The Contribution of Cultural Factors to Mobile Learning Acceptance in Chinese Higher Education

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ARTICLE INFO	ABSTRACT
	Mobile learning has become a need of the modern education system because of its advantages. However, its utilization could be better in Chinese higher education. In Chinese culture, college students' willingness to adopt mobile learning may be essential. This study investigates the effects of two cultural factors on mobile learning acceptance among Chinese college students. It applies the technology acceptance model and Hofstede's theory of cultural dimensions. This research pilot study recruited 90 student samples from 3 private colleges in Chongqing City, responding to an online questionnaire. Data analysis used the SPSS 24 version to conduct correlation and regression analyses. The results indicated that cultural trust could predict students' intentions of using mobile learning, as perceived usefulness and ease of use do. Meanwhile, students' individual growing backgrounds significantly moderated the effect of other variables in this model to influence students' intentions of mobile learning. The study also discussed the significance, the limitations, and the research directions in the future.

1. Introduction

In the digital age, electronic learning has constantly developed to integrate into the current traditional educational system [1,46]. The increasing use and visibility of mobile technologies, like panel computers and smartphones, has made mobile learning preferred by educational users worldwide [2]. Mobile learning (m-learning) occurs when learners can participate in the educational

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process regardless of time and place [3]. It has transformed the learning process to achieve sustainable education [1].

M-learning is more appropriate for higher education as students at this level are typically capable of making autonomous learning decisions [4]. Additionally, college students tend to be more technologically competent at utilizing the Internet for educational purposes compared to primary and secondary students [5]. Zeng and Luyegu [6] suggested that m-learning was technically feasible and suitable for pedagogy for college students and faculty. Nevertheless, more than the mere availability of m-learning is needed to guarantee its adoption. Chinese college students prefer the usage of smartphones and tablets for personal needs, such as socializing and entertainment, to academic purposes [7,8]. In other words, these devices may not be used for learning purposes.

Due to the strong influence of Confucian culture, education in China has developed a centrally organized, teacher-dominated, and group-based pedagogy [9]. All these features, reflecting Chinese cultural values, conform to the explanation from Hofsted's national cultural dimensions theory [10]. Cultural preferences influence individuals' thoughts and behavior [11,12]. Hence, any study about the willingness of the learners to accept m-learning should be conducted under their national cultural context. Cultural difference is a pivotal factor in deciding m-learning acceptance [13].

To benefit from m-learning, researching cultural factors influencing learners' intentions to use it is necessary. However, neither research nor literature about the m-learning acceptance of m-learning age students in Chinese needs to be updated to employ the technology acceptance model with two new external variables, namely cultural trust (CT) and individual growing background (IGB), to examine the influence of cultural factors on m-learning acceptance of students in Chinese higher education. It expands the TAM model and adds cultural contribution to m-learning acceptance. The research question to be addressed is to what extent college students in the Chinese cultural context accept mobile learning. The following sections comprise methodology, results, discussion, and conclusion.

2 Literature Review
2.1 Mobile Learning Acceptance

M-learning acceptance of students is vital to ensure that both the process and the learning system are successful. Lai and Hwang [14] discovered that in most investigations, the effectiveness of m-learning systems is gauged by the degree to which they meet users' requirements for utility and approval. Accordingly, it is essential to understand and identify the key factors affecting the acceptance of students to m-learning.

The systematic review studies [15,16] about adopting the m-learning system have yet to perceive users' perspectives, as some empirical studies have not. Almaiah *et al.,* [17] discovered that quality positively affected students accepting m-learning applications. Sánchez-Prieto *et al.,* [18] found that attachment and resistance to change were the factors that encouraged students to use m-learning. Al-Shihi *et al.,* [19] demonstrated that enjoyment, efficiency learning, suitability learning, social learning, and flexibility learning significantly affected the process of m-learning acceptance in Oman. Aburub and Alnawas [20] carried out a study in Jordan, which showed that cognitive gratification and ease of use were the main factors for ensuring the m-learning acceptance of students. According to Almaiah and Alismaiel [21], the quality of the system, content, and service strongly affected students to adopt and use m-learning applications. Cheng [22] conducted research to identify the main factors in m-learning acceptance in Taiwan, which indicated that compatibility, convenience, and navigation play a crucial role in increasing the acceptance and use of mobile applications among students.

