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Abstract
Although mobile computing is getting popular but shopping with mobile devices does not follow the trend. The fundamental reason is the transaction security. Following Model of Argument by Toulmin and Persuasion Principles by Cialdini, we proposed the Trust Transference Facilitator (TTF) to convince users that the mobile shopping is secure. Similar mechanism has been proven to be effective and this study provides evidence that such mechanism can be transferred to the mobile environment. We found that authority+contrast+scarcity mechanism was the most effective way to convince users that the transaction is secure.

Keywords
Trust, Trust Transference, Credit Card, Mobile Computing, Model of Argument, Principles of Persuasion.

1. Introduction
The percentage of website traffic coming from mobile devices increased from 17.5% in Q3 2012 to 23.1% in Q4 2012 (Walker Sands, 2012), and 30% on average in 2013 (Sterling, 2014). However, mobile shopping did not catch up with the traffic, showing that consumers are not ready for mobile shopping. Figure 1 illustrates the discrepancy between mobile for internet and mobile for shopping found in Europe, Asia, and America (Rakuten, 2012).For the US data in 2013, this number is 15% (Sterling, 2014).

The cause of such an inconsistency may be that mobile users frequently distrust security in mobile transactions, especially when they are requested to leave their credit card numbers on mobile phone for paying products or services without cards (Brandweiner, 2013). Thus, alleviating consumers' concerns about mobile transaction security is imperative for the proprietors of mobile shopping. However, a scrutiny of the check-out page in APP stores (see Figure 2) reveals that proprietors provide consumers with no explanations regarding how their mobile transactions can be protected. As a result, consumers who have had online credit card shopping experiences may still refuse to use the same tool for mobile shopping due to their security concerns about over-the-air transaction (Au & Kauffman 2008). The credit card issuer, MasterCard (2013), also reported that security-

related improvements, namely a greater assurance that mobile transactions are secure as well as enhancements to mobile payment security to improve consumers' confidence was ranked high among respondents.

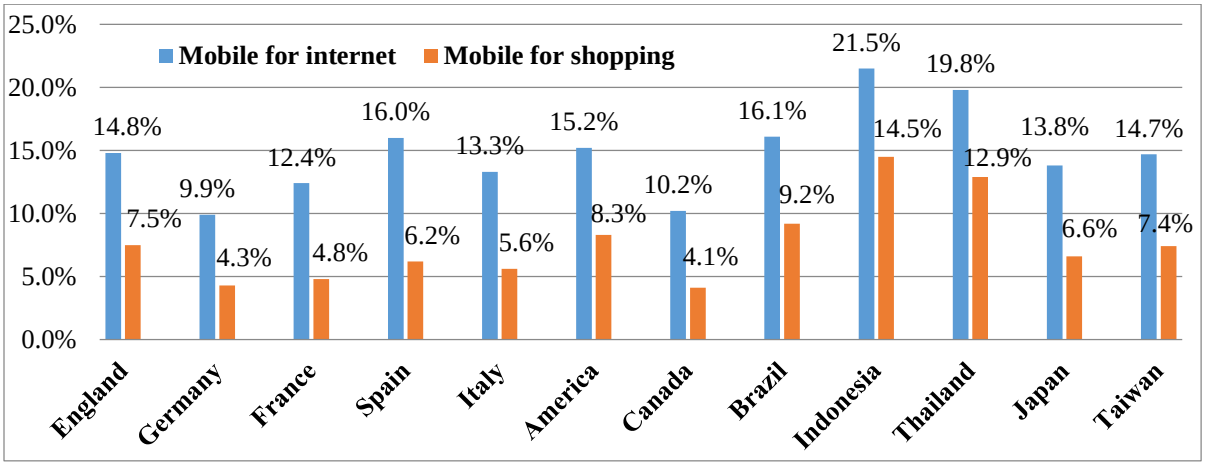


Figure 1: The Difference between Mobile for Internet and Mobile for Shopping in 2012

Academic studies have explicitly indicated that online trust has the potential to affect mobile trust, meaning that trust is transferrable from one entity to another (Stewart, 2003). For example, Lin et al. (2011) found that trust in online brokerage services is positively related to trust in mobile brokerage services. Lu et al. (2011) identified that the level of trust a customer has in the Internet payment services positively affects her/his initial trust in mobile payment services offered by the same company. Although these studies highlight the likelihood of trust transference, neither the former nor the latter study presents how trust can be transferred from online-to-mobile shopping in practice.

