

DECISION SCIENCES INSTITUTE
CONSUMER SELF-CONFIDENCE WITH MOBILE COMMERCE

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ABSTRACT

IS researchers and practitioners want to improve consumer acceptance of mobile commerce (MC) as MC can potentially enable new business models and provide tremendous power to marketers with its much broader reach. While consumers' individual differences have been frequently cited as important constructs in marketing much of the IS research has mainly focused on examining the technological aspects of MC systems. Recognizing the need to improve existing IS measures for individual differences in consumer acceptance of MC, this study adapts Consumer Self-Confidence (CSC) from marketing. Results demonstrate the validities of the measures and the role of CSC as a moderator.

KEYWORDS: Consumer self-confidence, Mobile commerce, Acceptance model, MGSEM

INTRODUCTION

Mobile commerce (MC), the use of mobile communication technologies between transacting partners for service initiation, agreement, or fulfillment from any location, has already taken off (Pousttchi et al., 2015). MC is the fastest growing form of electronic commerce (eMarketer, 2013) and it will make up 45 percent of total electronic commerce (i.e., \$284 billion) in sales by 2020 (BI Intelligence, 2016). We can easily find its emerging relevance to our daily life. MC provides a broad range of services including buying a coffee at a café by scanning a mobile wallet, downloading digital music to a smartphone wirelessly, depositing checks into mobile bank accounts, and paying bills on mobile trading portals.

Due to the natures of mobile devices, wireless technologies, and location-based applications, MC can provide consumers many benefits, such as efficiency, spontaneousness, and ease of use (Anckar & D’Incau, 2002). From a marketer’s perspective, MC can potentially enable a new business model because mobile devices can capture what consumers do in every second and also can control in very sophisticated way which marketing messages consumers are exposed

to. MC also provides tremendous power to marketers because mobile devices have a much broader reach in terms of possible customers.

Consequently, using MC systems such as B2C applications and services is mutually beneficial to both consumers and marketers. However, actual acceptance of MC systems from consumers' side has not been satisfactory, especially considering how much efforts had been put to implement MC systems from the marketers' perspective. According to a Shop.org study, majority (i.e., 56%) of online retailers reported that mobile apps would not play a major part in their mobile strategy due to the low acceptance rate of their mobile apps (Forrester Research, 2015). It is not only difficult to motivate consumers to download marketers' apps but also problematical to ensure that consumers continue using apps until they fully adopt because consumers aren't shy about deleting apps they don't use regularly.

The gap between the marketers' efforts in implementing MC systems and the consumers' actual acceptance of MC systems implies there is a great need for us to research why many consumers have demonstrated reluctant behaviors in acceptance of MC systems while focusing more on consumers' individual dispositional differences. It is because explaining human behavior could not be completed without explanation of individual dispositional differences such as consumer self-confidence (Ajzen, 1988). However, much of the extant IS research regarding consumer acceptance of MC has mainly focused on examining the technological aspects of MC system that potentially enable and inhibit the utilization of MC systems. According to an extensive review of the MC literature (a total of 1,613 papers from 2002 through 2013), the vast majority of empirical research cover customer acceptance issues while focusing on technical aspects (e.g., perceived usefulness) of specific B2C applications.

Recognizing the need to improve existing IS measures for individual differences in consumer acceptance of MC, this study adapts the consumer self-confidence (CSC) measure by Bearden et al. (2001) from marketing. CSC, which reflects subjective evaluations of one's ability to generate positive experiences as a consumer in the marketplace (Adelman, 1987), could be critical in consumers' acceptance of MC because consumer self-confidence is key to understand consumer behaviors on mobile marketplace where emerging technologies are altering traditional consumer behavior frameworks. For example, under the traditional consumer behavior frameworks, consumers with high self-confidence could show less external information search activities because consumers with high self-confidence are thought to be more confident of their own judgments and consequently less influenced by external information (Wood and Stagner, 1994). Under MC, however, consumers, who constantly access external information from their mobile devices, might show different information search activities to solve immediate buying problems.

The objective of this article is twofold. First, we look to the marketing field where extensive research has focused on individual differences and consumer behaviors. A measurement of CSC is adapted to the MC context along with refinement and validation of scales to measure the various dimensions that underlie consumer self-confidence in MC context. Second, we offer a description of a technology acceptance model as a nomological network in which CSC is embedded. We attempt to understand the role of CSC on the nomological network.

The remainder of the paper is organized as follows: first, in the literature review section, we discuss CSC concept in consumer behaviors and CSC related constructs with CSC measures development. Then, in the methodology section, our research model are presented followed by

discussions of sample data descriptions. In the analyses and results section, a series of analyses are presented to demonstrate the reliability and validities of the measures and then to test the role of CSC as a moderator, which moderate relationships among other important factors in the nomological network of consumer acceptance of MC. Concluding remarks are made in the final section.

LITERATURE REVIEW

Understanding consumer behavior is critical to marketers. Many factors, including demographics and prior product class experience, have been studied in an attempt to understand consumer behaviors. Among the factors, consumer self-confidence has been considered a crucial element to understanding consumer behaviors (Bearden et al, 2001).

The advantages of using MC systems to consumers are well known including efficiency, convenience, broader selections, competitive pricing, rich information, and diversity (Wu and Wang, 2004). However, due to the natures of MC, consumers are also faced with new challenges at the same time, which range extend from personalized location-based marketing messages to targeted threats of mobile devices' security breach. The former could cause severity of information overload and interruptions of decision making to consumers. The latter could lead identity theft and severe financial losses. MC is changing the way consumers gather, process, and interact with information. Consequently, consumers often feel less-confident with their decisions and behaviors on mobile marketplace.