Based on the previous studies which have been carried out to determine the acceptance and adoption of m-learning, more attention needs to be paid to exploring the factors that affect m-learning acceptance from students' perspectives [17-22]. Moreover, existing literature must cover more research on the critical factors influencing students to accept m-learning systems in Chinese higher education.

2.2 Chinese Culture Factors

Cultural differences significantly impact m-learning acceptance, particularly between the distinctive learning cultures of the East and West [13]. M-learning allows learners to acquire knowledge in the context [23]. However, different national cultural values lead to diversified cultural preferences and influence, which can impact users' acceptance of technology [12]. Exploring the behavioral intentions toward mobile learning from different cultural groups that share similarities and differences is crucial. Surprisingly, there have been few previous studies on technology acceptance that consider cultural aspects [12]. In addition, there needs to be more literature related to the Chinese cultural context. Therefore, Hofstede's national cultural dimension theory will be another basis for the developed theoretical model.

Hofstede's national cultural dimension theory employs national culture to investigate the cultural values of various countries. First proposed in 1980, the theory was subsequently refined by other scholars and finally improved by Hofstede, comprising six dimensions of national culture [8]. Examining Chinese cultural values using these cultural dimensions can provide a rational explanation for Chinese students' learning characteristics and beliefs, as observed in the Confucian cultural context. Table 1 examines the traits of Chinese culture in four dimensions. According to Hofstede's brief discussion of the four dimensions [10], they are more pertinent to Chinese education and familial settings.

i.   Power distance (PD) refers to the extent to which the less powerful members of organizations and institutions (such as the family) accept and expect power to be unequally distributed. In China (high PD country), education is teacher-centered, and students expect to be told what to do. Moreover, parents teach children obedience.
ii. Individualism-collectivism (IC) measures how individuals are integrated into groups. China (A collectivist country) stresses belonging and harmony. Relationships prevail over tasks.
iii. Orienting people according to their efforts in the present, past, and future is the concern of the long versus short-term orientation focus (LTO/STO). China is an LTO country that respects traditions and guides family lives through shared tasks.
iv. Indulgence vs. restraint (IR) is associated with the satisfaction of human appetites as opposed to self-control. Restraint represents a society that controls and regulates the satisfaction of needs through strict social norms. In countries showing restrained traits, like China, people commonly show a sense of helplessness: free speech is not a priority.

Based on the dimensions, Alqarni [24] stated that Chinese learners have the expectation of their teachers to be experts and heavily rely on them and their textbooks. The emphasis on teacher and textbook authority in China, derived from Confucian educational ideology, had made students used to the mode of knowledge delivery, as demonstrated by their traditional learning beliefs [25]. The study by Huang *et al.,* [2] revealed a significant association between Chinese students' traditional learning beliefs and their intentions to engage in m-learning.

Table 1
Estimated Chinese culture in cultural dimension theory

Cultural dimension	Level for China
PD	High in power distance
IC	High in collectivism
LTO/STO	High in long term orientation
IR	High in restraint

Accordingly, this study identifies two cultural factors, cultural trust (CT) and individual growing background (IGB), from the students' perspectives: teachers' role in education settings and the relationships between family members in the growing settings.

Trust is one factor contributing to mobile application/service adoption [26,27]. It has commonly been defined as the confidence level users have in the security and usability of mobile technology, with Arpaci [28] explicitly defining trust as "students' perceptions about the reliability and trustworthiness of the system." Almost all such studies neglected students' trust in teachers, particularly in the Chinese cultural context. For Chinese students, m-learning means replacing teachers' and textbooks' traditional knowledge acquisition model. It transfers the trust in the new source of knowledge because, in Chinese metaphor, a teacher is seen as an expert source of knowledge [29].

Furthermore, it challenges teachers' authority status in the eyes of students. In Chinese Confucian tradition, teachers are associated not only with knowledge but also with parents, and they are believed to deserve respect and obedience for their entire lives [29]. Hence, cultural trust in this study means students' beliefs about the mode of learning to acquire helpful knowledge.

