] suggest social presence exerts a substantial influence over the likelihood of continuing to use social networking sites. Likewise, Mäntymäki and Riemer [50] discovered that social presence exerts a large impact on a person's decision to continue utilizing social virtual worlds later. This study assumes that the greater people's likelihood of connecting with others, the greater their possibility of continuing to utilize WeChat. Thus, we hypothesize the following:

H9a: Social presence exerts a significant positive impact on ATT towards WeChat usage.

H9b: Social presence exerts a significant positive impact on CI of WeChat usage.

4. METHODOLOGY

4.1 Data collection and sample

This study collected data with the help of Tencent questionnaire (https://wj.qq.com/) from October 7 to October 26, 2022. To ensure that all participants were WeChat users, the online survey link was distributed over WeChat utilizing convenience sampling and snowball sampling. Each IP address was only allowed to submit once. All respondents were anonymous and provided their information voluntarily. The questionnaire initially presented the study project and its objectives. To minimize meaning errors and guarantee accuracy, the back translation method [51] was used. Originally written in English, the survey was translated into Mandarin before translating back to English by a bilingual third party. Appendix contains a list of the survey's measuring items.

Prior to the survey, 56 individuals were pre-tested to ensure that each question was thorough, reliable, and flowed well. According to the feedback received from the pilot study, several perplexing questions have been revised. In total, 454 questionnaires were gathered. Those that scored the same were eliminated. All questionnaires were thoroughly evaluated, and eventually 414 valid samples were processed for further analysis. In Table 1, you will find demographic data about the respondents.

4.2 Construct measurement

Specifically, our research model is made up of eleven constructs, which include CI, ATT, information sharing, self-documentation, self-expression, social interaction, entertainment, passing time, convenience, media appeal and social presence. Scales with multiple items were applied to measure each construct. All measuring instruments were derived based on existing research then subsequently adjusted according to the research scenario involving WeChat. Items for CI came from Bhattacherjee [13]. The items of ATT were taken from Taylor and Todd [52]. The items of information sharing were modified from Trammell et al. [19]. Items for self-documentation came from Nardi et al. [20]. Items for self-expression were drawn from Goffman [21]. The items of social interaction were modified from Smock et al. [53]. Items for entertainment came from Lee and Ma [54]. Passing time items were borrowed from Papacharissi [33] and Smock et al. [53]. Items for convenience were modified from Ko et al. [40]. Items for media appeal came from Cheng and Jiang (2020). Items for social presence were taken from Wu et al. [55]. Based on a 7-point Likert scale ranging from strong disagreement to strong agreement, all measuring items were graded.

4.3 Overview of analysis

The presented hypotheses were put to the test using structural equation modeling (SEM). In empirical research, SEM is frequently employed to estimate the relationships among various independent and dependent variables. In this study, the two-stage analytical technique provided by Anderson and Gerbing [56] was used to investigate what factors affect people's CI to utilize WeChat.

Table 1. A description of the respondents' demographics (N=414)

Measure	Items	Frequency	Percentage (%)
Age Group	<=20	109	26.3
	21-30	245	59.2
	>=31	60	14.5
Gender	Male	161	38.9
	Female	253	61.1
Education	Middle School	9	2.2
	Polytechnic School/ High School	35	8.5
	College/ University	239	57.7
	Graduate School	131	31.6
Years of Using WeChat	<=1 year	2	0.5
	1-5 years	159	38.4
	>=5 years	253	61.1
Daily Usage Time	<1 hour	47	11.4
	1-2 hours	84	20.3
	2-3 hours	94	22.7
	3-4 hours	83	20.0
	>4 hours	106	25.6

We began by assessing the research model's reliability and validity. The ratio of chi-square to degrees of freedom (χ^2/df), standardized root mean squared residual (SRMR), root mean square error of approximation (RMSEA), goodness-of-fit index (GFI), adjusted goodness-of-fit index (AGFI), incremental fit index (IFI), comparative fit index (CFI) and Tucker-Lewis index (TLI) were combined together to form model fit indices [57-59]. An evaluation of the internal consistency of the conceptual model constructs was conducted using Cronbach's Alpha (α) and composite reliability (CR) [60]. As part of the validation of the measurement model, the convergent and discriminant validity were examined using average variance extracted (AVE), square root of AVE, and correlation values [61].