Thus, we look to marketing literature if CSC has been used to improve our understanding why consumers with high-confidence behave different in MC context than consumers with low-confidence. CSC in the consumer behavior research has been used as a distinguishing characteristic of market-segment profiles (Darden and Ashton, 1974). Marketing managers, who would like to utilize these incredible expansion opportunities and need to know how to keep a diffident and picky customer with substantial discretion (it is generally much easier for mobile consumers to find alternatives on their mobile devices than for regular customers to go to the next stores physically in traditional marketplace) in their mobile marketplace, want to know how consumer self-confidences are different among consumers on mobile marketplace

Consumer Self-Confidence

Researchers have defined CSC 1) as the extent to which an individual feels capable and assured with respect to his or her marketplace decisions and behaviors, and 2) as a relatively stable self-appraisal that is assumed to be readily accessible to the individual because of the pervasiveness of consumer activity in everyday life (Bearden et al, 2001).

Although there are slight disagreements among the definitions, consumer behavior studies seem to agree upon that CSC is a trait as an individual difference, but it is derived from more basic traits. Basic traits and CSC are different since a trait is seen more from other person's viewpoint (e.g., psychologist's observation) while CSC are formulated from an internal standpoint. Each trait should be conceptualized as a facet of a person. So, it is difficult to see as a combined system. In the other hand, CSC is viewed as a multifaceted disposition (Adelman, 1987). Moreover, while basic traits (e.g., self-esteem, perceived control, and dominance) are more global and central dispositions, which are enduring across-situational individual differences, CSC is considered as a secondary disposition that is more closely related

to consumer phenomena. In other words, CSC represents product- or situation-specific confidence (Bearden et al, 2001).

Bearden et al (2001) argued that CSC results not only from more basic traits but also from the collection of the individual's prior marketplace experiences. They called this type of CSC (from the collection of the individual's prior marketplace experiences) as general CSC. General CSC could differentiate individuals within product-decision categories and purchase experiences. Consequently, general CSC could predict individual tendencies across product- or situation-specific conditions. And, even in instances where the level of product- or situation-specific confidence may be low for most consumers, general consumer self-confidence will still vary across individuals.

Gerbing, Hamilton, and Freeman (1994) also conceptualized CSC as a multidimensional concept consisting initially of two higher-order factors. The two higher-order factors are CSC (1) to make effective decisions; and (2) to protect himself or herself from marketing tactics. These two higher-order factors are also consistent with the most frequently studied roles of consumer self-confidence in the consumer behavior and marketing literature. For example, Park et al. (1994) and Wright (1975) propose that CSC operates as an antecedent to marketplace choices and subjective knowledge perceptions. Likewise, Luce (1994) and others relate self-confidence to the individual's ability to protect himself or herself from harm under emotional strain and to resist persuasive attempts emanating from others in the marketplace.

Constructs Related to Consumer Self-Confidence

Computer Self-Efficacy: From the IS perspective, using mobile devices to buy a product or service by itself is an effort involving operating mobile technology. So the mobile consumer's computer self-efficacy might be an important factor. The construct self-efficacy from the psychology literature in general, and computer self-efficacy (Compeau and Higgins, 1995) in particular may explain the mobile consumer's intention and behavior. Generally, self-efficacy is assumed to represent the evaluative component of one's self-evaluation of one's abilities and performance in the marketplace. In general, high self-efficacy should enhance consumer self-confidence, and thus self-efficacy scales should have a modest, positive relationship with measures of consumer self-confidence.

The construct computer self-efficacy (CSE) denotes people's overall judgment of their abilities of operating computers for different tasks (Compeau and Higgins, 1995; Marakas et al, 1998). CSE has been examined as an antecedent for dependent variables such as computer performance and outcome expectation. Some factors that affect CSE include task complexity, personal innovativeness in IT, computer anxiety, and prior experience. CSE has been investigated for its effect on computer training and education (Gallivan et al, 2005). CSE is also studied as a factor in an integrated theoretical model to forecast whether users will continue using World Wide Web (Hsu et al, 2004). In the context of online electronic service, Internet self-efficacy has been examined for its impact on user acceptance (Hsu and Chiu, 2004a). Integrated with a decomposed theory of planned behavior, another study evaluates the role of CSE for predicting users' continued usage of electronic service (Hsu and Chiu, 2004b).

E-Commerce consumers have two roles of both shoppers and information technology users (Cho and Park, 2001). Therefore, we argue that computer self-efficacy affects mobile consumers' online purchase intention and behavior. In the E-Commerce context, previous

research found constructs similar to Internet self-efficacy play important roles. For example, general web apprehensiveness is negatively correlated with the amount of time spent online (Susskind, 2004). Moreover, comfort level with the web has a positive correlation with Internet shopping tendency (Mauldin and Arunachalam, 2002).

One factor closely related to the Internet self-efficacy construct is users' web experiences. Internet users' web experiences affect their trust in E-Commerce (Corbitt et al., 2003). Compared to the traditional shopping experience at physical stores, online shopping experience is more complex (Constantinides, 2004). Online shopping process involves various tasks such as browsing, searching, selecting, comparing and evaluating information (Constantinides, 2004). Thus, mobile consumers with different levels of technology experiences may exhibit different patterns of behavior.

Perceived Risks: In the recent years, as the Mobile Technology becomes easier to use and broadband Internet is more readily accessible, many individuals and businesses move their transactions on mobile devices. The past decade witnessed the tremendous development of Internet and mobile technology, the steady growth of e-commerce and mobile-commerce adoption, and the creation of various innovative business models exploiting the potentials of this technology advancement. Online consumer behavior and e-commerce adoption became important research topics. Technology acceptance model (Davis, 1989) has been applied to the E-Commerce context.