The cultural dimensions theory suggests that China has a collectivist cultural orientation that values conformity and harmony but hierarchy in behavior. Previous studies show that Chinese students rely on teachers, textbooks, and groups for learning rather than self-control [2,10,24,25]. They focus on a collective atmosphere, and the concept of "family" is deeply rooted. A harmonious family relationship can ensure students' confidence, enthusiasm, and emotional stability in their studies, leading to various learning activities and modes. Therefore, this work defines "individual growing background (IGB)" as the family atmosphere, including whether the student's parents and family members have harmonious relationships.

2.3 TAM and the Proposed Research Model

The technology acceptance model (TAM) is a fundamental paradigm for evaluating users' acceptance of new technology. Davis initially proposed TAM in 1989 and then further developed by subsequent studies. According to Davis [30], Perceived usefulness (PU) measures the degree to which an individual perceives the use of a particular system as valuable and likely to improve his or her performance in a task; Perceived ease of use (PEOU) refers to the degree to which an individual believes that the use of a particular system would be effortless; Behavioural intention (BI) is generally characterized as the degree of intensity of an individual's intention to perform a particular behavior, which is the best predictor of actual usage behavior as the two primary beliefs of TAM, PU, and PEOU are defined as the most significant antecedents of BI.

As a result of its dependability, flexibility, and simplicity, TAM is considered one of the most robust and pioneering models for assessing the acceptance of different technologies [31,32]. Various studies concerning m-learning acceptance have employed TAM to evaluate its effectiveness. Aburub and Alnawas [20] used the TAM model, while Sánchez-Prieto *et al.,* [18] employed the integrated TAM model. Besides, Al-Shihi *et al.,* [19] proposed a model that integrated TAM and UTAUT. Almaiah

et al., [17] added eight external factors and inspected the TAM empirically. Later, Almaiah and Alismaiel [21] used the TAM and updated DeLone and McLean models.

In addition, TAM has been adopted and assessed in studies with distinct contexts, for instance, the studies in Taiwan [22], in Jordan [16,20], in Oman [19], and in Malaysia [33]. Thus, this study employed the TAM model in conjunction with two external variables from the Chinese cultural context, cultural trust and individual growing background, which are believed to significantly examine the m-learning acceptance of students in Chinese higher education.

The proposed research model is depicted in Figure 1. If students perceived m-learning systems as user-friendly and use-easy, they would increase their intention to use them. Furthermore, PU and PEOU can also continuously explain the intention to learn online [34-36]. Then, PEOU positively impacts PU [37,38,22]. Thus, the hypotheses are suggested as follows.

H0: PU positively impacts the BI of students who use m-learning in the Chinese cultural context.
H1: PEOU positively impacts the BI of students to use m-learning in the Chinese cultural context.
H2: PEOU positively impacts PU in the Chinese cultural context.

Previous research has demonstrated that adopting educational technology is linked with students' learning beliefs [2]. Meanwhile, in the m-learning context, students would perceive the m-learning system as valid if it benefits them from knowledge acquisition [23]. In this study, cultural trust is proposed to influence PU and BI, as depicted in the following hypothesis (see Figure 1).

H3: Cultural trust (CT) will positively influence the BI of students to use m-learning in the Chinese cultural context.
H4: Cultural trust (CT) will positively influence the PU of m-learning systems.

According to the cultural dimensions theory, Chinese culture is highlighted in family values like parental authority at home, the family's emphasis on harmony, respect for traditions, and adherence to family rules [39]. Therefore, Individual growth background moderates the impact of PEOU, PU, and CT on BI. The hypotheses are formulated in Figure 1 as follows.

H5: Individual growing background (IGB) will moderate the positive effect of PU on BI.
H6: Individual growing background (IGB) will moderate the positive effect of PEOU on BI.
H7: Individual growing background (IGB) will moderate the positive effect of CT on BI.

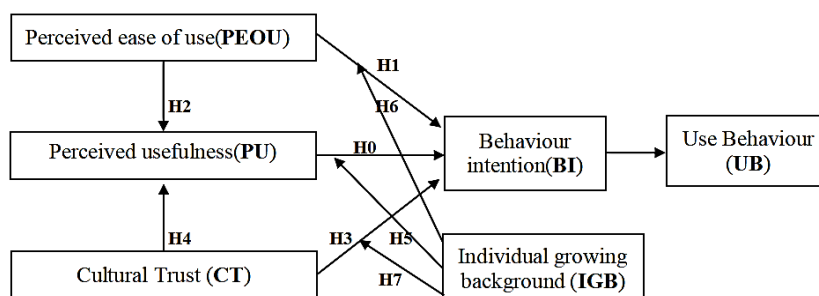**Fig. 1.** Proposed research model

3. Methodology

The research methodology used in this study is based on the quantitative method, which provides statistical results related to the scope of the research through an empirical and systematic study of