Second, we used structural equation analysis in this study to test the presented hypotheses, which included looking into the significance of the relationships and influences among the various variables in the research model. SPSS statistics version 23.0 and AMOS version 24.0 were used to perform all of these statistical analyses.

Table 2. Fit indices of research model

Fit Index	χ^2/df	SRMR	RMSEA	GFI	AGFI	IFI	CFI	TLI
Recommended Value	≤3	<0.08	<0.08	>0.9	>0.8	>0.9	>0.9	>0.9
Observed Value	2.658	0.057	0.063	0.850	0.808	0.932	0.932	0.918

Table 3. Cronbach's Alpha (α), composite reliability (CR), and average variance extracted (AVE)

Constructs	Items	Unstd.	S.E.	t-Value	P	Factor Loading	Cronbach's α	CR	AVE
IS	IS3	1.000				0.842	0.848	0.849	0.652
	IS2	0.978	0.061	15.970	***	0.791			
	IS1	1.011	0.063	15.941	***	0.789			
SD	SD3	1.000				0.904	0.946	0.946	0.855
	SD2	1.105	0.032	34.732	***	0.976			
	SD1	1.019	0.036	28.658	***	0.892			
SE	SE3	1.000				0.755	0.898	0.903	0.759
	SE2	1.253	0.064	19.682	***	0.968			
	SE1	1.112	0.058	19.175	***	0.877			
SI	SI3	1.000				0.734	0.799	0.800	0.571
	SI2	1.213	0.097	12.508	***	0.784			
	SI1	1.116	0.090	12.455	***	0.749			
ENT	ENT3	1.000				0.908	0.936	0.937	0.833
	ENT2	1.013	0.032	31.822	***	0.954			
	ENT1	0.938	0.035	26.821	***	0.874			
PT	PT3	1.000				0.630	0.856	0.879	0.714
	PT2	1.254	0.085	14.716	***	0.935			
	PT1	1.213	0.082	14.721	***	0.934			
CON	CON3	1.000				0.774	0.846	0.862	0.682
	CON2	1.123	0.067	16.654	***	0.993			
	CON1	0.856	0.058	14.854	***	0.678			
MA	MA3	1.000				0.798	0.858	0.861	0.676
	MA2	1.105	0.064	17.339	***	0.920			
	MA1	0.826	0.052	15.806	***	0.739			
SP	SP3	1.000				0.874	0.894	0.898	0.746
	SP2	1.042	0.044	23.753	***	0.946			
	SP1	0.800	0.042	18.938	***	0.762			
ATT	ATT1	1.000				0.879	0.881	0.882	0.714
	ATT2	0.898	0.046	19.607	***	0.839			
	ATT3	0.848	0.044	19.116	***	0.816			
CI	CI1	1.000				0.973	0.895	0.902	0.756
	CI2	0.965	0.043	22.571	***	0.829			
	CI3	0.923	0.044	21.133	***	0.796			

Table 4. Correlations and discriminant validity of constructs

Constructs	CI	ATT	SP	MA	CON	PT	ENT	SI	SE	SD	IS
CI	*0.869*										
ATT	0.545	*0.845*									
SP	0.128	0.500	*0.864*								
MA	0.451	0.674	0.496	*0.822*							
CON	0.480	0.515	0.247	0.652	*0.826*						
PT	-0.011	0.279	0.558	0.252	0.126	*0.845*					
ENT	0.153	0.581	0.624	0.487	0.253	0.582	*0.913*				
SI	0.033	0.283	0.519	0.317	0.173	0.552	0.535	*0.756*			
SE	-0.103	0.091	0.466	0.118	-0.061	0.495	0.368	0.521	*0.871*		
SD	0.066	0.251	0.519	0.248	0.166	0.413	0.446	0.501	0.521	*0.925*	
IS	0.033	0.226	0.302	0.188	0.033	0.449	0.454	0.402	0.455	0.450	*0.808*

Note: The numbers in bold italics on the diagonal are the square roots of the AVEs. Correlations are off diagonal.

5. DATA ANALYSIS

5.1 Evaluation of the measurement model

Maximum likelihood estimation was used to estimate the measurement model. The estimation started by performing confirmatory factor analysis (CFA) to determine this model's goodness of fit. All fit indices, except for GFI, are within the suggested ranges [57-59], as shown in Table 2. The GFI value lower than 0.90, on the other hand, may also suggest that the model adequately fits the data, since 0.80 is considered the minimum value of a reasonably good fit by Cohen [62].

