

# Investigating the Mediating Role of Trust Between Service Quality and Customer Value Co-creation: A Study of Chinese Mobile Banking Industry

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## Abstract

The objective of this research is to propose an innovative theoretical paradigm to investigate the customer value co-creation behaviors (CVCCB) and its antecedents' effects under Chinese mobile banking context by adopting Stimulus-Organism-Response (SOR) theory. This study also aims to examine the moderating effects of generational differences on customer's perceived trust and CVCCB basing on generational theory. This research will extend prevailing knowledge of CVCCB by investigating its antecedent factors' influences from holistic perspective. A total of 599 sampled survey responses were collected from various Chinese provinces and utilized in quantitative statistical analysis such as Structural Equation Modelling and path analysis. The test results from this study concluded the significant effects of the hedonic values in mobile banking service quality (MBSQ), customer perceived trust (CPT) and generational differences' on CVCCB in Chinese mobile banking (M-banking) setting. Despite limitations such as using smaller sample size and lower-order CVCCB construct, these study results can offer valuable insights for financial institutes' management to effectively management customer relationship in the highly competitive Chinese digital finance service context.

**Keywords:** Generation cohort, mobile banking, service quality, trust, customer value co-creation

## 1. Introduction

The global COVID-19 epidemic has led to over 775 million confirmed cases and over seven million deaths according to World Health Organization's report who thereby strongly recommended minimizing direct human contact and maintaining social distancing measures due to the virus's high transmission risk and concerns of safety (WHO, 2024). This occurrence drove customers increasingly to adopt contactless technology as preferred method to cope with day-to-day activities. For instance, the finance industry is embracing innovative approach of conducting financial activities with minimum human interaction such as M-banking, which is the banking services provided on mobile digital platforms via personal digital assistants including smartphones or tablets. M-banking allows customers distantly conduct financial transactions without visiting physical bank offices and provides speedy customized solutions to their various needs and problems through self-service technologies. M-banking also help financial institutes expand their service latitude, reach underserved customer groups in remote areas, enhance credibility, reduce business costs, and improve financial performance (Al-Bashayreh et al., 2022). Currently, M-banking's market size surpassed \$1.3 billion in 2024 worldwide, and it was expected to reach to \$4.26 billion by 2032 at a 15 percent compound annual growth rate between 2023 and 2030 ( Aarti, 2025).

Globally, M-banking penetration rate was the highest in South Korea (82%) in 2023 but M-banking user population size was the largest in China (over 970 million) (Bankmycell, 2023). M-banking's scale in China grew quickly since 2016 with its monthly active users grew from over 87 million to over 530 million in 2023 based on report from China's Financial Certification Center (Yifan, 2023). On the other hand, digital finance uprising also brought the advent of financial technology firms (Fintechs) and their inventive digital disruptions into financial industry such as the third-party payment system, which grew rapidly in market size and already exceed \$2,276 billion in 2023 equaling more than 1330 times of the market size of M-banking. As third-party payment service is projected to reach \$10 trillion in 2032, it will continue outgrowing M-banking service in next decade. Similarly, large state-owned Chinese financial institutes such as Industrial and Commercial Bank of China (ICBC) and Bank of China (BOC) are being dominated by leading Chinese third-party M-payment service providers such as Alipay and WeChat Pay that jointly have over 1.8 billion users (Yang et al., 2023), which resulted in Chinese M-banking penetration rate dropped to 68 percent in 2023 from 2021 (Statistica, 2024).

Due to the uprising challenge it is facing and the significant role it serves in financial industry, M-banking has attracted attention from scholars and practitioners alike. However, the focus of current M-banking researches is primarily directed at probing aspects of M-banking service adoption with very few researches scrutinized customers' post-adoption behaviors (Dabare et al., 2023). To bridge this paucity, a few contemporary researches examined post-adoption outcomes such as continual intention, customer loyalty and relationship quality (Dabare et al., 2023), yet no existing research was carried out examining customer value co-creation behaviors (CVCCB) or its antecedent factors' influences in M-banking service under Chinese context. As a strategic operative practice, value co-creation (VCC) concepts emphasizes resource integration from both companies and customers during service process for the communal benefit, which can also generate sense of faithfulness and serenity that allow for further ideas and information sharing (Vargo & Lusch, 2004). As M-banking revolutionized the standpoints that how financial services being produced and consumed in digital age, customers are no longer merely passive financial service user, but also co-producers of the service and value. VCC is essential for financial banks as such engagement and cooperative relationships with customers can be crucial in retaining customer faithfulness, enhancing overall financial performance and surviving competition against Fintechs and third-party payment service (Hijazi, 2022).

According to Rajaobelina et al. (2021), MBSQ is the central aspect of product and service enhancement, which enables it as an important antecedent element of CVCCB. But owing to its dynamic nature, early studies have not conclude MBSQ's conceptual dimensions or its impact on customer post service adopting behaviors. So, this research aims to pragmatically inspect the effect of MBSQ on CVCCB from a perceived value perspective, which is considered as a novel learning viewpoint that lacking a dearth of pragmatic effort in literature. Prior researches also advocated the substantial antecedent role of trust in customer's behavior responses such as service adopting and usage in banking contexts (Almaiah et al., 2023). As Gong et al. (2023) claimed that customers are now caught up in 'dark side of online consumer behavior during post pandemic's 'new normal' and subsequently raising concerns over online-security, privacy and trust. For instance, survey results revealed that 64 percent of researched customers agreed that online service's data privacy policies are important and 43 percent of respondents chose not to engage in financial services on mobile phone owing to their distrust on finance service providers' policies and competencies in safeguarding customers' personal data (Johnson, 2021). Thus, scholars recommended to incorporate trust in future M-banking research due to potential high vulnerability of digital finance service (Gong et al., 2023).