the statistics obtained. A survey was organized to answer the research question effectively. It is conducted in private colleges located in Chongqing, China, considering the fewer limitations in private colleges and the clout of Chongqing as the newest municipality. Adopting stratified random sampling, the researcher gets a 382-sample size from three private colleges, referring to the table developed by Krejcie and Morgan in 1970 [40], and this is a pilot test with 90 student participants. The difference between the three colleges is not considered.

Data is collected through an online questionnaire consisting of two sections. The first section contains the students' demographic information, including gender, grade, growing region, and mobile learning experience. The second section involves 27 items: BI (4 items), PU (6 items), PEOU (5 items), CT (6 items), and IGB (6 items), to measure the relationship between the internal constructs of TAM and the two external variables. These items were adopted from the research [30,41] with some changes to suit the purpose of this study. All items were measured on a 5-point Likert-type scale, ranging from "1 = strongly disagree" to "5 = strongly agree". Using the SPSS v.24, the data from the 90 students was analyzed. Considering the data analysis only for the pilot study sample, which has a limited sample size, the results can only be generalized if reproduced in a larger group. Hence, the results can be used to examine the correlation of the factors and test the hypotheses in the proposed model.

4. Results
4.1 Descriptive Analysis

The survey collected 90 valid questionnaires, of which 51 respondents are female, while the rest are male. Regarding the area where the students grew up, 36.67% are from urban areas, 24.44% from suburban areas, and 38.89% from rural areas. In terms of m-learning experience, the results indicate that 33.33% of the students have less than one year of experience, 31.11% of students have 2-3 years of experience, 15.56% of students have 3-5 years of experience, and only 20% have more than five years of experience. Considering that the samples for this study were selected from undergraduate students between the ages of 18-23 years old with little age difference, the item of age is not included in the demographic information.

4.2 Reliability and Validity

Reliability analysis uses Cronbach's alpha (α) to measure the internal consistency of each construct. The value of Cronbach's alpha should be above 0.7(α >0.7) as highly reliable according to the recommendation by Hair *et al.,* [42]. Table 2 shows that Cronbach's alpha values for all constructs were more significant than 0.7. Thus, the questionnaire is considered reliable.

Table 2
Reliability

Constructs	N of Items	Cronbach's alpha
Perceived Usefulness (PU)	6	.887
Perceived Ease of Use (PEOU)	5	.875
Behavior intention (BI)	4	.796
Cultural trust (CT)	6	.884
Individual growing background (IGB)	6	.880

The researchers performed factor analyses to ensure the validity of the questionnaire constructs. KMO Test is used to examine the strength of the partial correlation (how the factors explain each

other) between the variables. KMO values closer to 1.0 are considered ideal, while values lower than 0.5 are unacceptable. Bartlett's Sphericity Test tests the null hypothesis that the variables are unrelated and not ideal for factor analysis. A significant statistical test (usually less than 0.05) indicates the rejection of the null hypothesis. Based on Table 3, the KMO value is 0.773, which is greater than 0.7; Bartlett's Test of Sphericity is accompanied by a probability value of less than 0.001. They both indicate that the variables are strongly related, and the data are suitable for factor analysis. Then, five common factors were extracted with characteristic roots more significant than 1, which explained 66.034% of the data variance (>60%). According to Table 4, rotated factor loadings are above 0.5, and scale data can be categorized into five dimensions consistent with theoretical expectations.

Table 3
KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.773
Bartlett's Test of Sphericity	Approx. Chi-Square	1409.576
	df	351
	Sig.	.000

Table 4
Rotated component matrix

	Component				
	1	2	3	4	5
PU1	0.814				
PU2	0.799				
PU3	0.802				
PU4	0.749				
PU5	0.739				
PU6	0.730				
CT1		0.800			
CT2		0.792			
CT3		0.744			
CT4		0.711			
CT5		0.797			
CT6		0.773			
IGB1			0.765		
IGB2			0.791		
IGB3			0.784		
IGB4			0.779		
IGB5			0.725		
			0.754		
IGB6					
PEOU1				0.750	
PEOU2				0.798	
PEOU3				0.827	
PEOU4				0.764	
PEOU5				0.755	
BI1					0.889
BI2					0.815
BI3					0.571
BI4					0.603

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.
Rotation converged in 5 iterations.