The measuring model's reliability and validity were then evaluated using different tests. As a first step, Cronbach's Alpha (α) and composite reliability (CR) were used to evaluate the conceptual model's internal consistency. As demonstrated in Table 3, the measurement model's multi-item constructs exhibit strong internal consistency, with all α values and CR larger than the specified cutoff value of 0.70 [60]. We further examined the measurement model's convergent and discriminant validity using average variance extracted (AVE), square root of AVE, and correlation values. As the AVE values of this model all exceed the proposed cutoff value of 0.50 and the square roots of the AVE values are greater than the correlation values of each pair of constructs (Table 4), it can be concluded that the model demonstrates high convergent and discriminant validity [61].

5.2 Structure model examination

This study tested the proposed hypotheses after establishing the measurements' goodness-of-fit, reliability and validity. Table 5 summarizes and presents the results. Only a few hypotheses were supported by the analysis.

Table 5. Tests of hypotheses

Research Hypothesis	Path Relations			Unstd.	S.E.	t-Value	P	Std.	Results
H1a	IS	→	ATT	0.046	0.047	0.969	0.333	0.052	Not Supported
H2a	SD	→	ATT	-0.025	0.045	-0.554	0.579	-0.030	Not Supported
H3a	SE	→	ATT	-0.081	0.047	-1.736	0.082	-0.099	Not Supported
H4a	SI	→	ATT	-0.061	0.072	-0.850	0.395	-0.054	Not Supported
H5a	ENT	→	ATT	0.304	0.055	5.526	***	0.351	Supported
H6a	PT	→	ATT	-0.059	0.052	-1.138	0.255	-0.067	Not Supported
H7a	CON	→	ATT	0.197	0.069	2.862	0.004	0.172	Supported
H8a	MA	→	ATT	0.338	0.071	4.764	***	0.346	Supported
H9a	SP	→	ATT	0.144	0.054	2.686	0.007	0.178	Supported
H1b	IS	→	CI	0.017	0.043	0.399	0.690	0.024	Not Supported
H2b	SD	→	CI	0.031	0.041	0.749	0.454	0.044	Not Supported
H3b	SE	→	CI	-0.024	0.042	-0.558	0.577	-0.035	Not Supported
H4b	SI	→	CI	-0.026	0.065	-0.396	0.692	-0.028	Not Supported
H5b	ENT	→	CI	-0.113	0.053	-2.147	0.032	-0.159	Supported
H6b	PT	→	CI	-0.038	0.047	-0.815	0.415	-0.053	Not Supported
H7b	CON	→	CI	0.200	0.063	3.194	0.001	0.212	Supported
H8b	MA	→	CI	0.082	0.067	1.233	0.218	0.103	Not Supported
H9b	SP	→	CI	-0.071	0.049	-1.453	0.146	-0.107	Not Supported
H10	ATT	→	CI	0.429	0.063	6.776	***	0.521	Supported

Table 6. Direct, indirect and total effects on CI to utilize WeChat

Path Relationship	Point Estimate	Product of Coefficient		Bootstrapping 2000 times 95% Confidence interval					
				Bias-corrected			Percentile		
		SE	t-Value	Lower	Upper	P	Lower	Upper	P
				Indirect Effects					
IS→ATT→CI	0.020	0.026	0.769	-0.033	0.072	0.423	-0.035	0.072	0.435
SD→ATT→CI	-0.011	0.021	-0.524	-0.054	0.032	0.599	-0.053	0.032	0.638
SE→ATT→CI	-0.035	0.027	-1.296	-0.095	0.012	0.159	-0.095	0.012	0.150
SI→ATT→CI	-0.026	0.038	-0.684	-0.109	0.043	0.410	-0.107	0.045	0.433
ENT→ATT→CI	0.130	0.040	3.250	0.065	0.227	**0.001**	0.065	0.226	**0.001**
PT→ATT→CI	-0.025	0.024	-1.042	-0.077	0.019	0.239	-0.075	0.021	0.274
CON→ATT→CI	0.084	0.038	2.211	0.022	0.176	**0.013**	0.015	0.164	**0.023**
MA→ATT→CI	0.145	0.052	2.788	0.060	0.274	**0.001**	0.057	0.266	**0.001**
SP→ATT→CI	0.062	0.034	1.824	0.001	0.141	**0.044**	0.001	0.138	**0.049**
				Direct Effects					
IS→CI	0.017	0.049	0.347	-0.078	0.113	0.726	-0.081	0.108	0.787
SD→CI	0.031	0.041	0.756	-0.049	0.113	0.435	-0.052	0.111	0.459
SE→CI	-0.024	0.043	-0.558	-0.111	0.062	0.563	-0.111	0.063	0.577
SI→CI	-0.026	0.088	-0.295	-0.214	0.135	0.758	-0.205	0.139	0.816
ENT→CI	-0.113	0.078	-1.449	-0.244	0.057	0.202	-0.248	0.046	0.172
PT→CI	-0.038	0.040	-0.950	-0.116	0.045	0.363	-0.119	0.042	0.325
CON→CI	0.200	0.077	2.597	0.053	0.357	**0.003**	0.055	0.362	**0.002**
MA→CI	0.082	0.076	1.079	-0.057	0.234	0.224	-0.072	0.225	0.309
SP→CI	-0.071	0.049	-1.449	-0.179	0.019	0.116	-0.170	0.025	0.143
ATT→CI	0.429	0.084	5.107	0.253	0.595	**0.002**	0.267	0.605	**0.001**
				Total Effects					