As the impact of trust on customer's behavior responses is still under debate, this research aims to examine the mediating role of trust plays between MBSQ and CVCCB under Chinese M-banking context that has been untapped in literature. In addition, researchers found that generational variance also influences CVCCB due to customers' unique life experiences, beliefs and display dissimilar behavior responses during service process (Zhou et al., 2022). And as older generation customers have become pillar cohorts in many countries' economies because of their large foundation and affluence, their consumption preferences and behavior differences cannot be ignored by governments (Alhassan & Adam, 2021). In digital finance and consumer behavior studies, numerous variables can potentially influence the phenomena under investigation. This study, therefore, adopts a focused approach by selecting abovementioned key constructs based on their theoretical relevance and empirical significance in the context of M-banking post-adoption behavior. While there exist other potential antecedents of CVCCB, such as perceived risk, technical self-efficacy, and regulatory factors, addressing all of these within a single investigation would exceed the study's intended scope and dilute its theoretical contributions.

Moreover, research in this domain is intrinsically iterative, and the present study aims to provide a foundational understanding of how chosen factors influence CVCCB in M-banking, thereby offering a groundwork upon which subsequent research can expand. Future studies can extend this framework by integrating additional variables, exploring alternative theoretical perspectives, or applying the model to different cultural or financial contexts. Therefore, the contributions of the paper are primarily three-fold, firstly, it proposes a novel attempt to empirically examine whether MBSQ serves as an influencing factor of CVCCB for Chinese M-banking users; secondly, this research will adopt SOR theory and aims to validate the mediating role that trust toward M-banking service plays in the relationship between MBSQ and CVCCB; thirdly, this research will also apply the generational theory and aim to investigate the moderating effect of generation cohorts' behavior difference on CVCCB under Chinese context. This proposed study aims to answer the following research questions:

1. How does MBSQ influence CVCCB in the Chinese mobile banking sector?
2. What role does trust play in mediating the relationship between MBSQ and CVCCB?
3. How do generational differences moderate the relationship between MBSQ and CVCCB among Chinese mobile banking users?
4. How can the SOR framework be applied to explain the interplay between MBSQ, trust, and CVCCB?

## 2. Research Objective

Based on the abovementioned research background, this study seeks to address critical discrepancy in the understanding of MBSQ and its impact on CVCCB within the Chinese mobile banking context. The objectives of research include the following:

1. To examine the influence of MBSQ on CVCCB by analyzing how customers' perceptions of service quality drive their engagement in value co-creation activities.
2. To investigate the mediating role of trust in the relationship between MBSQ and CVCCB, particularly in addressing concerns related to online security and privacy.
3. To explore the moderating effect of generational differences on CVCCB, with a specific focus on older consumers as a key demographic in financial services.
4. To apply the SOR framework to assess how MBSQ and trust influence CVCCB while incorporating generational theory to identify behavioral variations among different age groups.
5. To provide practical insights for financial institutions to enhance customer engagement, trust, and service quality in the evolving digital banking landscape.

### 3. Literature Review

#### 3.1 CVCCB & MBSQ & CPT

##### 3.1.1 Customer Value Co-Creation Behaviors (CVCCB)

CVCCB notion originated from service-dominant logic stating that parties in service encounter can collaboratively share resources including information, knowledge, capital and technology, to jointly explore resolutions to consumption and marketing needs (Grönroos, 2008). Companies ought to provide chances and cultivate the necessary circumstances instead of forcing consumers to participate and create their preferential value, by means of adopting innovative technology and products such as M-banking in services. Although being contended as a paradoxical idea, it was examined and supported in several pragmatic and theoretical models in literature, such as facility-transformation-usage model, consumer value co-creation styles model, and supplier-customer mapping model among others (Leroy et al., 2013). Moreover, Yi and Gong (2013) proposed a multi-facet framework to reflect customers' resource integration efforts during service process consisting of eight dimensions, which includes advocacy, helping, feedback, tolerance, information sharing, information seeking, responsible behavior, personal interaction. Because the extensive validation in literature, this framework will be adopted in this research to examine CVCCB under M-banking context, similarly, consistent with previous studies which suggesting that personal interaction aspect was rather irrelevant to the service on human-machine platforms, therefore, this research theorized CVCCB as encompassing seven dimensions by not including personal interaction dimension to avoid the possible controversy (Mostafa, 2020).

##### 3.1.2 Mobile Banking Service Quality (MBSQ)

MBSQ notion can be described as customer's assessment on M-banking's content delivery including security, practicality, convenience, system design, reliability, and so on (Hussain et al., 2023). Its measurement differs greatly from using a few indicators to multi-dimensional scale, or from applying existing service quality measurement such as SERVQUAL framework to adopting modified version of prevailing model such as the SSTQUAL. As some factor dimensions such as security, privacy, ease of use have been placed with extensive focus while other dimension such as enjoyment and perceived value were negligibly ignored (Hussain et al., 2023). It was argued that the excessive devotion on appraising technological aspects may be required for apprehending MBSQ concept at early adoption stage, but it is insufficient conditions for evaluating its effect on post adoption behaviors, which spurred an alternating method in measuring MBSQ from perceived value standpoint. Based on consumer value framework, M-banking ought to provide both utilitarian value and hedonic value, where utilitarian value is the benefits relating to task or rational buying behavior, while hedonic value is customer receives in form of emotional experience of fun and playfulness. As a result, Arcand et al. (2017) developed an ad hoc MBSQ framework based on web-based setting and mobile setting that consisting of security, practicality, enjoyment, design, and sociality. Owing that there is no consensus on the universal MBSQ framework in existing literature, this validated ad hoc framework will be adopted in this research.

##### 3.1.3 Customer Perceived Trust (CPT)

The concept of CPT often befalls between trustee and trustor, it can be stated as the mindful choice basing on characteristics including ability, consistency, and credibility of the interchange partners. Or the special bonds and faith individual has in company sharing common wellbeing and can reasonably expect behavior that resulting in affirmative results (Mayer et al., 1995). CPT can be measured from several identified themes such as benevolence, integrity, competence, interest orientation, collective values and communication (Jamil & Qayyum, 2023), where the commonly recurring themes in trust literature include competence, benevolence, and integrity (Jamil & Qayyum, 2023). Competence is the abilities of trustee to

exert influence in certain domain, Benevolence refers to the exhibition of thoughtfulness, kindness and behaving in the protection of mutual benefits or abstaining from exploitation, and Integrity is the constancy of preceding behaviors and sincere communications that demonstrates strong sense of fairness and congruent actions with promise (Mayer et al., 1995). And because of the extensive validation from earlier studies, this CPT model will be adopted in this study to investigate the CPT in M-banking service.