4.3 Assessment of the Structural Model

The assessment of the structural model will be through the testing of hypotheses and the examination of the variance predicted by the model. The mean value of each variable is above the median value of 3, and the standard deviation ranges between 0.762 and 0.858 (see Table 5). The absolute value of both the skewness and the kurtosis of each item is less than 1. The results reveal that the data distribution of all factors is close to normal.

Table 5
Descriptive statistics

	Min.	Max.	Mean	Std. deviation	Skewness Statistic	Std. error	Kurtosis Statistic	Std. error
PU	1.833	5	3.696	0.807	-0.259	0.254	-0.683	0.503
PEOU	1.6	5	3.833	0.816	-0.544	0.254	-0.149	0.503
BI	1.75	5	3.769	0.788	-0.353	0.254	-0.398	0.503
CT	1.333	5	3.596	0.858	-0.510	0.254	-0.537	0.503
IGB	1.833	5	3.817	0.762	-0.243	0.254	-0.430	0.503

Table 6 shows the results from the correlation analysis that Pearson correlation coefficients between the variables range from 0.235 to 0.417 and are significant at the 0.05 or 0.01 level.

Table 6
Correlations analysis

	PU	PEOU	BI	CT	IGB
PU	1				
PEOU	.331**	1			
BI	.315**	.342**	1		
CT	.292**	.304**	.417**	1	
IGB	.306**	.317**	.316**	.235*	1
* $p < 0.05$; ** $p < 0.01$					

Regression analysis was conducted to determine the predictors of students' acceptance of m-learning. All the built regression models used the mean value of variables. In the first regression model, PU is the dependent variable, while PEOU and CT are the independent variables. A direct relationship exists between the R-squared values and the explanatory power of the models. According to Table 7, the R-squared value for PU is 0.150, which makes the variance 15 percent.

Moreover, the results also reflect that the model is statistically momentous (F = 7.661, p < 0.01). The Durbin-Watson value is 1.814, close to 2, and the samples are independent. The results show significant positive effects of PEOU [B = 0.264, P = 0.012] and CT [B = 0.198, P = 0.046] on the PU, which supported H2 and H4.

Hypothesis 2. PEOU positively impacts PU in the Chinese cultural context.
Hypothesis 4. CT will positively influence the PU of m-learning systems.

Table 7
Regression analysis on the effect of PEOU and CT on PU

	Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity statistics	
	B	Std. Error				Tolerance	VIF
(Constant)	1.971	0.448		4.399	0.000		
PEOU	0.264	0.103	0.267	2.574	0.012	0.907	1.102
CT	0.198	0.098	0.210	2.026	0.046	0.907	1.102
F	F (2,87) = 7.661**						
R Square	0.150						
Adjusted R Square	0.130						
Durbin-Watson	1.814						
* $p < 0.05$; ** $p < 0.01$							

Table 8 illustrates the outcomes of the regression model for IGB, PEOU, and BI. In Model 1, the R-squared value for BI is 0.117, which reflects the variance to be 11.7 percent. The result indicates a significant positive effect of PEOU on BI [B = 0.330, P = 0.001]. In Model 3, there was a significant positive effect of PEOU X IGB on BI [B = 0.268, P = 0.034], and the R-squared value increased by 0.043 (p < 0.05) compared with Model 2, which shows a positive moderating effect of IGB on the effect of PEOU on BI. Thus, H1 and H6 are validated.

Hypothesis 1. PEOU positively impacts the BI of students who use m-learning in the Chinese cultural context.
Hypothesis 6. IGB will moderate the positive effect of PEOU on BI.