IS→CI	0.037	0.052	0.712	-0.071	0.138	0.456	-0.078	0.134	0.507
SD→CI	0.020	0.043	0.465	-0.060	0.108	0.650	-0.060	0.108	0.645
SE→CI	-0.058	0.045	-1.289	-0.151	0.035	0.195	-0.153	0.029	0.169
SI→CI	-0.052	0.085	-0.612	-0.240	0.097	0.498	-0.231	0.110	0.567
ENT→CI	0.017	0.066	0.258	-0.105	0.153	0.823	-0.100	0.160	0.771
PT→CI	-0.064	0.042	-1.524	-0.146	0.019	0.136	-0.149	0.017	0.123
CON→CI	0.284	0.081	3.506	0.126	0.445	**0.001**	0.126	0.444	**0.001**
MA→CI	0.227	0.071	3.197	0.105	0.385	**0.001**	0.091	0.366	**0.002**
SP→CI	-0.009	0.053	-0.170	-0.122	0.091	0.830	-0.113	0.097	0.901
ATT→CI	0.429	0.084	5.107	0.253	0.595	**0.002**	0.267	0.605	**0.001**

The findings suggest that only process gratification (entertainment), and technology gratification (convenience, media appeal, social presence) exert a substantial positive impact on the ATT towards WeChat usage. Hypotheses 5a, 7a, 8a & 9a are specifically supported. Other factors, namely information sharing (Hypothesis 1a), self-documentation (Hypothesis 2a), self-expression (Hypothesis 3a), social interaction (Hypothesis 4a), passing time (Hypothesis 6a), on the other hand, have no effect on people's ATT toward WeChat usage, meaning that their corresponding hypotheses are not supported. At the same time, both process gratification (entertainment) and technology gratification (convenience) exert direct and significant positive impacts upon the CI of WeChat usage. Hypotheses 5b & 7b are therefore supported. However, information sharing (Hypothesis 1b), self-documentation (Hypothesis 2b), self-expression (Hypothesis 3b), social interaction (Hypothesis 4b), passing time (Hypothesis 6b), media appeal (Hypothesis 8b) and social presence (Hypothesis 9b) have no direct effect on people's CI of WeChat usage. As a result, their corresponding hypotheses stand rejected. Hypothesis 10 is supported since the result reveals that ATT towards WeChat usage exerts a significant positive impact on the CI of WeChat usage.

Table 6 displays the direct, indirect, and total effects of the constructs associated with intentions to continue using WeChat. Table 6 indicates ATT exerts the greatest direct and total effect on intentions to continue using WeChat. Besides the direct effect of convenience regarding continued usage of WeChat, entertainment, convenience, media appeal as well as social presence all exert an indirect positive significant influence over CI to utilize WeChat via ATT.

6. DISCUSSION

As part of this study, we developed a theoretical model of MIM users' continuation intentions and identified the factors that drive CI in the MIM service environment. The statistical findings indicate that the research model adopted in this study appear to be suitable. The current study expands on the theory of U&G by introducing one of the constructs from TPB, ATT, into the research model. The results also verified other crucial factors such as entertainment, convenience, media appeal, social presence as well as ATT. We used SEM to test the research model based on data acquired from 414 WeChat users.

