스마트 패러독스: 모바일 인스턴트 메신저의 영향에 관한 연구

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Smart Paradox: An Effect of Mobile Instant Messengers

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요 약 모바일 인스턴트 메신저 50~60년대 TV나 20세기 초 전화만큼이나 우리의 삶을 변화시키고 있다. 따라서 많은 학자들은 모바일 인스턴트 메신저가 우리의 공동체 생활과 사회적 관계에서의 참여를 향상시키는지 아니면 해를 입히고 있는지에 대해 궁금증을 제시하고 있다. 이를 위해 본 연구에서는 2개 대학의 155명의 참여자를 대상으로 자신이 소유한 모바일 인스턴트 메신저가 외로움에 미치는 영향을 탐색해보고자 하였다. 연구결과, 높은 모바일 인스턴트 메신저 사용은 타인과의 의사소통을 감소시키고 결국 외로움을 증가시키는 것으로 나타났다.

• 주제어 : 고독, 스마트패러독스, 이동 인스턴스 메신저, 스마트폰, 영향

Abstract The mobile instant messengers could change the lives of average citizens as much as did the telephone in the early part of the 20th century and television in the 1950s and 1960s. Researchers are debating whether the mobile instant messengers are improving or harming participation in community life and social relationships. For this study, 155 participants in two universities completed questionnaires pertaining to their own mobile instant messengers use and feelings of loneliness. We used survey data to examine the effects of the mobile instant messengers on social involvement and psychological well-being. In this sample, the mobile instant messengers were used extensively for communication. Results suggest that greater use of the mobile instant messengers were associated with declines in participants′ communication with the people around which in turn increases their loneliness. These findings have implications for research and for the design of technology.

• Key Words : Loneliness, Smart Paradox, Mobile Instant Messenger, smartphone, effect

1. Research Motivation

The people who use mobile phones and the ways they use them have changed substantially over the past 15 years. In the beginning only very few people used mobile phone for work, but over time a much broader range of people are using mobile phone for personal purposes. This trend is still continuing, and over a shorter time scale has been replicated with the use of communication tools. With the rapidly expanding reach of the mobile phone into most aspects of every life, we need to understand its social impact and the behaviors leading to this impact.

The mobile instant messengers is becoming increasingly influential, but some observers have noted

that heavy mobile instant messengers users seem alienated from normal social contacts and may even cut these off as the mobile instant messengers becomes the predominate social factor in their lives. The mobile instant messengers refer to a kind of services that enable users to chat with others, share photo and video, call freely with voice or video, and offer local information using mobile network[1].

There are two dissimilar points of view. Some scholars argue that the mobile instant messengers is causing people to become socially isolated and cut off from genuine social relationships, as they hunker alone over their terminals or communicate with anonymous strangers through a socially impoverished medium. In this point of view, online relationships are shallow, illusory, and sometimes exploitative and hostile[2]. Such interactions compete with, and are established at the expense of, traditional face to face social relationships. Others argue that the mobile instant messengers lead to more and better social relationships by freeing people from the constraints of geography or isolation brought on by schedule. In this point of view, mobile instant messengers allows the formation of genuine personal relationships, free from the restrictions of age, occupation, proximity and physical appearance[2].

The goal of this article is to examine these issues and to report early empirical results of a field trial of mobile instant messengers use.