### 3.2 Generation Cohorts

Hansen and Leuty (2012) stated that generation is the collection of individuals born during specific time period, share similar experiences, attitudes, and ideologies that remain fairly constant during life course, and such distinctive life experiences will unavoidably attribute to the values and behaviors differences of all individuals within. Today's marketplace consists of four main generation cohorts including Baby-Boomers, Generation X, Generation Y, Generation Z, although Silent Generation and Generation Alpha are also occasionally discussed in literature. Baby-Boomers were born roughly between 1946 and 1960, and described as devoted, loyal, and prone to accept direction egocentric, dedicated to communal causes, possess excellent communal skills but lack technical knowledge (Gardiner et al., 2015). Generation X or the latchkey population were born approximately between 1960 and 1980, while grew up witnessing the occurrence of internet, global and culture integration became the mainstream, they are selective and have less brand loyalty than their predecessor owing to the mass marketing promotions and wider range of products and services alternatives (Gardiner et al., 2015). Generation Y or the Millennial were born roughly between 1980 and 1995, and they are more consumption driven and have sophisticated tastes and preferences, thus causes them to seek high extent of distinctiveness in their purchases, which is often considered as materialistic. They are constantly connected and seek motivation to gratify their needs via the internet and their social awareness exceeds all preceding generations (Bolton et al., 2013). Generation Z were born approximately between 1995 and 2010, and they are technology and social media savvy, likely being swayed by peers in purchase and as these individuals grow up in uncertain socioeconomic, civil, and environmental conditions, security and privacy are more valued among this cohort, whilst social acknowledgement and affiliation among peers is also more essential than early generations (West, 2014).

### 3.3 Theoretical Foundations – SOR Theory & Generational Theory

In this study, SOR theory provides theoretical support for the relationship between MBSQ, CPT and CVCCB. In SOR theory, Mehrabian and Russell (1974) explained the complex dynamics tangled in the processing of environmental stimuli, inner cognitive and emotional conditions, and consequent behavior reactions. Stimulus is exterior situational cues that individuals identify through senses such as visual, auditory, and tangible elements, which behave as causes to activate rational and emotive processes within individuals, known as the "Organism". While Organism is interior conditions of an individual such as cognitive evaluations, emotional reactions, and idiosyncratic understandings of stimuli, "Response" refers to manifested behavior consequences due to the internal 'organism' processes, ranging from evident behaviors to subtle display attitudes. In this research, MBSQ can be considered as Stimulus that trigger customer's internal emotional and cognitive responses based on their subjective judgment on the extent that objectives or intentional uses of service were met (Zhu et al., 2020). As CPT relates to the magnitude of sensation based on uncertain indication, it is part of emotive and rational reaction that can influence individual's value judgments, reduce insecurity on electronic platforms, so it can be considered as the Organisms factor (Zhu et al., 2020).



And as trust feeling grows, customers become more enthusiastic to respond and participate in CVCCB, owing that they feel assured in their dealings with service providers and identify them as a reliable partners (Bidar et al., 2022). Generational theory suggests that recurring generational patterns outline societal trends by viewing time cyclically and highlighting the influence of generational experiences on the unfolding of historical events. The theory also identifies four distinct generational archetypes, each lasting approximately twenty to twenty five years (Robb, 1998). In this study, according to generational theory, individuals within generation cohorts share similar experiences, attitudes, and principles that remain constant during life course, which will unavoidably attribute to their values and behaviors differences (Hansen & Leuty, 2012). For instance, ICT advancement and derived services have been reported to more effectively engage the young generations such as Generations Y and Z cohorts in VCC processes, owing to their familiarity to the novel technology, enthusiastic curiosity and participation (Harris et al., 2016). Conversely, older generation are less prone to adopt digital service as they perceive it less useful, apart from the physical condition deterioration that restrain their interaction and engagement with technology (Chaouali & Souiden, 2019).

### **3.4 Hypotheses Development**

#### *3.4.1 MBSQ & CVCCB*

This research proposes that Chinese customers' perceived MBSQ positively influences CVCCB. This conception is evident in service quality literature as MBSQ is regarded as fundamental antecedent of customers' post-interaction behaviors such as involvement and value creation (Chagas & Aguiar, 2020). For example, Sawhney et al. (2005) suggested that enhanced service quality attributes of Internet-based such as interactivity, speed and flexibility can lead to customer engagement in joint product innovation, and Mostafa (2020) also found that the perceived MBSQ had significant impact on CVCCB under M-banking context. Thus, based on above mentioned evidence from literature, MBSQ can be recognized as the environmental stimulus in SOR theory, therefore, this study postulate following hypotheses: Hypothesis 1: Chinese customers' perceived hedonic value positively influences their CVCCB in M-banking. Hypothesis 2: Chinese customers' perceived utilitarian value positively influences their CVCCB in M-banking.