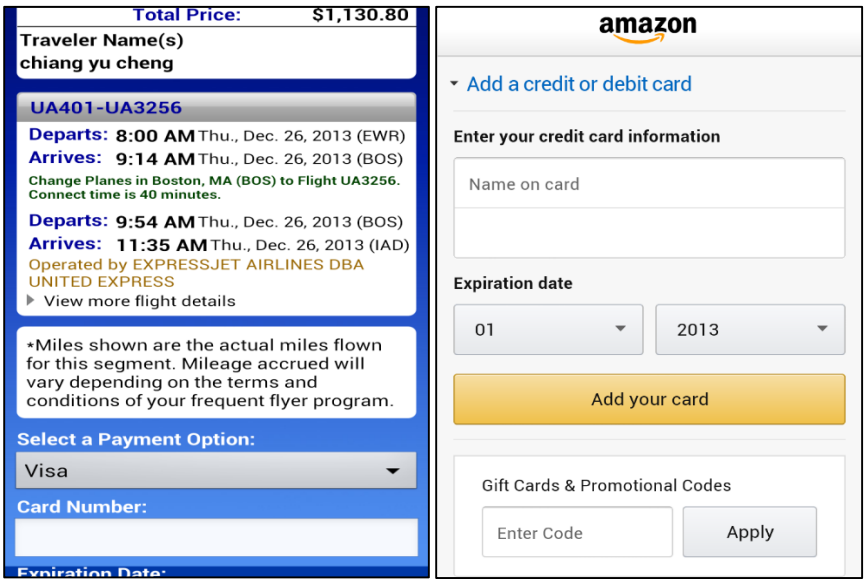


Figure 2: A Snapshot of the Credit Card Check-out Page from the United Airlines and Amazon

To ascertain the way of trust transference from online-to-mobile, the current study proposes the Trust Transference Facilitator (TTF) which draws upon the Model of Argument (Toulmin, 2003) and the Persuasion Principles (Cialdini, 1993). The purpose behind the TTF is to eliminate consumers' concerns about the safety of electronic payments made on mobile devices which in turn increases higher acceptance of mobile transactions.

2. Convincing transaction security for mobile shopping

Toulmin (2003) proposed the model of argument which asserts that a convincing argument should contain at least three elements, including claim, data, and backing. *Claim element* refers to a proposition being argued for, while *data element* pertains to the facts used to support the claim. As for *backing element*, it comprises the evidence that justifies the acceptance of the data. In the context of public health, for example, the claim argues that smokers who are smoking in public places should be prohibited. The supporting data consists of the fact that people who are exposed to secondhand smoke have a higher probability of falling chest cavity ills than the ones without secondhand smoke exposure. The backing provides the evidence for the validity of the data: the medical survey with one hundred lung cancer patients reveals that 80% of them are regularly exposed to nicotine smoke, while 20% of the others are not. Applying this idea to our research context, the claim-data-backing scenario can be that you don't need to worry about leaving your credit card number here (claim). Unlike other APP stores use merely 1024 bits SSL encryption, our store protects every mobile transaction with the longest 2048 bits SSL encryption which is the same with desktop shopping (data). According to the evidence of the trustmark issuer, hackers will need to take an unreasonable amount of time to unscramble the protection if the encryption is long enough (backing). The claim-data-backing scenario assists us to understand the theoretical underpinning of the argument that persuade mobile shoppers to transfer their trust from online-to-mobile, but if one wants to understand how trust transference can be realized in practice she/he needs to identify the factors that affect it. These factors can be grasped by applying Cialdini's (1993) principles of persuasion.

Cialdini proposed seven principles that persuaders can use to achieve the persuasion: reciprocity, commitment, liking, social proof, authority, contrast, and scarcity. Although the first three principles are prominent in the success of persuasion (Huang et al., 2006), we do not aim to explore the effects of mutual benefits (reciprocity), commitments by both persuading parties (commitment), feeling toward the persuader (liking), or informational social influence coming from others (social proof). Instead, the current study purports to explore the correspondence of the last three Cialdini's principles to the claim-data-backing scenario. *Authority* is the extent to which a persuader has a certain level of prestige and plays the role of a reliable information source. Recipients tend to believe that accepting information from a persuader with sound reputation decreases the likelihood of making a wrong decision (Fuller et al., 2007). In mobile shopping context, the authority principle can be presented by the trustmark that claims how mobile transactions are expertly and prestigiously secured. *Contrast* pertains to a comparison that can be used to distinguish unlikeness of whatever is being compared. For example, if individuals first eat the sweet fruit and then the sour fruit, they will feel the second fruit to be more sour than they would had not eaten the sweet fruit first. Thus, applying the contrast principle in mobile transactions can inform consumers that an APP store with 2048 bits SSL has longer data encryption than the one with 1024 bits SSL. *Scarcity* refers to objects of persuasion that are both valuable and