First, according to the findings of the previous section's investigation, consistent with the framework of TPB, ATT is critical in determining MIM users' desire to continue using the service. Specifically, a) ATT is a full mediator of the relationship between process gratification (entertainment), technology gratification (media appeal, social presence), and CI of WeChat users; b) ATT partially mediates the relationship between technology gratification (convenience) and CI of WeChat users; c) ATT is directly influenced by process gratification (entertainment), and technology gratification (convenience, media appeal, social presence); d) ATT directly affects the CI of WeChat users. The findings are in line with previous study carried out by Zadeh et al. [11], in which they claim ATT serves as a critical construct mediating the influence of motivational values on cocreation intentions, and that for some values, the mediating effect is partial, while for others, the mediating effect is complete. As a result, MIM platform designers should consider entertainment, convenience, media appeal, and social presence gratifications, which impact users' ATT at various levels, to enhance users' willingness to stay with the service.

Second, research findings reveal process gratification, as represented by entertainment, is a major direct predictor of continued intention, suggesting MIM apps are used by individuals who wish to avoid boredom or take part in recreational pursuits. Previous research has revealed that one of the primary motivations for individuals to continue using a certain information system is for entertainment. For example, Mouakket [63] discovered that entertainment is a strong predictor of continued usage of MIM. Furthermore, the findings indicate that technology gratification, as represented by convenience, is a significant direct predictor of continuation intention, implying that MIM apps are employed because they are convenient to use. This confirms previous research findings that one of the primary reasons people continue to use a given information system is convenience. According to Gallego et al. [22], one of the gratifications that determines users' willingness to continue using social virtual worlds is convenience. MIM platforms should thus offer additional entertainment services to fulfill users' leisure demands, while providing a reasonably basic user interface to assist user operations.

Third, content gratification (information sharing, self-documentation, self-expression), social gratification as represented by social interaction, and process gratification as represented by passing time have no direct or indirect effect on WeChat's continued usage. The finding that information sharing has little influence on continued use intention may be explained by the fact that, although MIM apps can be used to share information, users are not motivated to continue using them; instead, they are motivated to continue using MIM apps by other gratifications such as entertainment, convenience, media appeal, and social presence. Similar findings have been discovered in other study contexts, such as mobile social apps [64]. One possible reason why self-documentation does not have a significant effect upon CI largely because individuals frequently use multiple social media platforms and other documentation tools concurrently and can effortlessly switch to alternative methods of self-documentation, resulting in no significant influence on users' continued use of WeChat [4]. A study by Chung et al. [65] suggests that self-expression exerts a major influence upon users'F continued use of social networking sites. While current study, on the contrary,

indicates that self-expression has no significant impact on the continued use of WeChat. This might be due to the fact that WeChat is a semi-public platform, and personal information on WeChat is based on real names and can only be accessed by those on the contact list. People know each other extremely well offline, which means they don't need to show their friends different versions of themselves on WeChat. Unlike prior study results [36], but in accordance with the findings [4], social interaction has little effect on the CI of WeChat users, which may be due to China's strong collectivist culture. Chinese people tend to maintain many interpersonal connections on a daily basis, thereby reducing their social demands when using WeChat. Furthermore, excessive social media use may result in unfavorable outcomes such as social fatigue [36]. Surprisingly, but consistent with previous research [66], passing time has little impact upon the continued usage of WeChat. This might be because people frequently find other ways to occupy themselves when necessary.

These findings provide some implications for MIM research and practice.

7. CONCLUSION

7.1 Theoretical implications

Some important theoretical implications emerge from this study. First, the current work contributes to the existing theoretical knowledge of CI of MIM in general and specifically MIM app WeChat in China. The insights gained from this study adds to what is already known about post-adoption behavior in a MIM setting. Second, U&G theory and one of the constructs from TPB, ATT, are combined in this study, which aids in the creation of a research model that can be used to address the underpinning research questions. Another use of the research model may be to explore the reasons behind people's continued involvement with other popular mobile services. In a sense, the current work is a first-of-its-kind attempt to combine U&G theory with one of the constructs from TPB to comprehend CI toward MIM apps.