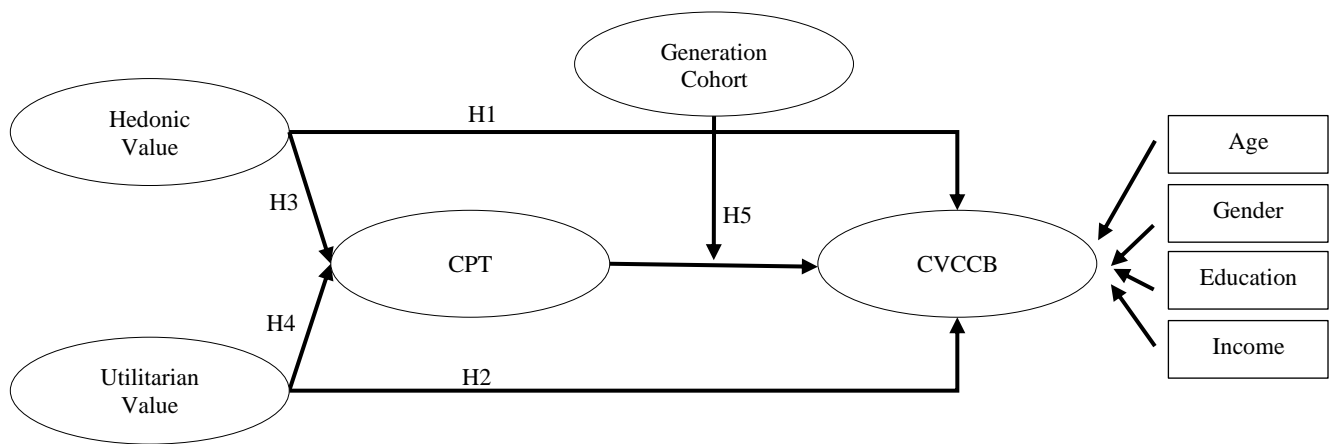
#### *3.4.2 Mediating role of CPT*

This study hypothesizes that Chinese CPT mediates the relationship between MBSQ and CVCCB. This assumption is also evident in literature as trust is often considered as the organism element in SOR theory that induces customers' post-interaction behaviors such as engagement and value creation (Bidar et al., 2022). For example, researchers suggested that CVCCB as the response element in SOR theory could be determined by the appraisal of overall trust feelings towards service, which was stimulated by service quality (Rao et al., 2021). Similarly, Bidar et al. (2022) advocated that CPT was influential on their succeeding collaborative value co-production behaviors by applying SOR theory in their study. Moreover, Ma et al. (2022) also advocated that CPT could be considered as the organism factor in SOR theory under various online electronic service settings. Therefore, this research proposes the following hypotheses: Hypothesis 3: CPT mediates the relationship between Chinese customers' perceived hedonic value and CVCCB in M-banking. Hypothesis 4: CPT mediates the relationship between Chinese customers' perceived utilitarian value and CVCCB in M-banking.

#### *3.4.3 Moderating Role of Generation Cohorts*

This research also hypothesizes that generational cohort differences among Chinese customers' have moderating effect on the relationship between CPT and CVCCB. This is evident in

literature as generational theory states that generation cohorts' distinctive life experiences often relate their values and behaviors differences. For example, researchers found that ICT advancement such as social media services most effectively engaged young generations such as Generations Y and Z who could communicate with brands via providing post consumption comments or participating in online satisfaction surveys (Moise et al., 2020). In contrast, researchers found that older generation customers often have deteriorated physical and cognitive condition that influence their interaction and engagement with novel technology (Harris et al., 2016), and they usually consider digital service less useful than brick-and-mortar services, thus they are less inclined to participate (Chaouali & Souiden, 2019). So, this study proposes the following hypothesis: Hypothesis 5: The generational cohort differences among Chinese customers' moderates the relationship between CPT and CVCCB in M-banking service. And the proposed CVCCB framework includes all hypotheses is shown in Figure 1.



**Figure 1:** Proposed CVCCB Framework  
Source: Own work

## 4. Methodology

### 4.1 Participants and Data Collection

The target population of this study is Chinese M-banking users with current or prior experience, estimated at 1.01 billion individuals who are geographically dispersed across China. Given this vast population, it was necessary to adopt a focused yet representative sampling approach to ensure practical feasibility and data reliability. To enhance representativeness, the study selected Shenyang and Dalian, the largest first-tier and second-tier cities in northeastern China, as the initial sampling frame. These cities were chosen based on several factors, including a relatively equal gender distribution (male-to-female ratios of 0.98 and 0.99, respectively), higher-than-national economic growth rates (6% for Shenyang and 5.7% for Dalian), low illiteracy rates (0.46% and 0.9%), and (4) significant internal migration populations (22% and 25%, respectively) (Statistics, 2022). As these characteristics make the two cities socioeconomically and demographically diverse, therefore, facilitating a broader understanding of M-banking users across different backgrounds.

Within these two cities, the research purposively selected two large public universities, each with over 28,000 registered students and staff as the initial sampling sites. The rationale for selecting these universities is twofold. First, universities in major Chinese cities often attract and host students and staff from various provinces, municipalities, and autonomous regions, thus allowing the research to capture a geographically diverse sample. Second, university participants are more likely to be familiar with digital financial services due to their education

levels and the nature of their work, thus making them a relevant subpopulation for M-banking research. The sampling process was conducted in two phases. First, a purposive sampling technique was used to recruit participants from these two universities. Then, to expand the geographical coverage, a snowball sampling method was employed. Participants were encouraged to share the survey with friends and family members residing in their home provinces across China. This approach enhanced the geographic and demographic diversity of the dataset while maintaining research feasibility. To ensure the required minimum sample size of 400 that was calculated using Yamane's (1973) formula, 800 questionnaires were initially distributed. A pilot study was conducted with 150 responses, verifying that the measurement scales met reliability and validity thresholds, thereby confirming the feasibility of a larger-scale study. After obtaining university approvals, participants were informed of the study's objectives, and an online survey was distributed via email and WeChat using MS Forms. The data collection process spanned four weeks in September 2024, yielding 599 usable responses.

Although the sampling approach in this study was designed to enhance geographical diversity, certain limitations cannot be avoided and must be acknowledged. First, the initial recruitment was limited to university students and staff, which may naturally introduce bias toward younger, more educated, and tech-savvy participants. Although snowball sampling helped reach individuals from various provinces, the final sample may still underrepresent older or less digitally literate M-banking users. Additionally, as participation was voluntary and self-administered online, the survey may have disqualified individuals unfamiliar with digital survey platforms, potentially skewing the results toward more digitally active users. Future studies could expand sampling beyond higher education settings, including older populations and individuals from lower-income regions to improve generalizability.

#### **4.2 Measures and Data Analysis**

The measurement scales and items in current study were adopted from previous researches, which includes the MBSQ scale proposed by Arcand et al. (2017) and consisted of five dimensions and 13 items, the CPT scale developed by Mayer et al. (1995) and comprising of three dimensions (benevolence, competency, integrity), and the CVCCB scale proposed by Yi and Gong (2013) including 29 items. All measurement items were assessed on the 7-point Likert scale to evaluate participants' level of the agreement ranging from 1 (strongly disagree) to 7 (strongly agree). The original questionnaire was firstly translated into simplified Chinese and then back-translated into English language by bilingual specialists to confirm the accuracy of the translated texts. The statistical tests started with normality, validity, reliability assessment and common method bias testing, followed by multicollinearity test, structural equation modeling (SEM), path analysis, mediation and moderation tests using SPSS and AMOS programs. The control variables that may affect CVCCB are respondents' age, gender, education and income, for example, Laukkanen (2016) found that customers of younger generation groups are often the initial adopters of M-banking services and more likely to use its latest and advanced features such as money deposits and payment tools that may result in greater prospects for CVCCB. Also, (Kennedy et al., 2022) found that different genders had dissimilar communication inclinations and styles with female value interactive communication and are prone to engage in CVCCB with banking service providers such as seeking support, advice and collaboration. Moreover, Zhu et al. (2022) found that education improved communication capabilities such as giving feedback and support in CVCCB in M-banking setting, while (Mohan & Potnis, 2015) advocated that income often related to individual's financial resources, financial knowledge, which influenced customers' enthusiastic towards CVCCB in M-banking.