Table 8
Moderating effect of IGB on the impact of PEOU on BI

	Model 1: BI		t	Sig.	Model 2: BI		t	Sig.	Model 3: BI		t	Sig.
	Unstandardized Coefficients				Unstandardized Coefficients				Unstandardized Coefficients			
	B	Std. error			B	Std. error			B	Std. error		
(Constant)	2.505	0.379	6.603	0.000	1.862	0.469	3.971	0.000	1.880	0.459	4.094	0.000
PEOU	0.330	0.097	3.409	0.001	0.259	0.100	2.596	0.011	0.241	0.098	2.457	0.016
IGB					0.240	0.107	2.241	0.028	0.239	0.105	2.284	0.025
PEOU X IGB									0.268	0.124	2.159	0.034
F	F (1,88) = 11.621**				F (2,87) = 8.587***				F (3,86) = 7.520***			
R Square	0.117				0.165				0.208			
R Square Change	0.117**				0.048*				0.043*			
* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$												

Table 9 demonstrates the outcomes of the regression model for IGB, CT, and BI. In Model 1, the R-squared value for BI is 0.174, making the variance 17.4 percent. The result means a significant positive effect of CT on BI [B = 0.383, P = 0.000]. In Model 3, there is a significant positive effect of CT X IGB on BI [B = 0.311, P = 0.005], and the R-squared value increases by 0.068 (p < 0.01) compared with Model 2, indicating a positive moderating effect of IGB on the effect of CT on BI. Hence, H3 and H7 are verified.

Hypothesis 3. CT will positively influence the BI of students who use m-learning in the Chinese cultural context.

Hypothesis 7. IGB will moderate the positive effect of CT on BI.

Table 9
Moderating effect of IGB on the impact of CT on BI

	Model 1: BI				Model 2: BI				Model 3: BI			
	Unstandardized coefficients		t	Sig.	Unstandardized coefficients		t	Sig.	Unstandardized coefficients		t	Sig.
	B	Std. error			B	Std. error			B	Std. error		
(Constant)	2.391	0.329	7.265	0.000	1.657	0.445	3.725	0.000	1.547	0.429	3.604	0.001
CT	0.383	0.089	4.304	0.000	0.333	0.089	3.734	0.000	0.344	0.086	4.007	0.000
IGB					0.239	0.101	2.382	0.019	0.246	0.097	2.545	0.013
CT X IGB									0.311	0.109	2.869	0.005
F	F (1,88) = 18.524**				F (2,87) = 12.590***				F (3,86) = 11.834***			
R Square	0.174				0.224				0.292			
R Square Change	0.174***				0.051*				0.068**			

* *p* < 0.05; ***p* < 0.01; ****p* < 0.001

The last regression model concerns IGB, PU, and BI (Table 10). In Model 1, the R-squared value for BI is 0.099, making the variance 9.9 percent. The result shows a significant positive effect of PU on BI [B = 0.308, P = 0.002]. In Model 3, there is a significant positive effect of PU X IGB on BI [B = 0.285, P = 0.016], and the R-squared value increases by 0.056 (P < 0.01) compared to Model 2, which is clear that there was a positive effect of IGB on the effect of PU on BI moderating effect. Therefore, H0 and H5 are corroborated.

Hypothesis 0. PU positively impacts the BI of students who use m-learning in the Chinese cultural context.

Hypothesis 5. IGB will moderate the positive effect of PU on BI.

Table 10
Moderating effect of IGB on the impact of PU on BI

	Model 1: BI				Model 2: BI				Model 3: BI			
	Unstandardized coefficients		t	Sig.	Unstandardized coefficients		t	Sig.	Unstandardized coefficients		t	Sig.
	B	Std. error			B	Std. error			B	Std. error		
(Constant)	2.632	0.373	7.047	0.000	1.941	0.469	4.140	0.000	1.910	0.456	4.190	0.000
PU	0.308	0.099	3.118	0.002	0.235	0.101	2.327	0.022	0.254	0.099	2.573	0.012
IGB					0.251	0.107	2.342	0.021	0.228	0.105	2.175	0.032
PU X IGB									0.285	0.116	2.465	0.016
F	F (1,88) = 9.722**				F (2,87) = 7.851**				F (3,86) = 7.564**			
R Square	0.099				0.153				0.209			
R Square Change	0.099**				0.053*				0.056**			