To predict the intention to purchase physical item online, the perceived benefits and perceived risks were found to be significant factors (Cha, 2011). In a study examining the antecedents of the amount spent online, both the consumers experience with online shopping and the comfort level of providing personal information online (privacy concern) were found significant (Spake et al., 2011). However, surprisingly privacy concerns were not significant in predicting online spending (Spake et al., 2011). In another study investigating expert household end users' online behavior, the privacy-active behavior was found not significant in increasing the likelihood of online purchase or subscription (Drennan et al., 2006). However, perceived online risk did have a significantly negative impact (Drennan et al., 2006). In another empirical study, in addition to perceived risk, computer self-efficacy and personal innovativeness were found as significant predictors for the intention to shopping online (Boyle and Ruppel, 2004).

Consumer Knowledge: Alba and Hutchinson (1987) define consumer knowledge as having two major components: familiarity and expertise. Familiarity, in this case, is the number of product-related experiences that have been accumulated by the consumer. Expertise is defined as the ability to perform product-related tasks successfully. They also identify five dimensions of expertise: (1) automaticity that reduces the cognitive effort; (2) the cognitive structure categorization, used to differentiate products, becomes richer, more complete, and more accurate; (3) the ability to analyze information by separating the important and relevant from unimportant and irrelevant; (4) the ability to elaborate and make accurate inferences from limited information; (5) the ability to remember product information (memory).

Consumer expertise represents the individual's ability to perform product-related tasks successfully (Wood and Stagner, 1994). Product expertise includes both the cognitive structure and the processes required to effectively use product information and beliefs stored in memory. As such, expertise, which typically increases as product-related experiences accumulate, reflects product-specific issues (Wood and Stagner, 1994).

Consumer Self-Confidence Measure Development

Researchers have been developed and validated measures to assess consumer self-confidence. Preeminent in this stream of research is the work in marketing of Bearden et al (2001). While empirically establishing a measure of consumer self-confidence, Bearden et al (2001) found that the two-factor higher-order model and the six-factor correlated model provided the best fit to the data when compared with the other models investigated. The two higher-order constructs are Decision-Making Self-Confidence and Protection. The six-dimensions are:

- Information Acquisition (IA): consumer confidence in his or her ability to obtain needed marketplace information
- Consideration-Set Formation (CSF): consumer confidence in one's ability to identify acceptable choice alternatives, including products, brands, and shopping venues.
- Personal Outcomes (PO): consumer confidence in one's ability to meet purchase objectives such that choices are personally satisfying
- Social Outcomes (SO): consumer confidence in one's ability to meet purchase objectives such that choices generate positive outcomes in the form of the reactions of others
- Persuasion Knowledge (PK): consumer confidence in his or her knowledge regarding the tactics used by marketers in efforts to persuade consumers
- Marketplace Interfaces (MI): consumer confidence in the ability to stand up for one's rights and to express one's opinion when dealing with others in the marketplace

Bearden et al (2001) initially identified seven conceptual dimensions (six dimensions above + Information Processing dimension) but Information Processing factor and its items cross-loaded with the IA items and CSF items. The model was revised and then resulted in six factors. The final set of confidence items is depicted in Appendix A along with their dimension labels and factor loadings from Bearden et al (2001)'s Study 3.

METHODOLOGY

The research model is shown in Figure 1. The phenomenon of interest that we intend to investigate is the role of CSC in consumer acceptance of MC system. Instead of developing a new model, we adapted a pre-validated model from Smith et al. (2014) paper. Smith et al. (2014) developed a RFID adoption model based on Regulatory Focus Theory (RFT) by Higgins (1997). RFT centers on two self-regulation mechanisms toward a desired end state, namely promotion and prevention focus. Promotion focus is centered on the premise that individuals possess an orientation where the end goal is attained through positive mechanisms. In contrast, prevention focus centers on the need to minimize the potential negatives associated with a decision. In the conceptualization of their model, Smith et al. (2014) plugged perceived usefulness and perceived ease of use from the technology acceptance literature into a promotion focus as the variables, which are presented in a positive fashion while adopting trust and privacy concern constructs from IS research, which are associated with potential negatives, and in turns represent the prevention focus.

The research model proposes that individual attitudes toward the technology and subsequent behavioral intentions to accept MC systems can originate from a motivation toward finding more effective and/or efficient ways to move through business processes. Namely, the promotion focused path will lead individuals to pursue positive aspects such as efficiency, convenience,

and broader selections. Perceived usefulness and perceived ease of use are two salient technological characteristics which are conceptualized as consumers' evaluations and as the main antecedents to consumers' attitude toward MC systems. Perceived usefulness and attitude, in turn, can contribute towards IS acceptance outcomes such as behavioral intentions.

Prevention focused path will follow a similar logic with the promotion focused path while it is expected to be governed by the personal safety and security concerns. The research model posits that the attitude toward MC systems will be significantly impacted by both the concern for privacy and the trust that an organization will act in a responsible manner regarding the utilization of the capabilities of the MC system. We also believe that the effect of trust on attitude will be mediated by privacy concern in that the higher the trust component, the lower the concern. Thus, we offer the following hypotheses collectively, which address our two paths (promotion-seeking and prevention-seeking) research model.

- H1: Perceived ease of use will positively affect perceived usefulness of MC systems
- H2: Perceived ease of use will positively affect attitude toward MC systems
- H3: Perceived usefulness will positively affect attitude toward MC systems
- H4: Organizational trust will negatively affect concerns for privacy in using MC systems
- H5: Organizational trust will positively affect attitude toward MC systems
- H6: Concerns for privacy will negatively affect attitude toward MC systems
- H7: Perceived usefulness will positively affect intentions to use MC systems
- H8: Attitude toward MC systems will positively affect intentions to use MC systems
- H9: Privacy concerns will negatively affect intentions to use MC systems

The general research model depicted in Figure 1 also argues that the moderating roles of CSC on the relationship between perceived technological characteristics and the consumer's attitude, as well as on the relationships between the consumer's attitude and the MC acceptance outcomes. Thus, CSC moderate all of the paths in our research model. In Figure 1, the moderating roles of CSC are depicted as dotted lines. Collectively, we offer the following hypotheses.