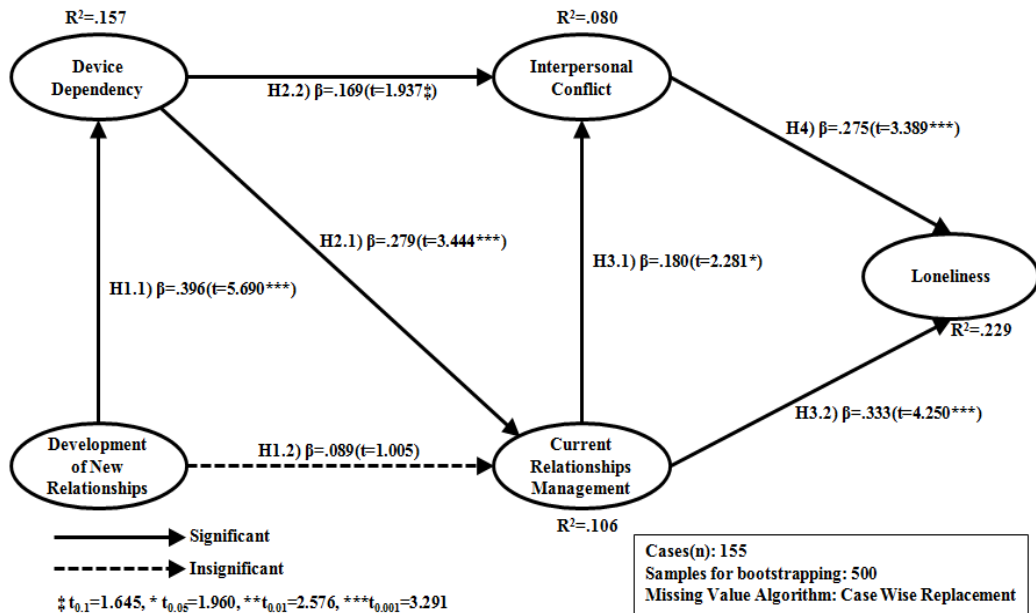## 2. Literature Review and Research Model

Many of us in today's world are living on the verge of a lonely life[3]. Loneliness is a condition that is widely distributed and severely distressing[4]. Despite the pervasiveness of loneliness, very little empirical research has been directed at the problem[5].

Cognitive processes determine the way people evaluate the situation they are in[6]. Also within the cognitive approach, but taking into account explicitly the values, norms and standards that prevail in a person's personal life and in the society in which he or she is involved[6]. Loneliness exists to the extent that a person's network of social relationships is smaller or less satisfying than the person desires[7]. Thus, loneliness is a situation experienced by the individual as one where there is an unpleasant or inadmissible lack of quality of certain relationships[6].

In literature distinctions have been made between loneliness and aloneness or solitude[8]. Aloneness or solitude, when an individual deliberately chooses to be alone or to play by him or herself, is associated with a pleasant, positive, and sometimes even desirable situation[9]. Loneliness, on the other hand, refers to the discrepancy between a person's desired and actual social relationships[10]. In this definition of loneliness, loneliness reflects the relationship between two factors, the desired and achieved level of social interaction[7]. The level of social contact a person desires is based on many considerations including their past levels of contact and their expectations for future social relations[7]. Thus loneliness is not synonymous with social isolation, solitude or aloneness. However, developing an absolute standard for how much social contact each person needs would require an omniscience we are reluctant to claim[7].

Some have attempted to identify different components or types of loneliness. Weiss (1973) distinguished between emotional, stemming from the absence of an intimate figure or a close emotional attachment(a partner, a best friend), and social loneliness stemming from the absence of a broader group of contacts, or an engaging social network(friends, colleagues, and people in the neighborhood) on theoretical grounds[11]. Social loneliness specifically indicates a lack of companionship and is related to the number of close friends[8]. Social loneliness arises when people perceive their social relationships as unsatisfactory, or when they do not have accessible

[Fig. 1] Results of Proposed Model

social networks or peer groups[9]. Emotional loneliness, in its turn, indicates a lack of intimacy with close friends and has nothing to do with the number of friendships [8]. Emotional loneliness arises when a partner relationship dissolves through widowhood or divorce and is characterized by intense feelings of sadness, emptiness, abandonment, and for loneliness[9] [11].

Various factor analytic studies have provided some evidence that the experience of loneliness can be partitioned into separable dimensions, but these factors have also been found to be highly correlated, and their antecedents and consequences have been found to be sufficiently overlapping that loneliness is generally conceptualized and measured as a unidimensional construct that varies primarily in its experienced intensity[6][10][12].