**Table 1:** Sample Respondents' Profile

Variable	Category	Frequency	Percent
Gender			
	Female	263	43.9
	Male	336	56.1
Age			
	18-26	103	17.2
	27-42	144	24
	43-58	163	27.2
	59 or above	189	31.6
Education Level			
	Below Bachelor	157	26.2
	Bachelor	198	33.1
	Master	118	19.7
	Doctoral	26	4.3
	Above Doctoral	100	16.7
Income Level (in RMB)			
	Below 3000	44	7.3
	3000-5000	216	36.1
	6000-10000	255	42.6
	Above 10000	84	14.0

**Source:** Own work

In Table 1 above, the summarized sampled participants' demographic profile revealed that most of participants were male (56.1%) while female only accounted for 43.9 percent. And most of the sampled participants' age were between 27 and 58 (51.2%). The education levels of most respondents in this study were at Bachelor degree (33.1%), which followed by participants with educational degrees below bachelor. As for the income levels, most sampled participants earned between 6,000 and 10,000 RMB (42.6%), followed by participants with salary between 3,000 and 5,000 RMB (36.1%).

## 5. Results & Discussion

### 5.1 Results

Normality test result showed that the respective skewness and kurtosis values ranged from 0.68 to -1.06 and -1.94 and 1.625, which were both in satisfactory ranges (Hair et al., 2019), indicating that collected data had normal distribution.

**Table 2:** Convergent Validity and Reliability Testing

Items	Design	Sociality	Practicity	Security	BEN	COM	INT	Cronbach's $\alpha$
Design_1	(.809)							.912
Design_2	(.799)							
Design_3	(.854)							
Sociality_1		(.792)						.844
Sociality_2		(.815)						
Practicity_1			(.854)					.916
Practicity_2			(.573)					
Practicity_3			(.859)					
Practicity_4			(.745)					
Practicity_5			(.860)					
Security_1				(.773)				.770
Security_2				(.578)				
Security_3				(.787)				
BEN_1					(.819)			.893
BEN_2					(.797)			
BEN_3					(.849)			
COM_1						(.671)		.875
COM_2						(.644)		
COM_3						(.726)		
COM_4						(.748)		
INT_1							(.607)	.899
INT_2							(.657)	
INT_3							(.797)	
INT_4							(.803)	
	ISR	RB	FEB	HEP	TOL			
ISR_1	(.691)							.848
ISR_3	(.815)							
ISR_4	(.815)							
RB_1		(.632)						.773
RB_2		(.601)						
RB_3		(.724)						
RB_4		(.820)						
FEB_1			(.686)					.777
FEB_2			(.697)					
FEB_3			(.805)					
HEP_1				(.713)				.802
HEP_2				(.543)				
HEP_3				(.780)				
HEP_4				(.777)				
TOL_1					(.776)			.864
TOL_2					(.720)			
TOL_3					(.780)			

Note: BEN – Benevolence; COM – Competency; INT – Integrity; ISR - Information sharing; RB –Responsible behavior; FEB – Feedback; HEP – Helping; TOL – Tolerance

**Source:** Own work

In Table 2, the convergent validity test result was summarized after assessing scale items' factor loadings and eliminating items with loadings value lower than threshold level, where two dimensions in CVCCB, namely information seeking dimension and advocacy dimension were removed. In total, twelve scale dimension were remained for further statistical testing. The reliability test using Cronbach's alpha coefficients also showed that all results were above acceptable level of 0.6 (Henseler et al., 2015), thus the measurement scale's reliability were also confirmed.

**Table 3:** Discriminant Validity Testing

	CR	AVE	CPT	HV	UV	CVCCB
CPT	.783	.548	.740			
HV	.591	.420	.822	.648		
UV	.744	.594	.741	.700	.771	
CVCCB	.819	.475	.722	.926	.597	.689

Note: CVCCB – Customer's value co-creation behavior; HV – Hedonic value; UV – Utilitarian value; CPT – Customer perceived trust

**Source:** Own work

Table 3 shows the result of the calculation of composite reliability and AVE values, which were all above the respective threshold levels (see Table 3), and the discriminant validity test result indicated minor concern when comparing the square root of latent variables' calculated average variance with latent variables' correlations.

**Table 4:** HTMT Ratio

	CVCCB	CPT	UV	HV
CVCCB				
CPT	.744			
UV	.606	.553		
HV	.945	.863	.848	

Note: CVCCB – Customer's value co-creation behavior; HV – Hedonic value; UV – Utilitarian value; CPT – Customer perceived trust

**Source:** Own work

In Table 4, the heterotrait-monotrait (HTMT) test result was summarized to confirm the discriminant validity concerned shown in Table 3. Based on the calculated HTMT ratios between all dimensions, which were all below the threshold level of 0.90 (Henseler et al., 2015), it indicated that all scale's discriminant validity were satisfactory (see Table 4). Additionally, the multicollinearity test in this study was performed by assessing the variance inflation factor (VIF) values for all independent factors including hedonic value (1.662), utilitarian value (1.583), and CPT (1.726), which were all below minimum threshold value of 3.3 (Petter et al., 2007), signifying that the proposed research model did not show the multicollinearity concern. Moreover, the common method bias (CMB) test was performed using Harman's one-factor approach and because the largest loading of a single factor was 32.4 percent (less than 50%) meaning that CMB issue did not present in this research.