- H10: CSC will moderate the relationships posited in Figure 1, thereby suggesting that the positive relationships among technological characteristics, mediating evaluation variables, and acceptance outcomes will be different between the low in CSC group and the high in CSC group

This research employs survey methodology. The survey that this research uses is shown in Appendix B. In terms of measures, we adapted scales on CSC (Bearden et al. 2001), perceived usefulness and ease of use (Davis 1989), attitude toward the technology (Taylor and Todd 1995), organizational trust (Malhotra et al. 2004), and privacy concerns (Lwin et al. 2007). We used the procedures recommended by Ajzen and Fishbein (1980) and Ajzen (1991) to generate a scale to assess the intentions to use MC systems.

The data were collected using a standard survey administration technique (Dillman 1978) while incorporating practices that have been noted as being beneficial to increasing the effective response rate. The decision to collect the data through a web-based survey was taken after an extensive discussion with a panel of experienced mobile consumers. A web survey was

administered to 1000 potential respondents via an email link with 246 being returned (24.6% response rate). Characteristics of the subjects are reported in Table 1.

Figure 1. Research Model

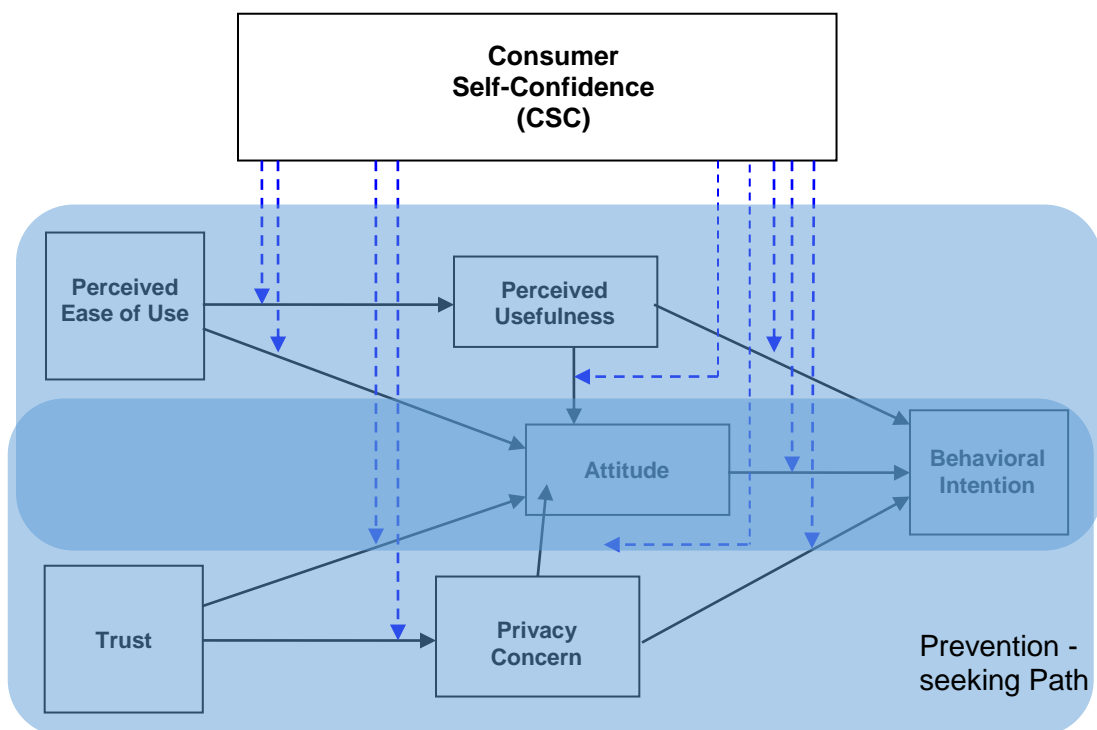


Table 1. Respondent Profiles

Metric	Number	Percentage
Gender		
Male	117	47.6%
Female	129	52.4%
Education		
No High School Diploma	4	1.6%
High School Diploma	113	45.9%
Associate's Degree	14	5.7%
Bachelor's Degree	82	33.3%
Master's Degree	7	2.8%
Professional or Doctorate Degree	25	10.2%
Not Answer	1	0.4%
Age (years)	36.7	
Work Experience (years)	12.9	
Mobile Device Usage (hour / week)	27.4	
Mobile Device Usage frequency (time(s) / week)	8.6	

ANALYSES AND RESULTS

As all constructs were modified from existing scales, the psychometric properties were analyzed through two confirmatory factor analyses (CFA) followed by the estimation of the associated structural model (Anderson and Gerbing 1988). The first CFA was performed to analyze CSC as a second-order construct. Six first-order constructs are introduced for CSC: information acquisition (IA), consideration-set formation (CSF), personal outcomes (PO), social outcomes (SO), persuasion knowledge (PK), and marketplace interfaces (MI). Among the CSC items adapted from Bearden et al. (2001), reverse coding is performed for PO and MI items because they are asked negatively. As we perform the second order CFA, the composite scores of CSC constructs are calculated (see Table 2). The results from the Second Order CFA indicate that the model fits well as observed by the fit indices, $\chi^2 = 521.78$ (d.f. = 246), Tucker-Lewis index (TLI) = 0.93, Comparative Fit index (CFI) = 0.92, Root Mean Square Error of Approximation (RMSEA) = 0.07, Standardized Root Mean Square Residual (SRMR) = 0.08.