* *p* < 0.05; ***p* < 0.01

The study analyzed the moderating effects of IGB on the proposed relationships. The findings suggest that the degree of harmony in the family atmosphere contributes to the extent to which PU, PEOU, and CT influence the BI of m-learning. As depicted in Figure 2, Figure 3, and Figure 4, IGB moderates any relationship represented in the research model.
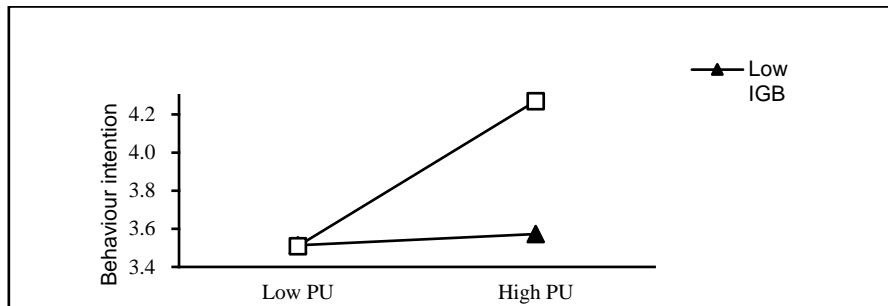

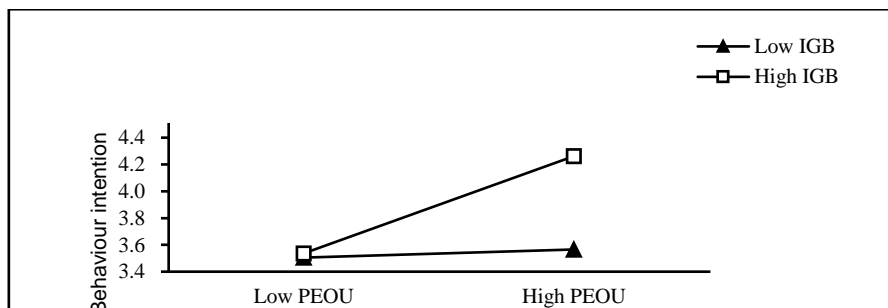**Fig. 2.** Moderating effect of IGB on PU towards BI
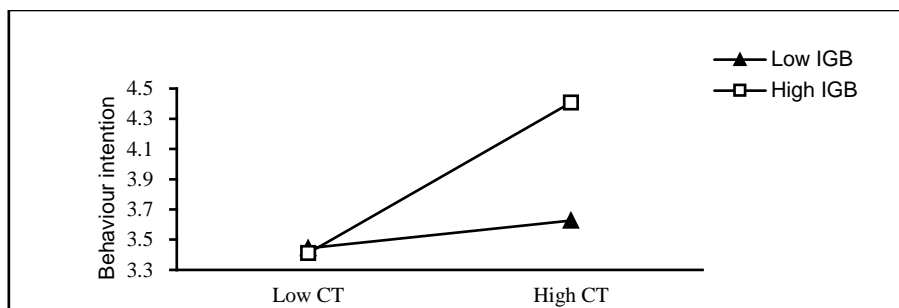

Fig. 3. Moderating effect of IGB on PEOU towards BI

Fig. 4. Moderating effect of IGB on CT towards BI

The correlation analysis demonstrates a significant relationship between the variables. Such findings furnish zero evidence to bolster the null hypotheses. All the proposed hypotheses are statistically significant in the samples (i.e., H0-H7).

5. Discussion
5.1 Positive Correlation of CT on PU and BI

The calculations indicate that cultural trust (CT) in the samples positively impacts both PU and BI, which in turn influences the use behavior of m-learning. When students view the m-learning model as a new avenue or means of acquiring knowledge, replacing a teacher or a textbook and trusting the information source's reliability rather than just relying on the technology's reliability, their intention to use m-learning could increase. One possible reason is that Confucian educational ideology emphasizes the authority of teachers and textbooks. This cultural belief influenced Chinese students

to develop a traditional belief in learning and become accommodating to knowledge delivery [25]. The positive correlation between CT and BI supports the findings of Huang *et al.,* [2] that Chinese students' traditional learning belief was significantly related to m-learning intentions. Therefore, the results suggest that cultural trust, as a predictor, could forecast Chinese college students' intention to use m-learning.