3. Proposed Model

Grounded theory looks for what is, not what might be, and therefore needs no test[13]. Grounded theory was originally proposed by Glaser and Strauss(1967) as an alternative approach to the modes of theorizing that dominated sociological research in the 1960s, namely quantitative testing and verification of 'dreamed-up, speculative, or logically deduced theory'[14]. Grounded theory gets its concepts from the data; it does not bring ideas to force the data that need to be subsequently tested. Glaser and Strauss(1967) stress that the grounded theory method is for building theory, not verifying it. The resulting theory is an integrated set of propositions, not findings[14].

The concept model in Fig. 1 represents the theory that emerged from the data in this study. The diagram consists of a collection of ovals connected by arrows. The ovals represent concepts and the arrows represent relationships between concepts. The relationships are directional rather than purely correlational. The concept at the tail of an arrow is assumed to exert an influence on the concept at the head. In some cases the arrows are labeled with a brief description of the relationship being represented, but in most cases the arrows are not labeled and the reader must refer to the accompanying text in this paper to discern the meaning of the relationship.

[Table 1] Loadings, Cross-Loadings, AVEs, and CR for the Scales

	Current Rel	Device Depend	Inter Conflict	Loneliness	New Rel	AVE	CR
IC1	0.1596	0.2554	0.8112	0.2595	0.0519	.7072	.9350
IC2	0.1478	0.2015	0.877	0.2519	0.0808		
IC3	0.2484	0.2201	0.8864	0.2811	0.0727		
IC4	0.2054	0.2286	0.9051	0.3000	0.1169		
IC5	0.1608	0.1586	0.8488	0.2716	0.1313		
IC6	0.2283	0.0766	0.7003	0.3865	0.2077		
DD1	0.2587	0.8745	0.181	0.0578	0.4311	.7101	.9072
DD2	0.3772	0.7699	0.218	0.0977	0.2536		
DD3	0.2185	0.8776	0.1632	0.0909	0.3304		
DD4	0.1851	0.8441	0.1953	0.1026	0.3041		
CRM1	0.7461	0.2533	0.1572	0.3609	0.1727	.7213	.9115
CRM2	0.8804	0.2674	0.1827	0.3224	0.1469		
CRM3	0.889	0.2675	0.1892	0.3068	0.1683		
CRM4	0.8735	0.2765	0.2545	0.3529	0.1858		
NRM1	0.2616	0.3462	0.115	0.084	0.7937	.7051	.9051
NRM2	0.1489	0.3658	0.1478	0.0638	0.9066		
NRM3	0.1459	0.2371	0.1293	0.0324	0.8102		
NRM4	0.0926	0.3547	0.0597	−0.0435	0.8439		
Lone1	0.3688	0.0942	0.3417	0.8734	0.1331	.6605	.9395
Lone2	0.2318	−0.0065	0.1974	0.7635	−0.0171		
Lone3	0.2392	0.0227	0.2440	0.8405	−0.0175		
Lone4	0.4754	0.129	0.3748	0.8637	0.0714		
Lone5	0.3165	0.1441	0.1800	0.8192	0.0027		
Lone6	0.3131	0.1421	0.2230	0.7448	−0.0008		
Lone7	0.2689	0.0691	0.3427	0.7926	−0.0096		
Lone8	0.2624	0.0241	0.3019	0.7951	0.0635		

AVE: Average Variance Extracted / CR: Composite Reliability

[Table 2] Discriminant Validity Test

	CurrentRel	Dependence	InterConflict	Loneliness	NewRel
CurrentRel	*0.8493*				
Dependence	0.3144	*0.8427*			
InterConflict	0.2331	0.2256	*0.8410*		
Loneliness	0.3972	0.1019	0.3529	*0.8127*	
NewRel	0.1995	0.3964	0.1345	0.0445	*0.8397*

Diagonal values are the square root of AVEs.

The concepts have been arranged in a temporal order, showing what precedes what in the network of relationships leading to either flow or frustration.

4. Methodology

To test the relationships implied by the research model and the research hypotheses, this filed study used a survey instrument for data collection.