Evidence of discriminant validity was also provided from the composite scores of CSC constructs and computer self-efficacy (CSE) (Fornell and Larcker 1981). Evidence of discriminant validity occurs when AVE in the Table 2 exceed the square of the correlation between the six factors of CSC and CSE making up each pair except correlation between IA and CSE.

Table 2. Construct Reliability of Consumer Self-Confidence

	IA	CSF	PO	SO	PK	MI	MCSE	Composite Reliability
IA	0.73	0.62	0.16	0.29	0.44	0.02	0.39	0.92
CSF	0.79	0.65	0.13	0.23	0.54	0.03	0.30	0.90
PO	0.40	0.36	0.55	0.01	0.08	0.19	0.02	0.83
SO	0.54	0.48	0.09	0.69	0.20	0.00	0.29	0.90
PK	0.66	0.73	0.29	0.45	0.66	0.02	0.29	0.89
MI	0.15	0.16	0.44	-0.04	0.13	0.58	0.01	0.80
CSE	0.63	0.54	0.16	0.54	0.54	-0.08	0.63	0.87

Note. Items in boldface on the diagonal are the average variance extracted (AVE) figures, the lower left triangle contains the construct correlations, and the upper right triangle contains the shared variance between constructs.

The second CFA was performed to assess the measurement model with all other constructs. The results from the CFA report that the data fit the model well as witnessed by the relevant statistics, $\chi^2 = 484.5$ (d.f. = 231), Tucker-Lewis index (TLI) = 0.94, Comparative Fit index (CFI) = 0.95, Root Mean Square Error of Approximation (RMSEA) = 0.07, Standardized Root Mean Square Residual (SRMR) = 0.05. Composite reliability (CR) measures for reliability (Fornell and Larcker, 1981). Minimum value of CR is 0.78. All of values exceed the recommended cutoff, 0.70 (Nunnally, 1978). Convergent validity is evaluated via the CFA results where the average variance extracted (AVE) is calculated and compared to the standard criteria of 0.5 (Fornell and Larcker, 1981). Minimum value of AVE is 0.57, thus convergent validity is assured. Note that two square of the correlations (i.e., ATT-INT and PRIVACY-RISK) exceed AVEs in the Table 3.

Table 3. Construct Reliability of Measurement Model

	PU	PES	ATT	INT	PRIVACY	RISK	TRUST	Composite Reliability
PU	0.79	0.45	0.56	0.49	0.06	0.01	0.09	0.92
PES	0.67	0.75	0.63	0.56	0.05	0.00	0.07	0.92
ATT	0.75	0.80	0.69	0.70	0.04	0.00	0.19	0.90
INT	0.70	0.75	0.84	0.87	0.01	0.00	0.11	0.95
PRIVACY	0.25	0.23	0.19	0.10	0.57	0.63	0.00	0.80
RISK	0.12	0.06	0.02	-0.03	0.79	0.66	0.00	0.88
TRUST	0.29	0.27	0.43	0.34	0.05	0.04	0.59	0.82

Note. Items in boldface on the diagonal are the average variance extracted (AVE) figures, the lower left triangle contains the construct correlations, and the upper right triangle contains the shared variance between constructs.

To evaluate structure equation model and model invariance, we perform a sequence of model comparisons and the results are shown in Table 4. In first step, we divided the sample into two groups based on the CSC and we performed Multi-Group CFA (MGCFA) with high and low self-confidence groups without constraints across two groups. Second, we constrain factor loadings to be equal across two groups. Third, item means are set invariant across two groups. Fourth, error variances are constrained to be invariant across two groups. Fifth, factor variances are constrained invariant across two groups. Finally, factor covariances are constrained to be equal across two groups. In each comparison, we test the differences in the fit between the two models using the change in chi-square. In each step, if we do not have invariance, we consider partial invariance until the two models fit equivalently. If we must meet full factorial invariance, or cannot find partial invariance, then the process stops.

Table 4. Multiple group CFA

	BS ¹	FL ²		FI ³	EV ⁴		FV ⁵		FC ⁶	
		Full	Partial		Full	Partial	Full	Partial	Full	Partial
χ^2 -statistic	839.04	870.37	860.64	884.22	1038.4	902.48	935.55	910.68	970.13	931.54
<i>d.f.</i>	462	479	478	495	519	509	516	513	534	528
RMSEA	0.08	0.08	0.08	0.08	0.09	0.08	0.08	0.08	0.08	0.08
CFI	0.91	0.91	0.91	0.91	0.88	0.91	0.90	0.91	0.90	0.91
TLI	0.90	0.90	0.90	0.90	0.87	0.90	0.90	0.90	0.90	0.90
SRMR	0.06	0.07	0.07	0.07	0.07	0.07	0.10	0.08	0.13	0.10
$\Delta\chi^2$ -statistic	-	31.33	21.61	23.57	154.19	18.26	33.07	8.20	59.46	20.87
$\Delta d.f.$	-	17	16	17	24	14	7	4	21	15
Critical value	-	27.59	26.3	27.59	36.42	23.68	14.07	9.49	32.67	25
: $\chi^2(0.95, \Delta d.f.)$	-	27.59	26.3	27.59	36.42	23.68	14.07	9.49	32.67	25
<i>p</i> -value ($\Delta\chi^2$)	-	0.02*	0.16	0.13	0.00*	0.20	0.00*	0.085	0.00*	0.14

* $p < 0.05$, 1 baseline model, 2 factor load invariant, 3 factor intercept invariant, 4 error variance invariant, 5 factor variance invariant, 6 factor covariance invariant

Once we decide the final model from the MGCFA, we test the conceptual model for the proposed relations using entire sample. The relevant fit indices are reported as $\chi^2 = 1082.43$ (d.f. = 533), Tucker-Lewis index (TLI) = 0.87, Comparative Fit index (CFI) = 0.87, Root Mean Square Error of Approximation (RMSEA) = 0.131. The results of the final model from the MGCFA are shown in Table 5 and demonstrate that every path, except two (PRIVACY-ATT and PRIVACY-INT), remains significant, which support H1~H9 except H6 and H9. The results would seem to indicate that promotion-seeking path is more salient than prevention-seeking path.