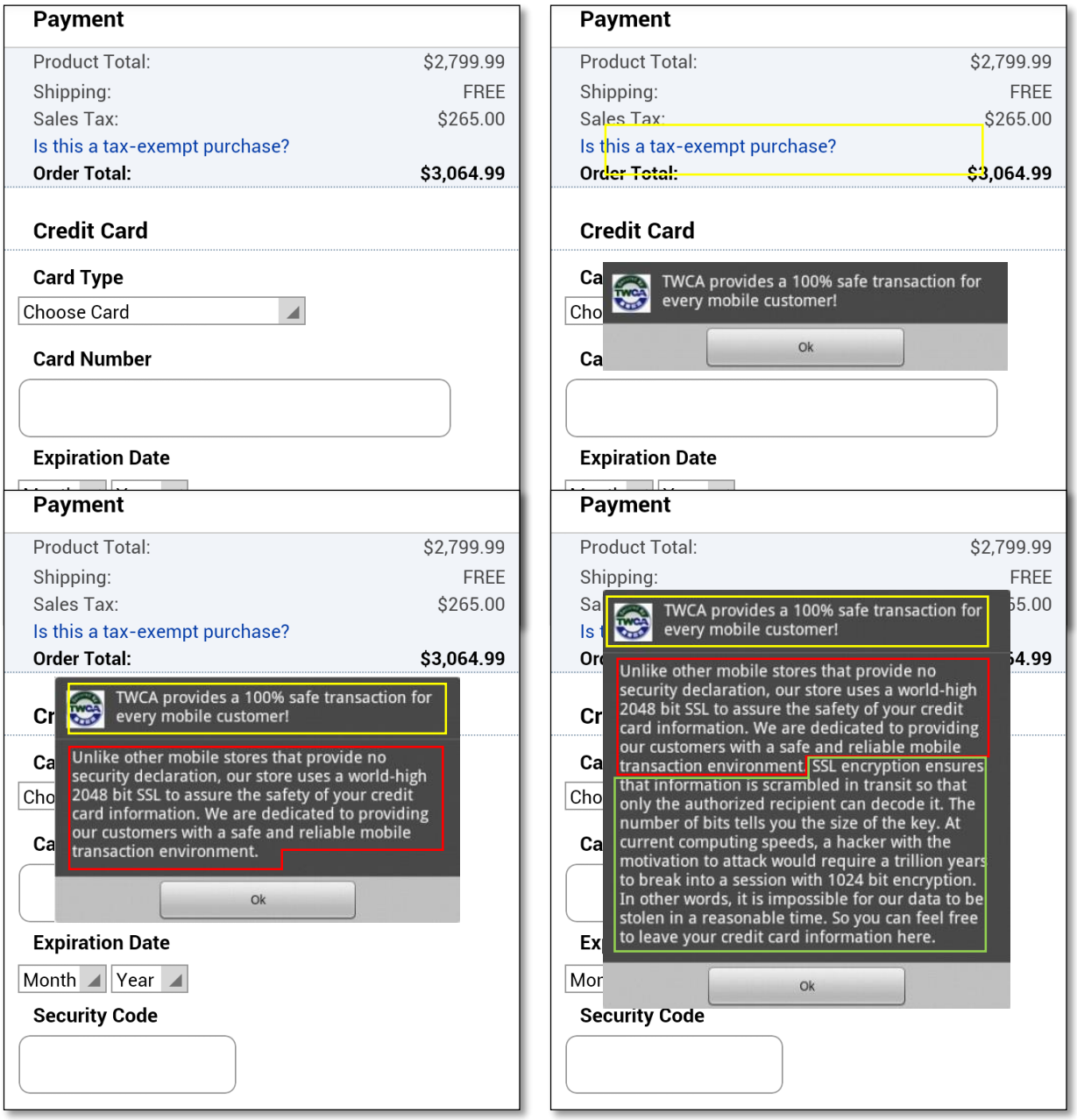
rare. It has been shown that objects and opportunities become more valuable as they become less available (Mazis 1975). The scarcity principle here supports why 2048 bits SSL encryption is safer than 1024 bits SSL encryption; that is, the longer is the data encryption provided, the more times hackers will need to break into the protection. Thus, encrypted credit card number is seldom to be descrambled even it is transited over the air.

