

## Social Pressures and Mobile Communication Technology: Preliminary Understanding of Two Factor Analyses over Time

Wenshin Chen, Prairie View A&M University, U.S.A., wechen@pvamu.edu  
Siew Fan Wong, Universiti Tunku Abdul Rahman, Malaysia, wongsf@mail.utar.edu.my  
Peter Sutanto, Prairie View A&M University, U.S.A., pwsutanto@pvamu.edu

### Abstract

*Drawing from social perspectives, this proposed study reports factor analyses and regression results from two sample sets collected over time, and seeks to shed light on how social forces might affect the adoption behavior of rapidly growing mobile communication technology. On the one hand, similarities of those factor analyses suggest that a call for attention to social factors that are commonly lacking in the existing body of IT adoption literature is needed. On the other hand, disparities between regression results imply that adoption behavior over time might be more complicated than what was previously understood or anticipated. However, further evidence is needed to validate such assertion that was not concluded in indecisive regression results. As mobile communication technology penetrates the global knowledge economy, further understanding of how social factors influence user adoption behavior could help contribute to the greater IT business and research practice worldwide.*

### 1. Introduction

Mobile communication technology has increasingly changed how organizations conduct businesses [17] and individuals live their lives [12]. Practitioners have also long predicted that mobile phones would soon become retail outlets [10] and the second highest advertising medium [19]. The rapid penetration rate of mobile phones worldwide has seemingly supported those predictions. By September 2005, mobile phone users have been twice as much as in 2002, reaching 2 billion globally and making it the fastest growing technology and unsurprisingly many European countries such as Austria, Italy, Sweden, and the U.K. have reached over 100 percent of usage rate [2]. In China alone, the number of mobile phone subscribers has grown fifty times over the last decade reaching 500 million in June 2007 [11], a number that is larger than the entire EU (European Union) residents (nearly 496 million), the largest economy in the world or the combined population of the next three largest economies, i.e. U.S., Japan, and Canada (approximately 463 million).

It thus becomes interesting to understand how such extraordinary market penetration occurs and how IT (information technology) managers might need to reconsider their approaches to better manage this mobile phenomenon. While popular perspectives

such as diffusion of innovation theory [13] and technology acceptance model (TAM) [7] have examined various aspects of technology adoption, they could hardly shed light on the social context in which the users reside [14], with which they interact [18], and by which their innovation or adoption process is shaped and reshaped [3; 9]. In the management and IT disciplines, social perspectives have gained increasing attention over the years [6; 15]. They provide alternative angles to understand deeper context of IT innovation and thus help contribute to the IT literature that has been largely overwhelmed by economics perspectives [4; 5; 16].

Derived from such social perspectives, this study seeks to better understand the overwhelming phenomenon of mobile communication technology and help contribute social perspectives to the existing body of knowledge. Drawing from fad and fashion [1] and institutional theory [8], Chen and Wong (2003) suggested that coercive, normative, and mimetic pressures might be correlated to college students' usage of mobile phone while Chen and Sutanto (2007) proposed that factors of social coercion, social imitation, and social normalization might contribute to similar effects. It is thus apparent that social factors might contribute to or correlate with mobile phone users' adoption behavior. In line with this view, this research-in-progress study reports preliminary findings from those studies and proposes some research questions that might help shape future directions of investigation in relation to social perspectives of technology adoption and their effects over time.

### 2. Preliminary Summary

Below are two tables of factor analyses reported in Chen and Wong (2003) (see Table 1) and Chen and Sutanto (2007) (see Table 2). It was apparent that both factor analyses resulted in similar social forces that were related to coercive, normative, and mimetic forces suggested by social theorists [1; 8]. Based on data collected from 129 (in Chen and Wong) and 143 (in Chen and Sutanto) responses using the same questionnaire, each study also further conducted regression analysis to evaluate the correlations between these factors and dependent variable, the frequency of use. In summary, Chen and Wong (2003) found that normative pressures were positively correlated with the use of mobile phones while coercive and mimetic pressures were positively correlated with the use of laptop computers. Chen

and Sutanto (2007), however, discovered that the responses for dependent variable resulted in a near constant value. More specifically, 133 respondents identically selected the highest option for the

frequency of use indicating that the usage scale available to them could make no practical distinction among their choices because their usage frequency of mobile phone was universally exceedingly high.

Table 1: Results of factor analysis (social pressures)

Variables	Factor Loadings After Varimax Rotation		
	Coercive Pressures	Normative Pressures	Mimetic Pressures
CP1	<b>0.84</b>	0.00	0.16
CP2	<b>0.76</b>	0.33	0.00
CP3	<b>0.74</b>	0.33	0.18
CP4	<b>0.72</b>	0.42	0.18
CP5	<b>0.69</b>	0.34	0.25
CP6	<b>0.62</b>	0.33	0.43
CP7	<b>0.61</b>	0.27	0.42
NP1	0.23	<b>0.88</b>	0.13
NP2	0.28	<b>0.87</b>	0.20
NP3	0.30	<b>0.87</b>	0.24
NP4	0.34	<b>0.81</b>	0.28
MP1	0.21	0.21	<b>0.88</b>
MP2	0.20	0.22	<b>0.89</b>
Eigenvalues	7.4	1.4	1.2
% of Variance	57.0	10.5	9.3
Cumulative % of Variance	57.0	67.5	76.8
Internal Consistency	0.91	0.95	0.89

Table 2: Results of factor analysis (social factors)

Variables	Factor Loadings After Varimax Rotation		
	Social Coercion	Social Normalization	Social Imitation
SC1	<b>.754</b>	.268	-.071
SC2	<b>.772</b>	.284	.208
SC3	<b>.717</b>	.137	.376
SC4	<b>.839</b>	.152	.108
SC5	<b>.733</b>	.018	.245
SN1	.052	<b>.749</b>	.395
SN2	.081	<b>.767</b>	.321
SN3	.369	<b>.698</b>	.042
SN4	.231	<b>.812</b>	.046
SI1	.285	.211	<b>.861</b>
SI2	.166	.259	<b>.882</b>
Eigenvalues	5.08	1.64	1.15
% of Variance	46.18	14.92	10.48
Cumulative % of Variance	46.18	61.10	71.58
Internal Consistency	0.861	0.818	0.907

### 3. Future Direction

These results prompted interesting future research directions for this proposed study. Evidently, social factors might affect the use of certain mobile technology as shown in both factor analyses but their effects might not last or become too complicated over time as implied by the results of regression analyses. This study thus proposes two central questions that might help shape future research direction: "What are the underlying social forces that lead to the rapid adoption of mobile communication technology?" and "how do those social effects evolve over time." Given the rapid mobile phone penetration rate globally, future investigations of these research questions could help IT practitioners and researchers to better

understand and manage the youth market's adoption behavior.

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