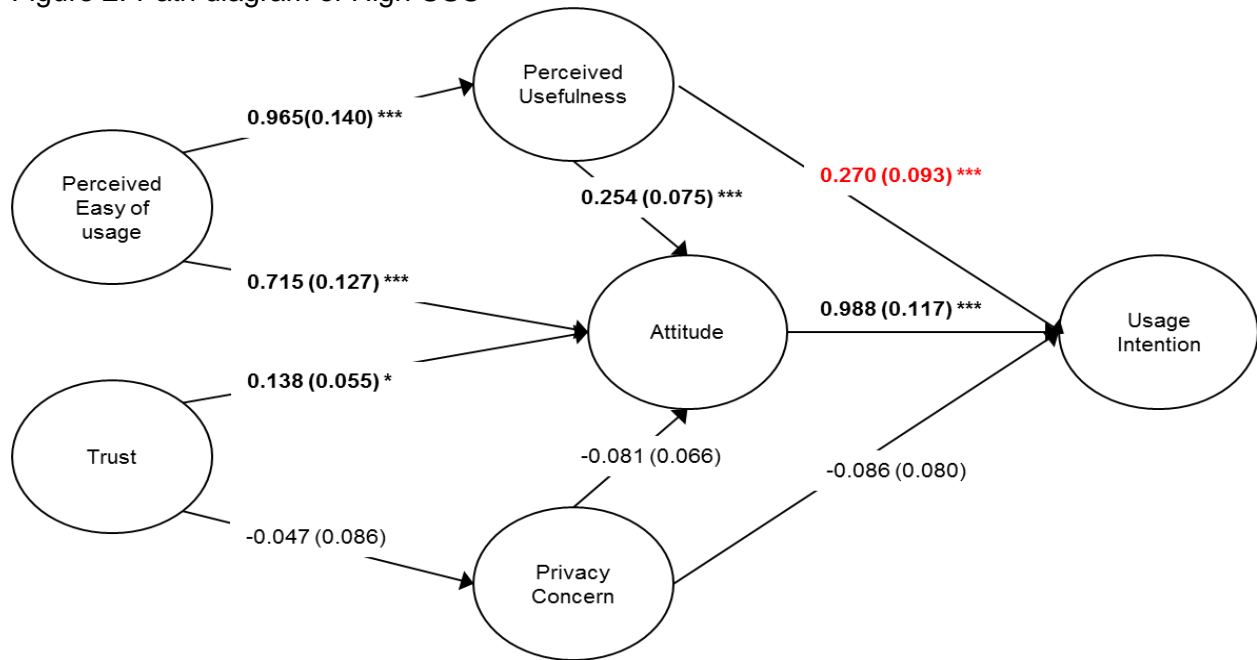
Table 5. Structural Model Modeling Results

Path	High CSC			Low CSC		
	β	S.E.	z	β	S.E.	z
INT ~PU	0.270	0.093	2.883	0.030	0.114	0.261
INT ~ATT	0.988	0.117	8.464	0.886	0.126	7.032
INT ~PRIVACY	-0.086	0.080	-1.074	-0.089	0.083	-1.069
ATT ~PU	0.254	0.075	3.379	0.393	0.081	4.870
ATT ~PRIVACY	-0.081	0.066	-1.214	0.017	0.070	0.240
ATT ~PES	0.715	0.127	5.625	0.461	0.090	5.134
ATT ~TRUST	0.138	0.055	2.487	0.236	0.074	3.186
PU ~PES	0.965	0.140	6.902	0.613	0.098	6.246
PRIVACY ~TRUST	-0.047	0.086	-0.547	0.208	0.109	1.912

Note. INT = Usage intension, PU = Perceived usefulness, ATT = Attitude, PRIVACY = Privacy concern, PES = Perceived easy of usage, TRUST = Trust