3. Experimenting the Best TTF

An experiment with one treatment (i.e., persuasion message) was conducted to explore the likelihood of trust transfer from online-to-mobile. The treatment has three levels. Each of them denotes a different strength level of the persuasion message (see Figure 3). The first level of the message is regarded as the weakest persuasion because it presents only authority principle to the recipients. As shown in the upper right of the figure, the TWCA trust mark is presented by a simple sign together with its proposition but such authority principle shows no specific explanation about how mobile shoppers can believe that the proposition given by the trust mark is true. In the lower left of the figure, the second level of the message presents not only authority principle to the recipients but also contrast principle to them (i.e., authority-contrast). Contrast principle here complements to authority principle revealing how a 100% safe transaction can be assured by the encrypted APP store but not by unencrypted ones. Although this addition assists mobile shoppers to judge the truthfulness of the trust mark proposition, it is unable to dispel their suspicions in why shopping at the encrypted APP store is 100% safe. As shown in the lower right of the figure, the third level of the message is expected to have the strongest persuasion because it further explains why the encrypted APP store is 100% safe (i.e., authority-contrast-scarcity); that is, if one wants to crack 2048 bits SSL encryption, she/he will need to spend unreasonable time to do so (e.g., a trillion years). Thus, cracking an encrypted APP store is unlikely and leaving credit card number out there is inarguably safe.

4. Participant Selection

Because our goal is to validate the best TTF that persuades non-mobile credit card shoppers into mobile credit card shoppers, we need to screen eligible participants and invite them to participate the experiment. The eligibilities of the participants are (1) They must be a credit card holder, (2) They must carry at least one mobile phone, and (3) They must have online desktop shopping experience using credit cards. Consumers who have used credit card to pay for the products at the check-out counter of the physical mall are confirmed to be a credit card holder. We greet these credit card holders to indicate our research purpose and ask them if they would like to join the experiment. Credit card holders who would like to participate the experiment were requested to answer the following questions: (1) Do you carry a mobile phone with you? (2) Have you had any credit card shopping experience on your desktop? (3) Have you had any credit card shopping experience on your mobile phone? If not, what are the reasons that you do not use a credit card to shop on your mobile phone? Respondents who answered questions 1 and 2 with "Yes," and question 3 with "did not have mobile credit card shopping experience because of security concerns" were categorized into the group of non-mobile credit card shoppers. Respondents who answered questions 1 through 3 with "Yes," were put into the group of mobile credit card shoppers.



Level 2: authority-contrast *Level 3: authority-contrast-scarcity*

Figure 3: The Treatment Levels

Respondents who answered question 1 or question 2 with "No" were disqualified. An email with a QR-Code (Quick Response Code) was sent to the participants to explain the procedure of the experiment. First, they were requested to complete the questionnaire that measures their ex-ante attitude toward using credit card for mobile check-out. Second, they needed to download and install the virtual APP store represented by the QR Code. Third, they were asked to visit the APP store and choose a high-price digital camera they wanted to purchase. High-price digital cameras

were chosen as the researched product because we expected that the more participants had to pay for the product, the more susceptible they would be to the persuasion message (see Figure 4).