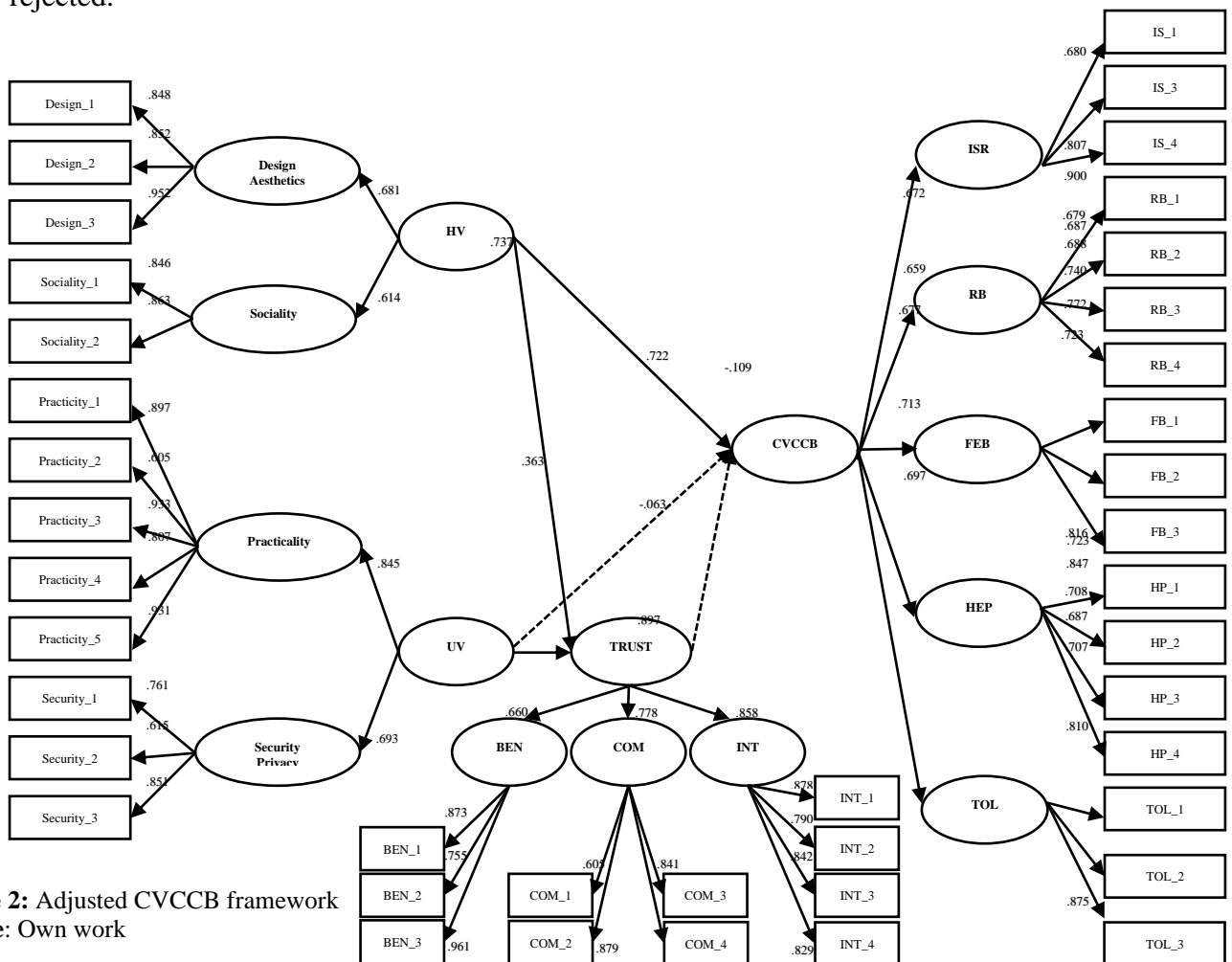
**Table 5:** Regression Weight Estimate

			Estimate	S.E.	C.R.	P
CPT	<---	UV	.363	.108	3.35	***
CPT	<---	HV	.737	.145	5.09	***
CVCCB	<---	UV	-.063	.070	-.897	.370
CVCCB	<---	HV	.722	.196	3.68	***
CVCCB	<---	CPT	-.109	.119	-.913	.361
CVCCB	<---	GENDER	.144	.044	3.28	.001
CVCCB	<---	AGE	-.060	.020	-2.95	.003
CVCCB	<---	EDUCATION_LEVEL	-.002	.016	-.114	.909
CVCCB	<---	INCOME_LEVEL	.165	.029	5.714	***

Note: Model fit indices:  $\chi^2 = 1590.913$  ( $P < 0.00$ ),  $df = 947$ ,  $\chi^2/df = 1.680$ , CFI = .961, GFI = .900, NFI = .910, TLI = .958, RMSEA = .034, \*\*\* = .001 significance level, CVCCB – Customer’s value co-creation behavior; HV – Hedonic value; UV – Utilitarian value; CPT – Customer perceived trust

Source: Own work

In Table 5, the SEM test results showed that the fit indices values of the modified proposed CVCCB framework (see Figure 2) such as chi-square to degrees of freedom ratio, goodness-of-fit Index (GFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA) were all at the ideal levels indicating that research model had satisfactory model fit (Kline, 2011). Results from Table 5 also revealed that four indicator factors had significant impacts on dependent variables, while utilitarian value, CPT and education factors did not show significant effects on CVCCB. Therefore, Hypothesis 1 was supported, but Hypothesis 2 was rejected.