7.2 Practical implications

This study provides some implications for practice, as it investigates a number of factors that determine people's continued willingness to use MIM in a specific application setting, namely WeChat. It also covers several factors that do not contribute toward predicting an individual's CI. To begin, given the findings on the factors motivating individuals to continue using WeChat, platform designers should improve user experiences in terms of entertainment, convenience, media appeal, and social presence to boost ATT about WeChat usage. More intriguing audio and video features, for example, can be incorporated in the platform to increase user enjoyment and foster a more favorable ATT toward WeChat usage. At the same time, the platform should simplify the interface, make it easier to use, and improve the user experience, so as to encourage users to continue using it. In addition, more diversified and real-time interactions between users may be incorporated, providing them with the gratifications of media appeal and social presence. Second, given that information sharing, self-documentation, self-expression, social interaction, and passing time have no direct or indirect influence upon WeChat users' CI, MIM service providers should steer their efforts and rethink their existing priorities to achieve the desired effect. Considering the highly competitive MIM market, service providers must be flexible and adaptable to meet the changing needs and expectations of users, which might be a key factor in determining whether MIM players are able to keep the competitive market space.

7.3 Limitations and suggestions for further studies

A few limitations must be addressed in this study. First, the factors that influence CI investigated in the current study are confined to theory of U&G, as well as one construct in TPB. As a result, future research can take additional potential impacting factors from other theories into account. Second, this study only covers one cultural group's perspective, which may restrict the findings in some respects. According to Oghuma et al. [67], MIM usage varies by culture, which is the reason why future research should concentrate on confirming the results of the current study in other cultural settings. Third, while demographic data was gathered to ensure the sample's suitability, factors such as age, gender, education, etc., did not enter the analysis. Since demographics can impact users' intention to continue using MIM, future study might identify differences between user groups and offer more focused or tailored features for individual users to get better results. Finally, only self-report questionnaires were used to collect data. Results based on responses from respondents can be biased and subjective [68]. To create a more thorough research subject, future research should incorporate both subjective and objective approaches.

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APPENDIX: MEASUREMENT ITEMS

Content Gratification

Information Sharing (IS) adapted from Trammell et al. (2004)

S-IS1: WeChat is the platform I utilize to distribute information.

S-IS2: WeChat is where I share information about my hobbies.

S-IS3: WeChat allows me to share information that could be beneficial to others.

Self-documentation (SD) [20]

S-SD1: WeChat helps me keep track of everything I'm doing.

S-SD2: WeChat is where I document my life.

S-SD3: WeChat is used for recording beautiful things or important events.

Self-expression (SE) [21]

S-SE1: By using WeChat I hope to appear approachable to others.

S-SE2: WeChat helps me show others that I am sociable.

S-SE3: I use WeChat to display my personality.

Social Gratification

Social Interaction (SI) [19, 53]

S-SI1: WeChat is the tool I use to meet new people.

S-SI2: WeChat helps me reconnect with friends who have been out of contact for a long time.

S-SI3: I use WeChat to engage in more social activities.

Process Gratification

Entertainment (ENT) [54]

S-ENT1: WeChat is enjoyable to use for me.

S-ENT2: I am happy when I use WeChat.

S-ENT3: Using WeChat is a way to relax for me.

Passing Time (PT) [33, 53]

S-PT1: WeChat is a way for me to pass the time.

S-PT2: WeChat helps me pass the time when I'm bored.

S-PT3: WeChat is what I use to play games when I don't have anything else to do.

Technology Gratification

Convenience (CON) [40]

S-CON1: I feel using WeChat is convenient.

S-CON2: I feel I can use WeChat at any time and from any location.

S-CON3: I feel it is easier to use WeChat.

Media Appeal (MA) [47]

S-MA1: I feel that WeChat provides the simplest and most cost-effective method of communication.

S-MA2: I feel using WeChat services is more efficient than other kinds of communication.

S-MA3: I feel using WeChat services can save a significant amount of time.

Social Presence (SP) [55]

S-SP1: There is a feeling of human connection on WeChat.

S-SP2: I feel an atmosphere of intimacy on WeChat.

S-SP3: There is a feeling of human warmth on WeChat.

Attitude (ATT) [52]

ATT1: I feel I like using WeChat.

ATT2: I feel satisfied with my WeChat usage.

ATT3: I feel using WeChat to communicate with others is a good idea.

Continuance Intention (CI) [13]

CI1: It is my intention to continue using WeChat and not abandon it.

CI2: I plan to continue using WeChat instead of other replacement applications.

CI3: I will use WeChat on a regular basis.