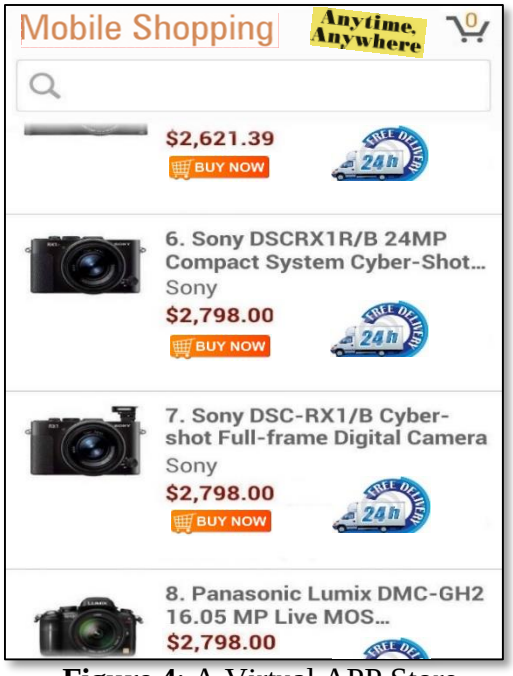


Figure 4: A Virtual APP Store

Fourth, participants needed to accomplish the purchase with a credit card. Their decisions were to be based on the persuasion message they received at the check-out page, which varied by the treatment levels (see Figure 3 again). To ensure that the participants have attracted by the persuasion message, they were requested to complete another questionnaire that asked them to choose the correct message (which they had just seen) in each of the three treatment levels. They could not continue the experiment until they did so. Finally, the participants were presented with the ex-post attitude and demographic questionnaires. Note that the APP store with different strengths of the persuasion message was randomly downloaded. Participants were unable to control which version of the APP store they would like to download. For example, a participant may be assigned to download the APP store with a moderate-strength message, while another participant may be assigned to download the APP store with a strong message. To avoid experimental biases, participants who took the experiment for more than once (as tracked by IMEI, International Mobil Equipment Identity) were excluded from the analyses. All participants received a $10 reward for their participation. To further motivate them to concentrate on the message, they were told before the experiment that one of them would be selected by lottery to win an Android tablet if they fulfill the experimental requirements.

5. Measurement for Trusting Attitude

To monitor trust transference, both ex-ante and ex-post attitudes were measured using 7-point Likert scale items adapted with minor modifications from Joo et al. (2003), where 1 meant "strongly disagree" and 7 meant "strongly agree." Ex-ante attitude evaluates participants' original attitudes toward using credit card for mobile payment, while ex-post attitude evaluates

participants' updated attitudes after they were given the persuasion messages (see Table 1). Trust ascension is said to occur if the average score of ex-ante attitude is significantly lower than the average score of ex-post attitude, while trust attenuation arises when the average score of ex-ante attitude is significantly higher than the average score of ex-post attitude. The insignificant difference between the two attitudes represents trust unchange. Because pariticipants' knowledge about SSL encryption might affect their acceptance of that the persuasion messages, we therefore controlled for such knowledge by asking participants to answer the question "Do you know that the SSL encryption is operated by an APP store rather than a third party." Those who answered "YES" were proven to have prior knowledge about SSL encryption ; whereas those who answered "NO" were not.

Construct	**Measure (for mobile credit card shoppers)**	**Loading**	**AVE**
Ex-ante attitude (EAA) composite reliability=0.79			
EAA1	Based on my experience, the transaction security assured by the APP store I have shopped increases my confidence in using a credit card out there.	0.85	0.57
EAA2	Based on my experience, the transaction security asserted by the APP store I have shopped alleviates my worries about using a credit card out there.	0.64	
EAA3	Based on my experience, the transaction security guaranteed by the APP store I have shopped effectively reduces my concerns about using a credit card out there.	0.75	
Construct	**Measure (for non-mobile credit card shoppers)**	**Loading**	**AVE**
Ex-ante attitude (EAA) composite reliability=0.90			
EAA1	Even I have never used my credit card to buy something from my mobile phone, I believe that the transaction security assured by any APP store can increase my confidence in using a credit card out there.	0.81	0.75
EAA2	Even I have never used my credit card to buy something from my mobile phone, I believe that the transaction security asserted by any APP store can alleviate my worries about using a credit card out there.	0.99	
EAA3	Even I have never used my credit card to buy something from my mobile phone, I believe that the transaction security guaranteed by any APP store can effectively lessen my concerns about using a credit card out there.	0.77	
Construct	**Measure (for mobile credit card shoppers)**	**Loading**	**AVE**
Ex-post attitude (EPA) composite reliability=0.76			
EPA1	The transaction security assured by the APP store increases my confidence in using a credit card out there.	0.69	0.51
EPA2	The transaction security asserted by the APP store alleviates my worries about using a credit card out there.	0.83	
EPA3	In general, the credit card transaction security advocated by the APP store is trustworthy.	0.60	