An email invitation to complete the online survey was sent to 300 students, of which 155 responded. Incomplete or otherwise unusable entries were discarded from the data set.

The pool of survey participants was obtained from two universities located across the Korea.

4.1 Analysis and Results

Because several new or modified scales were

[Table 3] Summary of Hypotheses Test

Hypotheses	Path Coeff.	Std Error	t-value	Support
H1.1 Development of New Relationships→Device Dependency	0.3964	0.0697	5.6898***	Yes
H1.1 Development of New Relationships→Current Relationships	0.0888	0.0884	1.0048	No
H2.1 Device Dependency→Current Relationships Management	0.2792	0.0811	3.4443***	Yes
H2.2 Device Dependency→Interpersonal Conflict	0.1690	0.0872	1.937§	Yes
H3.1 Current Relationships Management→Interpersonal Conflict	0.1800	0.0789	2.2809*	Yes
H3.2 Current Relationships Management→Loneliness	0.3330	0.0784	4.2499***	Yes
H4. Interpersonal Conflict→Loneliness	0.2753	0.0812	3.3887***	Yes

§ $t_{0.1}=1.645$,*$t_{0.05}=1.960$,**$t_{0.01}=2.576$,***$t_{0.001}=3.291$

utilized in this study, exploratory factor analysis was conducted on the reflective scales. The results were largely consistent with those of the confirmatory factor analysis and therefore are not included here for purposes of brevity. SmartPLS 2.0 M3 was used for confirmatory analysis of the measurement items and for hypotheses testing[15][16][17]. PLS was selected for the reason. PLS does not impose normality requirements on the data.

The adequacy of the reflective scales was assessed through conventional tests of convergent validity, discriminant validity, and reliability. For convergent validity, all factor loadings should exceed 0.7 and average variance extracted (AVE) for each construct should exceed 0.5[18][19]. As seen in Table 1, both criteria are met and therefore convergent validity is satisfactory. For discriminant validity, the square root of the AVE for each construct should be larger than the interconstruct correlations, and items should load more strongly on their corresponding construct than on other constructs (i.e., loadings should be higher than cross-loadings)[19]. As shown in Table 2, the square root of AVE for each construct exceeds the correlations between that and all other constructs. The results in Table 1 also show that all items load more highly on their own construct than on other constructs. Hence, the criteria for discriminant validity are met. Reliability was assessed using composite reliability, a measure of internal consistency included in the PLS output. As shown in Table 1, the composite reliabilities of all constructs are above the recommended 0.70 threshold[18][20].

5. Conclusions

With the rapidly expanding reach of the mobile instant messengers into everyday life, it is important to understand its social impact. One reason to expect significant social impact is the mobile instant messengers' role in communication. Communication, including contact with neighbours, friends, and family, and participation in social groups improves people's level of social support, their probability of having fulfilling personal relationships, their sense of meaning in life, their self-esteem, their commitment to social norms and to their communities, and the psychological and physical well-being[21]. Because mobile instant messengers permit social contact across time, distance, and personal circumstances, it allows people to connect with distant as well as local family and friends, with co-workers, with business contacts, and with strangers who share similar interests, mobile instant messengers could have important positive social effects on individuals. However, research has not yet led to consensus on either the nature of social interaction on mobile or its effects on social involvement and personal well-being.

This study investigated the factors that influence the loneliness on mobile environment because loneliness

has been found to predict a wide range of problems in middle-aged and older adults[12]. Furthermore, loneliness is the cause and influences problematic internet use[22].

Our model indicates that individuals who have high device dependency are often likely to come to conflict with the people around. And they can decrease a conversation with the people around them. In the end, they can feel the loneliness. That is, the device dependency influences the loneliness through interpersonal conflict and reducing conversation with others.

Nondependent Internet users spent most of their time online using email and the Web, whereas dependent users spent most of their time online using synchronous interpersonal communication applications[9]. Thus, if someone does not want to feel the loneliness, he/she have to reduce mobile phone dependence first.

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