Furthermore, the significant relationship between CT and PU coincides with the discoveries of previous studies. Al-Emran *et al.,* [23] found that knowledge acquisition was an antecedent of PU. Students would find m-learning valuable if it were a tool that enabled them to acquire reliable knowledge effectively. Meanwhile, the study derived by Huang *et al.,* [2] suggested that Chinese college students possessed constructive and traditional learning beliefs significantly associated with PU. Thus, cultural trust has a constructive influence on students' behavior intentions and perceived usefulness of the mobile learning system. It is concluded that enriching m-learning paths by enhancing the opportunities and frequency of m-learning in formal education will habituate students to use m-learning as a learning mode [46]. Also, it is emphasized that teachers play a crucial role in increasing students' confidence in the knowledge acquired through the m-learning system in this cultural context.

5.2 Significant Moderating Effects of IGB

This study defines the term individual growing background (IGB) as a harmonious relationship between family members, particularly parents and children. Enhanced CT from more harmonious family relationships, coupled with the role of PU and PEOU, influences the intention to use m-learning systems. Hofsted's cultural dimensions theory observes that China's high-power distance, collectivism, long-term orientation, and constraints manifest in educational aspects and family relations [10]. Parents and teachers exert significant authority, traditions, and rules are respected, and students are expected to obey [39]. Consequently, students' ideas are readily ignored, and their curiosity and pursuit of new knowledge are suppressed. Harmonious family relationships foster student confidence and emotional stability over the long term and help them cope with learning and challenges while exhibiting greater tolerance for m-learning systems and freedom in decision-making.

Previous studies have produced inconsistent results. Gaspay *et al.,* [43] found that high power distance (PD) prevents new technologies' adoption, diffusion, and innovation. At the same time, cultures that exhibit collectivism in the individualism-collectivism (IC) dimension are more likely to adopt technologies that assist group and relationship building. Despite conducting a study, Huang *et al.,* [2] needed to identify any possible moderating roles of individualism-collectivism and power distance in the proposed relations. While this study did not link cultural dimension items and technology acceptance directly, the potential influence of cultural dimension context proves to be present and must be addressed. Students' responses to the IGB questions confirm the latent influence of culture, indicating the effect of harmonious family relationships on education.

5.3 Correlation Validation of the Constructs in the TAM Model

This study confirms the positive correlation between PU and PEOU on BI. The higher the PU and PEOU, the higher the intention to use m-learning systems. Students who find the m-learning system easy and useful have a higher intention to use it in the future. The result is consistent with previous studies, demonstrating that PU and PEOU positively influenced the behavior intention to use m-learning [4,17,23,44].

Additionally, the findings reveal that PEOU acts as a trigger for PU, positively impacting PU in the samples. This research implies that the more manageable the m-learning system is to operate and

use, the more students perceive it as applicable to learning. The result aligns with previous research findings, wherein PEOU substantially influences PU [22,37,38,44,45]. Moreover, this outcome establishes that the favorable influence of PEOU on PU still exists in the Chinese cultural context.

6. Conclusions

This study investigates the acceptance of m-learning by Chinese college students. The discoveries reveal that two cultural variables influenced the acceptance of students to m-learning in Chinese higher education. Cultural trust (CT) has a significant favorable influence on BI and PU. Meanwhile, individual growing background (IGB) significantly moderates the relationship between PEOU, PU, CT, and BI. Furthermore, PU and PEOU have a respective positive correlation with BI. The significant effect of PEOU on PU is also terrifying.

The study has both theoretical and practical implications. First, it developed a research model, which expanded the TAM. Second, employing Hofsted's national cultural theory added cultural contribution to m-learning acceptance. Third, the study enriches the relevant literature with the Chinese cultural context. Fourth, it informs teachers and institutions of the importance of the cultural trust of students and their family environment in students' intention to use technology. Finally, it will be beneficial to implement m-learning in higher education in Chongqing, China.

Some limitations lie in this study. The student participants are from private colleges in the same city; they are a cultural group with homogeneity. Their information can generally reflect this region's cultural context, but more data from public colleges, other regions, and other educational levels. Except for these self-report biases and standard method variation, they were not discussed. Moreover, the pilot study limits results and can only be generalized if reproduced in a large, more diversified group. Further research could explore the influence of Chinese cultural factors on m-learning acceptance in more depth by examining the perceptions of teachers and parents separately. Identifying appropriate student populations (e.g., tertiary or primary education students) and establishing whether m-learning is more suitable for formal or non-formal learning will aid the development of more effective strategies for m-learning applications in China.

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