**Figure 2:** Adjusted CVCCB framework  
Source: Own work

Note: HV – hedonic value; UV – utilitarian value; BEN – benevolence; COM – competence; INT - integrity; ISR - Information sharing; RB –Responsible behavior; FEB – Feedback; HEP – Helping; TOL – Tolerance; Dashed line – insignificant

In Figure 2, it can be observed that all scale items were convergent on their respective dimensions at satisfactory levels. Also, while both hedonic value and utilitarian value had positive effects on CPT, the impact of hedonic value on CPT was much stronger ( $\beta = .737$ ) when compared to that of utilitarian value ( $\beta = .363$ ). Also, Figure 2 indicated that neither utilitarian value or CPT exert significant positive impacts on CVCCB ( $\beta = -.063$ ,  $\beta = -.109$ )

**Table 6:** Mediating Effect of CPT

Relationship	Estimate	Bootstrapping		2 Tailed Significance
		Bias-Corrected 95% CI		
		LB	UB	
<b>Direct Effects</b>				
UV-CPT	.363	.093	.560	.017
HV-CPT	.737	.497	1.09	.002
UV- CVCCB	-.063	-.30	.111	.541
HV- CVCCB	.722	.396	1.43	.002
<b>Indirect Effects</b>				
UV- CVCCB	-.040	-.162	.023	.188
HV- CVCCB	-.080	-.534	.045	.284

Note: CVCCB – Customer’s value co-creation behavior; HV – Hedonic value; UV – Utilitarian value; CPT – Customer perceived trust

**Source:** Own work

The bootstrapping test results in Table 6 revealed that the HV’s direct effects on CVCCB was significant ( $p=0.002$ ) and its indirect effects was insignificant ( $p=0.284$ ), while both UV’s direct or indirect effects on CVCCB were insignificant ( $p=0.541$ ,  $0.188$  respectively), meaning that CPT did not impose mediation effect on the path relationship between HV and CVCCB. Thus, Hypothesis 3 and Hypothesis 4 was both rejected.

**Table 7:** Summary of Hierarchical Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error of Estimate	Change Statistics		
					R Square Change	F Change	Sig. F Change
<b>1</b>	.557a	.310	.309	.651	.310	268.4	.000
<b>2</b>	.601b	.361	.359	.627	.051	47.69	.000

a. Predictors: (Constant), CPT\_CC

b. Predictors: (Constant), CPT\_CC, CPT\_CC\*GEN\_CC

Note: CC – centralized value; CPT – customer perceived trust; GEN – generation

**Source:** Own work

The hierarchical regression test results from Table 7 showed that models including and excluding the centralized interactions factor (CPT\_CC\*GEN\_CC) were both statistically significant ( $p=.000$ ) with the interactions factor contributed to 5.1 percent of the introduced R square change, which confirmed generational difference’s moderating effect. Moreover, after including the interactions factor, the correlation coefficient’s value also increased to 0.601. Therefore, Hypothesis 5 was supported.



## 5.2 Discussion

Findings of this research concluded that customers' perceived HV in MBSQ had significant direct effect on CVCCB while UV did not, which was in line with the results from previous researches (Chagas & Aguiar, 2020) suggesting that hedonic aspect of service acted as a significant antecedent factor of CVCCB, while utilitarian aspect of service did not show significant impact in encouraging CVCCB. As concluded by Chagas and Aguiar (2020) that, as utilitarian values such as speed and expediency are expected as a standard offering in M-banking industry, they may not significantly distinguish service from competitive offering or motivate consumers' behaviors that require emotional and relational investment including enjoyment and socialization, which are more aligned more with intrinsic inspirations beyond utilitarian needs. This study, however, was unable to establish positive associations between customers' perceived trust and CVCCB, which was not incongruent with similar early research conducted by Nadeem et al. (2020). This outcome may be attributed to the relatively high proportion of Generation X respondents in our sample, who may lack awareness or enthusiasm regarding participation in CVCCB activities, such as sharing information, providing assistance, and offering feedback within M-banking services. Consequently, this demographic composition may have mitigated the significant impact of trust on CVCCB, particularly in light of the observed negative relationship between age and CVCCB identified in this study.

Moreover, results from this study did not offer evidence to conclude that CPT had mediation effect on the relationship between either utilitarian or hedonic aspects of MBSQ and CVCCB under Chinese M-banking context as suggested in the study results from other researches (Albayrak et al., 2020). These findings may be caused by several factors such as the dominant direct effect between hedonic value and CVCCB was strong enough that customers might directly engage in CVCCB activities due to the enjoyment they experience without relying on trust as a mediator. This phenomenon can be explained by hedonic motivation theory, which suggests that customers who derive enjoyment from a service may engage in behaviors directly without necessitating added cognitive or emotional factors such as trust (Alalwan et al., 2015). Or it is also possible that for certain contexts such as M-banking in a technologically advanced country like China, customers might perceive these services as inherently reliable due to well-established systems and regulations, which makes trust less influential as a mediator. In addition, the weak relationship between trust and CVCCB found in this study also indicated that even if customers trust service, they may not actively participate in CVCCB unless inspired by other factors. Similarly, based on the aforementioned factors, other studies also claimed that trust did not necessarily mediate on path relationship between UV and CVCCB (Toqeer et al., 2021). In addition, findings from this research offered empirical support for the moderating role generational difference played in the relationship between CPT and CVCCB, which was in accord with related early researches suggesting that customers from different generations groups often displayed dissimilar CVCCB under various service contexts (Moise et al., 2020).

## 6. Conclusion

This study contributes to the body of knowledge on CVCCB by filling several paucity remaining in existing literature. Theoretically, it provides additional pragmatic support for validating both direct and indirect influences from four identified antecedent factors on CVCCB in a proposed holistic conceptual model. It also endorsed the application of SOR theory in elucidating the mediation roles that CPT served in the relationship between various aspects of MBSQ and CVCCB under M-banking context, which has not reached a consensus in prevailing literature. In addition, this research also confirmed the use of generational theory to rationalize CVCCB variances among different generation groups under Chinese M-banking

setting. Based on the aforementioned theoretical contribution of this study and its findings, this research also contributes practical values to decision makers for enhancing managerial and economic performances.

Firstly, owing to utilitarian values' insignificant impact on CVCCB, banks' management must apprehend that functional or utilitarian features (such as practicality) in M-banking service now have become the starting point of customer expectations in the ever-changing digital era, and cannot effectively motive engaging experience and behaviors. Given the widespread adoption of digital payment services in the highly competitive Chinese market, where Fintech companies consistently innovate and push traditional banks to meet comparable service standards, seamless functionality alone is no longer a sufficient differentiator for mobile banking services. Chinese banks must now extend their offerings beyond basic utility functions to remain competitive.

Secondly, given the perceived hedonic value's positive influence on both CPT and CVCCB, Chinese bank management must pay close attention to the significance of hedonic values in MBSQ such as the design aspects (visuals, graphics, themes) that streamlines navigation and tasks, and the social aspects (online customer support, testimony, community) that lessens users' emotive anxiety and improves their well-being in using M-banking service.