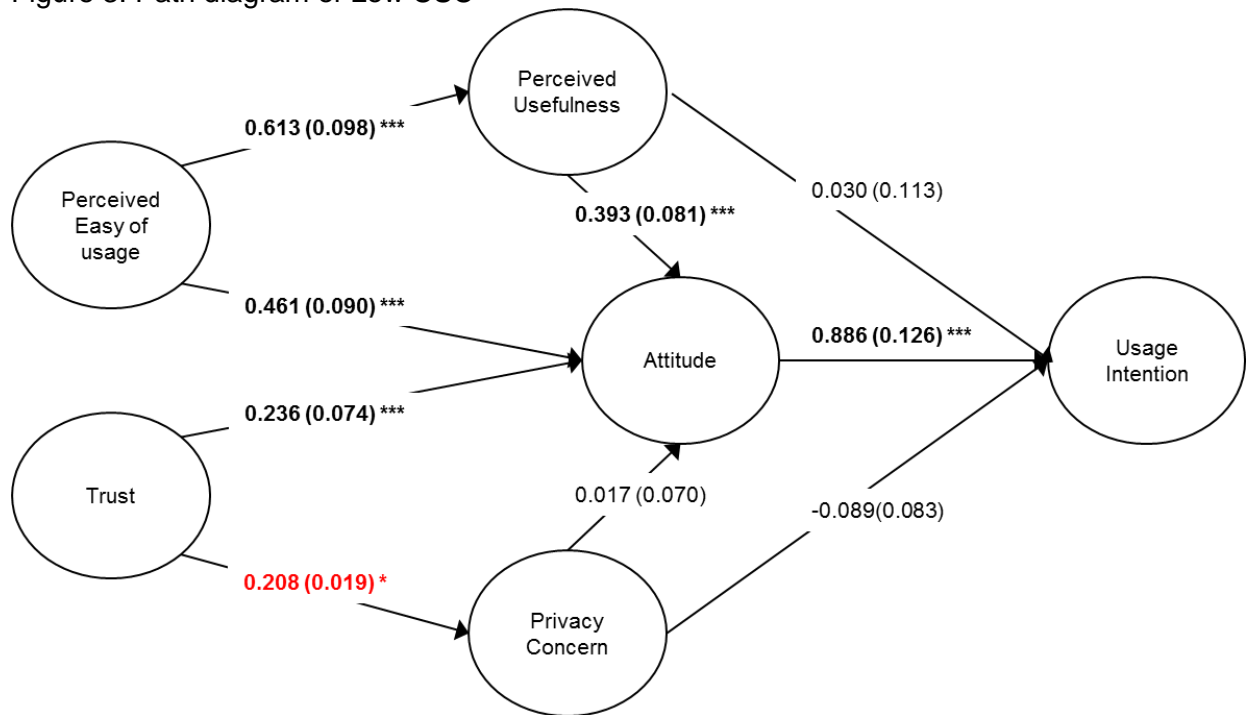
When comparing the two groups, it can be seen that consumers do, in fact, perceive and behave differently based on their CSC levels (see Figures 2 and 3) while partially support H10. It is suggested that consumers with high CSC show much stronger relationships among the variables in the promotion-seeking whereby they more clearly see the tangible benefits of the MC system. Especially, the PU-INT link became significant for the consumers with high CSC group. Additionally, the TRUST-PRIVACY link became significant for the consumers with low CSC group, which suggests the key variables (e.g., Trust and Privacy) in the prevention-seeking path would have a much bigger effect on behaviors of the consumers with low CSC.

Figure 2. Path diagram of High CSC



* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 3. Path diagram of Low CSC



* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

CONCLUSIONS AND DISCUSSION

Evidence regarding the dimensionality, reliability, and validity of the CSC measures was provided. The results suggest that the adapted CSC measures may provide more comprehensive information about consumers' individual differences than the traditional IS measures like computer self-efficacy in MC context. CSC may also be related in predictable ways to other mobile consumer-related phenomena, and these potential relationships offer additional suggestions for future research. For example, consumer self-confidence should be positively correlated with consumer knowledge.

It is also suggested that IS researchers and practitioners may need to focus more on managing the six dimensions of CSC while facilitating its moderating role between mobile consumers' perceptions about MC systems and consumer acceptance of MC. For example, the acceptance of a new MC system may not simply rely on its technological characteristics such as easy of use. Instead, it may largely depend on the system's capability of customization to attract consumers' attention and to motivate consumers sufficiently. When a new MC app is presented at a non-trustworthy app-store, low-CSC consumers may avoid trying the new app at all or they may be less motivated to download the app than high CSC consumers. For those low-CSC consumers, benefits and usefulness of the app may not matter unless they find out how safe it would be.

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APPENDIX 1

Factor item	Factor loading
Information Acquisition (IA):	
I know where to find the information I need prior to making a purchase	0.80
I know where to look to find the product information I need	0.82
I am confident in my ability to research important purchases	0.62
I know the right questions to ask when shopping	0.60
I have the skills required to obtain needed information before making important purchases	0.64
Consideration-Set Formation (CSF):	
I am confident in my ability to recognize a brand worth considering	0.85
I can tell which brands meet my expectations	0.64
I trust my own judgment when deciding which brands to consider	0.72
I know which stores to shop	0.55
I can focus easily on a few good brands when making a decision	0.60
Personal Outcomes Decision Making (PO):	
I often have doubts about the purchase decisions I make	0.81
I frequently agonize over what to buy	0.67
I often wonder if I've made the right purchase selection	0.73
I never seem to buy the right thing for me	0.50
Too often the things I buy are not satisfying	0.65
Social Outcomes Decision Making (SO):	
My friends are impressed with my ability to make satisfying purchases	0.89
I impress people with the purchases I make	0.89
My neighbors admire my decorating ability	0.53
I have the ability to give good presents	0.53
I get compliments from others on my purchase decisions	0.68
Persuasion Knowledge (PK):	
I know when an offer is "too good to be true"	0.70

I can tell when an offer has strings attached	0.73
I have no trouble understanding the bargaining tactics used by salespersons	0.62
I know when a marketer is pressuring me to buy	0.68
I can see through sales gimmicks used to get consumers to buy	0.74
I can separate fact from fantasy in advertising	0.61
Marketplace Interfaces (MI):	
I am afraid to "ask to speak to the manager" is wrong in the store	0.79
I have a hard time saying no to a salesperson	0.59
I am too timid when problems arise while shopping	0.67
I am hesitant to complain when shopping	0.77

APPENDIX 2.Section 1 (Self-Confidence)

DIRECTIONS: Based on your mobile commerce experience, please indicate how much you agree or disagree with the following statements by circling the number. 1 is Strongly Disagree and 7 is Strongly Agree.