Construct	Measure (for non-mobile credit card shoppers)	Loading	AVE
Ex-post attitude (EPA) composite reliability=0.97			
EPA1	The transaction security assured by the APP store increases my confidence in using a credit card out there.	0.96	0.93
EPA2	The transaction security asserted by the APP store alleviates my worries about using a credit card out there.	0.96	
EPA3	In general, the credit card transaction security advocated by the APP store is trustworthy.	0.96	

Table 1: Measurement Items

6. Analyses and Results

Table 2 summarizes the participant characteristics. Of 360 participants, 44.72% were male and 55.28% were female. 35.28% of them were office workers and 29.17% were students. 58.61% of them were in the 20 to 30 year age group. Undergraduate is the most prevalent degree (50.83%) followed by the postgraduate degree (30.56%).

Measure	Items	Frequency	Percentage %
Gender	Male	161	44.72
	Female	199	55.28
Age	Under 20	56	15.56
	20-25	89	24.72
	26-30	122	33.89
	Over 30	93	25.83
Occupation	Office worker	127	35.28
	Student	105	29.17
	Freelancer	67	18.61
	Others	61	16.94
Education	Junior school	31	8.61
	Senior school	67	10.00
	Undergraduate	183	50.83
	Postgraduate	110	30.56

Table 2. Demographics

Preliminary data screening was conducted before the formal analysis. As summarized in Table 1, the composite reliabilities of the attitude constructs exceeded 0.76. All the items listed in the table exhibit loadings greater than 0.60 within their respective constructs. The average variance extracted (AVE) for each construct were greater than 0.51. Table 3 shows that the correlation between the pair of constructs was less than the corresponding AVEs (diagonal values). Thus, both criteria for convergent validity and discriminant validity were met (Hair et al., 2006). In addition, manipulation check was conducted to test whether the levels of message strength differ on the ex-post attitude. Participants were asked to rate the statement of perceived message diagnosticity (Jiang and Benbasat 2007): "The persuasion message is helpful for me to understand how a credit card transaction is secured by the APP store." This statement was rated on a Likert scale item, where 1 means "strongly disagree" and 7 means "strongly agree." As shown in Table 3, message

strength was successfully differentiated. Participants indicated that more understanding was available on the check-out page in strong persuasion than in the moderate and low persuasions.

Construct (mobile shoppers)	AVE	EAA	EPA
Ex-ante attitude	0.57	**0.75**	
Ex-post attitude	0.51	0.44	**0.71**
Construct (non-mobile shoppers)	AVE	EAA	EPA
Ex-ante attitude	0.75	**0.87**	
Ex-post attitude	0.93	0.18	**0.96**
Manipulation check (mobile shoppers): perceived message diagnosticity			
Strong persuasion (authority-contrast-scarcity)	Moderate persuasion (authority-contrast)	Low persuasion (authority)	
Mean: 6.42 / Std: 0.54	Mean: 6.32 / Std: 0.37	Mean: 5.87 / Std: 0.65	
$F(2, 177)=18.37$, $p<0.001$			
Manipulation check (non-mobile shoppers): perceived message diagnosticity			
Strong persuasion (authority-contrast-scarcity)	Moderate persuasion (authority-contrast)	Low persuasion (authority)	
Mean: 6.10 / Std: 0.47	Mean: 4.51 / Std: 0.48	Mean: 3.15 / Std: 0.57	
$F(2, 177)=130.82$, $p<0.001$			

Table 3: Discriminant Validity Tests and Manipulation Check

To test trust transference, we performed a two-way ANOVA (see Table 4). The results revealed that the main effect of message strength was significant in non-mobile shopper group (F=587.596, p<0.001), revealing that non-mobile shoppers will be affected by the trust messages when they become first-time mobile shoppers; while the interaction between message strength and SSL knowledge was not significant in both mobile and non-mobile shopper groups indicating that prior knowledge did not affect the results. For this reason, we could apply one-way ANOVA to test the difference among the treatments of message strength. The results indicated that ex-post attitudes differed significantly across the three types of message strength (F=552.765, p<0.001). For these message strengths, authority-contrast-scarcity condition was associated with significantly more positive attitudes than the other two conditions (see multiple comparisons in Table 3). The three types of message strengths in mobile shopper group were unable to change participants' attitudes, but they were found to be able to change participants' attitudes in non-mobile shopper group. Such attitude ascension was greatest in the authority-contrast-scarcity condition (i.e., attitude difference: -3.57).