Thirdly, given that generational differences showed significant influence on CVCCB, both bank management and government in China must take into consideration of the generation cohorts effects when encouraging CVCCB in M-banking service, as apart from physical and cognitive functions, customer's CVCCB differences can also be attributed to socio-emotional causes such as the hedonic value perceived in MBSQ and the interactive digital service's importance in support of day-to-day social relations in life. Thus, decision makers must consider adopting generational specific features such as user-friendly graphical designs and customized information to tailor specific needs of customers from each generation cohorts in an attempt to motivate CVCCB.

For instance, while M-banking service with streamlined navigation and large text fonts are suggested for senior customer groups, younger customers will prefer M-banking services with advanced features such as two-factor biometrics authentication, cloud-based service packed with more interactive features and solutions such as investment counselling service, peer-to-peer lending, crowd-funding and social media platforms, which would significantly enhance younger customers' CVCCB in M-banking.

## **7. Recommendation**

Based on the research findings outlined in this study, several theoretical and practical recommendations can be drawn to enrich the understanding and application of CVCCB in M-banking context. Theoretically, first, this study confirms the significant role of hedonic value in boosting CVCCB as was supported by previous research, which suggests that future studies should investigate deeper into the specific hedonic elements including enjoyment, socialization, and emotive connection that motivate CVCCB. Researchers could also explore how these elements interact with other factors, such as customer engagement or affective emotions to build more comprehensive CVCCB framework. Second, as utilitarian value was not found significantly affect CVCCB in this study, researchers need to focus on comprehending how UV complies with industry standards and customer anticipations. For example, researchers can discover circumstances where utilitarian aspects including swiftness or consistency are inadequate to differentiate a service from competition, which drives customer to demand intrinsic motivation in service.

Comparison researches across industries or geographical areas may shed light on whether this conclusion can be applied universally or differs contextually. Third, this research highlights the moderating role of generational differences in the relationship between CPT and CVCCB. Researches can investigate how customers from different generational groups vary in their motivations and engagement in CVCCB due to factors including technology adoption, digital literacy, and cultural expectations. Longitudinal studies may conclude how such dynamics evolve over time. Fourth, research findings in this study challenged the conjecture that CPT serves as a mediator between MBSQ and CVCCB. Researchers may further revisit such mediating role of CPT under other contextual conditions or explore alternative mediating factors including affective emotion or emotional bonding to better understand the drivers of CVCCB.

Practically, first, findings from this study suggest that Chinese M-banking service providers should emphasize features in service that augment customers' enjoyment and emotive engagement such as tailored interfaces, gamified experiences, or social sharing functions that foster senses of connection and fun. Such features are likely to inspire vigorous participation in CVCCB activities including information and feedback sharing or assistance among users. Second, as utilitarian value did not effectively differentiate M-banking services or encourage CVCCB, Chinese banks' management ought to understand that utilitarian value can only be treated as M-banking service's baseline expectations rather than strategic differentiators due to the distinctive dynamics of M-banking in technologically advanced nations such as China. Marketing efforts need to instead highlight hedonic values that foster intrinsic stimulus and emotive investment, or alternatively, Chinese banks can create unique customer experiences by incorporating AI-driven features, interactive customer assistance that enhance participation in CVCCB activities. Third, Chinese M-banking service providers need to recognize generational differences in their attempt to fostering CVCCB.

For example, younger generations including Millennial and Gen Z often respond more positively to social and gamified features, while older generations such as Gen X may require educational initiatives or more conventional communication approaches to enhance awareness and engagement. Thus, tailored engagement campaigns customized to generational preferences can assist maximizing CVCCB across various customer cohorts. Last, although trust is essential in proving a reliable service, it may be insufficient to lead to vigorous customer participation. Chinese banks' management need to integrating trust-building methods such as providing secure systems and transparent communication with other strategic measures that offer emotive and relational elements such as creating community network or offering value-added services that exceed functional reliability. By addressing aforementioned theoretical and practical considerations, stakeholders in the M-banking industry can better comprehend and develop the mechanisms that motivate customer involvement and drive CVCCB.

## **8. Limitations and Future Research**

### **8.1 Limitations**

Despite of the significant research findings, this study still has several limitations that are worthy of note. Firstly, the analysis results from this research were founded on a relatively small group of Chinese M-banking users engaged at the time of study meaning that the study findings may not be able to be applied to the entire target population. Secondly, using structured questionnaire as research instrument may introduce individual bias in collected survey responses. Thirdly, this study used first-order construct to conceptualize CVCCB, although it was originally developed by using higher-order construct dimensions such as customers' citizen and participation behaviors, which suggests for further validation in future researches. Fourthly, this research was based on one single cross-sectional study indicating that the

underlying correlations between variables necessitates validation by means of longitudinal researches because of the financial industry's dynamic environment and rapid technological development. Lastly, with the purpose of building more robust CVCCB models, researches may consider exploring and incorporating other CVCCB antecedents such as motivation and attitude to the proposed framework in this study.

## 8.2 Future Research

Thus, to overcome above noted limitations, several avenues for future research can be considered, first, future studies should aim to involve a larger and more diverse sample of M-banking users from different demographics or regions so as to provide more comprehensive insights and improve the generalizability of research findings across the broader target population. Second, to address the potential for inherent individual bias of using structured questionnaires, future studies can integrate qualitative approaches including interviews or focus groups to offer more nuanced understanding of customer behavior. Third, future studies may refine CVCCB conceptualization with higher-order dimensional construct by differentiating customers' citizenship and participation behaviors. This approach may validate and expand the CVCCB framework by aligning it more closely with its theoretic underpinnings and apprehending the complexity of CVCCB. Fourth, longitudinal researches are suggested to corroborate the relationships between variables in this study. Considering the dynamic nature of the financial industry and the rapid pace of technological progress, longitudinal studies will offer profounder insights into how these relationships evolve over time and under varying market environments. Lastly, future studies may consider exploring additional CVCCB antecedents to build more robust and comprehensive models. Including more antecedent factors may uncover new dimensions of customer behavior and benefit the development of more effective tactics for fostering CVCCB in M-banking contexts.

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