Information Acquisition (IA)

I know where to find the information I need prior to making a purchase on my mobile device 1 2 3 4 5 6 7

I know where to look to find the product information I need in an m-commerce situation 1 2 3 4 5 6 7

I am confident in my ability to research important mobile purchases 1 2 3 4 5 6 7

I have the skills required to obtain the needed information before making important mobile purchases. 1 2 3 4 5 6 7

Consideration-Set Formation (CSF)

I am confident in my ability to recognize a brand worth considering for my mobile purchases 1 2 3 4 5 6 7

I can tell which brands meet my mobile purchase expectations 1 2 3 4 5 6 7

I trust my own judgment when deciding which brands to consider for my mobile purchases 1 2 3 4 5 6 7

I know which stores to shop for my mobile purchases 1 2 3 4 5 6 7

I can focus easily on a few good brands when making a mobile purchase decision 1 2 3 4 5 6 7

Personal Outcomes Decision Making (PO) 1 2 3 4 5 6 7

I often have doubts about the mobile purchase decisions I make 1 2 3 4 5 6 7

I frequently agonize over what to buy in a mobile setting 1 2 3 4 5 6 7

I often wonder if I've made the right mobile purchase selection 1 2 3 4 5 6 7

Too often the things I buy via my mobile devices are not satisfying. 1 2 3 4 5 6 7

Social Outcomes Decision Making (SO)

My friends are impressed with my ability to make satisfying purchases on my mobile device. 1 2 3 4 5 6 7

I impress people with the mobile purchases I make. 1 2 3 4 5 6 7

I get compliments from others on my mobile purchase decisions 1 2 3 4 5 6 7

My neighbors admire my mobile ability. 1 2 3 4 5 6 7

Persuasion Knowledge (PK) 1 2 3 4 5 6 7

I know when a mobile offer is “too good to be true”	1	2	3	4	5	6	7
I can tell when a mobile offer has strings attached	1	2	3	4	5	6	7
I know when a mobile marketer is pressuring me to buy	1	2	3	4	5	6	7
I can see through mobile sales gimmicks used to get consumers to buy	1	2	3	4	5	6	7
Marketplace Interfaces (MI)	1	2	3	4	5	6	7
I am too timid when problems arise while mobile shopping	1	2	3	4	5	6	7
.I am hesitant to complain when mobile shopping	1	2	3	4	5	6	7
I don't like to comment when something is wrong in a mobile store.	1	2	3	4	5	6	7
I have a hard time saying no to a mobile salesperson.	1	2	3	4	5	6	7

Section 2 (Beliefs, Attitude & Intention toward Mobile Commerce Systems)

DIRECTIONS: Please focus on mobile commerce systems such as online shopping malls, iPhone applications, and auction websites available to your recent mobile purchasing experience. Indicate your response by circling the appropriate number next to the correct answer from 1 to 7, where 1 indicates “Completely Disagree,” 4 indicates “Neither Agree nor Disagree,” and 7 indicates “Completely Agree.”

Using the m-commerce system improves my performance in shopping	1	2	3	4	5	6	7
Using the m-commerce system increases my productivity in shopping	1	2	3	4	5	6	7
Using the m-commerce system enhances my effectiveness in shopping	1	2	3	4	5	6	7
Overall, m-commerce system is useful	1	2	3	4	5	6	7
My interaction with the m-commerce system is clear and understandable.	1	2	3	4	5	6	7
It is easy for me to become skillful at using the m-commerce system.	1	2	3	4	5	6	7
I find the m-commerce system easy to use.	1	2	3	4	5	6	7
Learning to use the m-commerce system is easy for me.	1	2	3	4	5	6	7
Using the m-commerce system is a good idea	1	2	3	4	5	6	7
Using the m-commerce system is a wise idea	1	2	3	4	5	6	7
I like the idea using the m-commerce system	1	2	3	4	5	6	7
Using the m-commerce system is pleasant	1	2	3	4	5	6	7
I plan to use the m-commerce system frequently.	1	2	3	4	5	6	7
I predict I would use the m-commerce system frequently.	1	2	3	4	5	6	7

I intend to use the m-commerce system frequently.	1	2	3	4	5	6	7
I intend to spend considerable time and effort to learn to use the m-commerce system for enhancing my effectiveness.	1	2	3	4	5	6	7

Section 3 (Global Information Privacy Concern & Risk Beliefs)

DIRECTIONS: Please focus on your personal concern during your recent mobile purchasing experience. Indicate your response by circling the appropriate number next to the correct answer from 1 to 7, where 1 indicates "Completely Disagree," 4 indicates "Neither Agree nor Disagree," and 7 indicates "Completely Agree."

All things considered, mobile commerce would cause serious privacy problems.	1	2	3	4	5	6	7
Compared to others, I am more sensitive about the way m-commerce companies handle my personal information	1	2	3	4	5	6	7
To me, it is the most important thing to keep my privacy intact from m-commerce companies	1	2	3	4	5	6	7
I am concerned about threats to my personal privacy today.	1	2	3	4	5	6	7
In general, it would be risky to give (the information) to m-commerce companies.	1	2	3	4	5	6	7
There would be high potential for loss associated with giving (the information) to m-commerce firms.	1	2	3	4	5	6	7
There would be too much uncertainty associated with giving (the information) to m-commerce firms	1	2	3	4	5	6	7
Providing m-commerce firms with (the information) would involve many unexpected problems	1	2	3	4	5	6	7

Section 4 (Trust & MCSE)

DIRECTIONS: Please focus on your personal beliefs during your recent mobile purchasing experience. Indicate your response by circling the appropriate number next to the correct answer from 1 to 7, where 1 indicates "Completely Disagree," 4 indicates "Neither Agree nor Disagree," and 7 indicates "Completely Agree."

M-commerce companies would be trustworthy in handling my information.	1	2	3	4	5	6	7
I trust that m-commerce companies would keep my best interests in mind when dealing with (the information).	1	2	3	4	5	6	7

M-commerce companies are in general predictable and consistent regarding the usage of (the information).	1	2	3	4	5	6	7
M-commerce companies are always honest with customers when it comes to using (the information) that I would provide.	1	2	3	4	5	6	7
I feel confident understanding terms relating to m-commerce systems	1	2	3	4	5	6	7
I feel confident describing functions of m-commerce systems.	1	2	3	4	5	6	7
I feel confident trouble shooting m-commerce problems	1	2	3	4	5	6	7
I feel confident explaining why a task will not run on my mobile device	1	2	3	4	5	6	7