Although there are many other ways of mobile payment (RFID, e-wallet, etc.), using a credit card is so far the easiest way to check-out over the air; that is, consumers can simply make a mobile purchase by entering credit card numbers on their mobile devices. Ironically, the number of mobile Internet access does not parallel to the number of mobile shopping. Thus, how to convert non-mobile shoppers into mobile shoppers is essential, especially for those who are concerning about transaction security. The current study is one of the first to explore the likelihood of trust transference from online-to-mobile. The three levels of message strength were used to investigate their different effects on trust transference. Authority-contrast-scarcity condition was the most effective in persuading non-mobile shoppers into mobile shoppers, followed by authority-contrast and authority conditions. The following summarizes research findings and their implications:

Two-way ANOVA test (mobile shopper)					
Source	*SS* (Type III)		*Df*	*MS*	*F*
Intercept	7232.67		1	7232.67	38757.95
Message strength	0.92		2	0.46	2.45
SSL knowledge	0.01		1	0.01	0.03
Message strength× SSL knowledge	0.49		2	0.25	1.32
Error	32.47		174	0.19	
Corrected total	33.88		179		
Two-way ANOVA test (non-mobile shopper)					
Source	*SS* (Type III)		*Df*	*MS*	*F*
Intercept	3642.00		1	3642.00	16173.66
Message strength	264.63		2	132.32	587.60*
SSL knowledge	0.85		1	0.85	3.75
Message strength× SSL knowledge	2.34		2	1.17	5.20
Error	39.18		174	0.23	
Corrected total	307.00		179		* p<0.001
One-way ANOVA test (non-mobile shopper)					
Source	*SS* (Type III)	Homogeneity	*Df*	*MS*	*F*
Intercept	3642.00	F=3.43	1	3642.00	15214.93
Message strength	264.63	df_1=2	2	132.32	552.77*
Error	42.37	df_2=177	177	0.24	
Corrected total	307.00	p=0.03	179		* p<0.001

Multiple comparison (non- mobile shopper)				
Turkey HSD condition (*I*)	Comparison condition (*J*)	Mean difference (*I-J*)	95% confidence interval	
			Lower bound	Upper bound
1. Authority (mean: 3.06)	2	-1.36*	-1.57	-1.16
	3	-2.97*	-3.17	-2.76
2. Authority-contrast (mean: 4.42)	1	1.36*	1.16	1.57
	3	-1.61*	-1.81	-1.40
3. Authority-contrast-scarcity (mean: 6.02)	1	2.97*	2.76	3.17
* p<0.001	2	1.61*	1.40	1.81

Trust transference test (mobile shopper**)**	Ex-ante attitude	Ex-post attitude	Difference	*t*-value	Transfer status
Authority	6.31	6.32	-0.01	-0.09	unchanged
Authority-contrast	6.36	6.43	-0.07	-1.36	unchanged
Authority-contrast-scarcity	6.19	6.26	-0.07	-9.42	unchanged
Trust transference test (non-mobile shopper**)**	Ex-ante attitude	Ex-post attitude	Difference	*t*-value	Transfer status
Authority	2.23	3.01	-0.78	-6.00*	ascension
Authority-contrast	2.31	4.42	-2.11	-16.02*	ascension
Authority-contrast-scarcity	2.45	6.02	-3.57	-32.12*	ascension
					* p<0.001

Table 4. The Experiment Results

First, TTF was found persuasive for non-mobile shoppers. As a result, presenting authority-contrast-scarcity principle to non- (and hence first-time) mobile shoppers is necessary because they rely on objective evidence to avoid making a wrong decision. TTF showed no impact on experienced shoppers. It is because they already understand the safety of mobile shopping, As a

result, no trust message needs to be shown on the check-out pages. Practically speaking, proprietors can make a pop-up window showing the authority-contrast-scarcity message for first-time shopping. Once they understand the safety of mobile shopping, they can click the "Do Not Show This Window Again" button. Thus, experienced shopper will not see the message again.

Second, SSL knowledge (either it is right or wrong) presented no interaction with message strength in both shopper groups. This implies that the implementation of TTF is unrelated to the SSL knowledge. Contrary to conventional belief that SSL knowledge may foster online shopping security mechanism, we proved that trust message on mobile shopping is irrelevant to shoppers' prior security knowledge. Thus, proprietors can implement TTF without considering shoppers' knowledge on security.

Third, presenting information for the right recipient at appropriate time is considered to be important to consumer information processing (Adaval, 2001). For those who worry about the security of using credit cards over the air, the proposed Level-3 TTF is suggested to be prompted at the check-out page of any APP store so that non-mobile shoppers are able to contrast the receiving persuasion messages to see whether that messages are the same with the ones they have ever seen from desktop online shopping. Therefore, the implementation of TTF at the check-out page of an APP store not only diminishes non-mobile shoppers' concerns about credit card security but also assists them transferring their trust from online credit card shopping to mobile credit card shopping.

References

Adaval, R. (2001). Sometimes It Just Feels Right: The Differential Weighting of Affect-Consistent and Affect-Inconsistent Product Information. *Journal of Consumer Research*, 28(1), pp. 1-17.

Au, Y. A., & Kauffman, R. J. (2008). The economics of mobile payments: Understanding stakeholder issues for an emerging financial technology application. *Electronic Commerce Research and Applications*, 7(2), pp. 141-164.

Brandweiner, N. (2013). Trust issues slowing consumer adoption of mobile payment services – study. Available from http://www.cmo.com/content/cmo-com/home/articles/2013/5/31/trust_issues_slowing.frame.html

Chase, R. B., & Dasu, S. (2001). Want to perfect your company's service? Use behavioral science. *Harvard business review*, 79(6), p. 78.

Cialdini, R. B. (1993). Influence (rev): *The Psychology of Persuasion*. HarperCollins.

Fuller, M. A., Serva, M. A., & Benamati, J. (2007). Seeing is believing: The transitory influence of reputation information on e-commerce trust and decision making. *Decision Sciences*, 38(4), pp. 675-699.

Hair, J. F., Black, B., Babin, B., Anderson, R. E., and Tatham, R. L. *Multivariate Data Analysis*. Prentice Hall, Englewood Cliffs, NJ, 2006.

Huang, S. L., Lin, F. R., & Yuan, Y. (2006). Understanding agent-based on-line persuasion and bargaining strategies: An empirical study. *International Journal of Electronic Commerce*, 11(1), pp. 85-115.

Joo, S. H., Grable, J. E., & Bagwell, D. C. (2003). Credit card attitudes and behaviors of college students. *College Student Journal*, 37(3), pp. 405-419.

Lin, J., Lu, Y., Wang, B., & Wei, K. K. (2011). The role of inter-channel trust transfer in establishing mobile commerce trust. *Electronic Commerce Research and Applications*, 10(6), pp. 615-625.

MasterCard (2013). Smartphone shopping trend sweeps Asia/Pacific region. Available from http://newsroom.mastercard.com/press-releases/smartphone-shopping-trend-sweeps-asiapacific-region-mastercard-online-shopping-survey/

Mazis, M. B., Ahtola, O. T., & Klippel, R. E. (1975). A comparison of four multi-attribute models in the prediction of consumer attitudes. *Journal of Consumer Research*, pp. 38-52.

Park, C. W., Mothersbaugh, D. L., & Feick, L. (1994). Consumer knowledge assessment. *Journal of Consumer Research*, pp. 71-82.

Rakuten (2012). West behind East for mobile commerce adoption. Available from http://www.digitalstrategyconsulting.com/intelligence/2012/10/west_behind_east_for_mobile_co.php

Sterling, G. (2014). Mobile Devices: 30 Percent of Traffic, 15 Percent of Sales. Available from http://marketingland.com/mobile-devices-generate-30-pct-traffic-15-pct-e-sales-75498

Stewart, K. J. (2003). Trust transfer on the World Wide Web. *Organization Science*, 14(1), pp. 5-17.

Toulmin, S. E. (2003). *The uses of argument*. Cambridge University Press.

Walker Sands (2012). Mobile traffic report. Available from http://www.marketingcharts.com/wp/interactive/mobile-share-of-web-traffic-jumped-in-q4-2012-26057.

Lee, O. and P. Gray (1998) “Knowledge Base Clustering in KBS Maintenance”, *Journal of Software Maintenance*, (10)2, pp. pp. 395-414

Sambamurthy, V. and W. W. Chin (1994) "The Effects of Group Attitudes toward Alternative GDSS Designs on the Decision-making Performance of Computer-Supported Groups", *Decision Science* (25)2, pp. 215-239.