

## **The Networked Individualism Approach for Understanding The Importance of ICT In Mainland China**

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### **Abstract**

At present, most of the researches on relationship between ICT and social impact are focused on specific communication technology. This paper discusses the impact of ICT on social life with the perspective of networked individualism. In order to answer the problem efficiently, we present the relationship between social network, ICT and loneliness. In the proposed model, firstly, ICT is used to maintain different social relationships. As a result, people will combine EMAIL, IM, SNS to maintain their social network. In addition, the larger the mediated social network, the lower UCLA loneliness. What's more, the more friends in the EMAIL, IM, SNS friends, the lower UCLA loneliness. Finally, the more family members in the EMAIL, IM, SNS, the higher UCLA loneliness, and the normal relationship in the media has no effect on UCLA. The result from 4 empirical studies indicates the importance of ICT for people's life.

*Keywords: Networked individualism social network ICT loneliness*

### **1 Introduction**

Basing on the existing theories, two questions are waiting to be answered: First, media do extend humanity, but except few studies [9-12], existing studies have not answered how ICT will extend modern social relations? Secondly,

although the existing Communication analyzes the impact of ICT use on the well-being, social support, depression[13], but hasn't analyzing how ICT might affect loneliness, which is an important social psychological phenomenon the modern people facing nowadays.

In this paper, based on the existing theory and research methods[2] we propose a networked individualism approach to explore the relationship between social network, ICT and loneliness. firstly, ICT is used to maintain different social relationships. As a result, people will combine EMAIL, IM, SNS to maintain their social network. In addition, the larger the mediated social network, the lower UCLA loneliness. What's more, the more friends in the EMAIL, IM, SNS friends, the lower UCLA loneliness. Finally, the more family members in the EMAIL, IM, SNS, the higher UCLA loneliness, and the normal relationship in the media has no effect on UCLA. We shows that the impact of the new media is more and more important today, we need to pay attention to the dual effect of the new media, which proposed new requirements for the media literacy for us.

The paper is organized as follows. In the next section, we propose the model that we research in this paper, and some definitions and assumptions are given. In Section 3, the impact of social network to ICT usage based on media affordance theory is presented. Section 4 presents ICT mediated social network impact on loneliness based on social capital theory. In Section 5, the cross-sectional method is used to illustrate the impacts of ICT. Finally, we conclude our paper in section 6.

## 2 Discussed problems

The discussed model is given as follow:

$$UCLA_{loneliness} = a + b_1x_1 + b_2(female) + b_3(education) + b_4(age)$$

Some basic concepts associated with the problem are presented as follows

Mediated social networks:

This is  $X_1$ , which is the independent variable of interest. The mediated social network represents the quality and quantity of social relationship we carried out through ICT, like IM, SNS and email.

UCLA loneliness:

This is  $Y$ , which is the dependent variable of interest. The UCLA represents the loneliness situation of people.

Background variables:

They are key demographic variables we added to control. The demographic variables includes sex, age and education.

### Definition 1

For mediated social network, if the following conditions are satisfied:

- i) people use ICT to connect with different type of social relationships;

Then, we called such social network as the mediated social network

**Definition 2**

For loneliness, if people answer the UCLA questionnaire, then we get his extent of loneliness.

Two assumptions are given as follows:

- i) Different ICT is used to mediate different social network
- ii) The mediated social network might significantly affect UCLA

**3. media affordance: ICT as an extension of social networks****3.1 The social affordance of media**

Media affordance as the key concept of networked individualism, explains how media to become an extension of the social networks. Media affordance means: an individual would select the appropriate media for social interaction, according to the function provided by the media and the situation of social interaction [14]. Affordance emphasized two points: first, the technology has its inherent characteristics, and secondly, these technical features will affect people's decision on how to use these media.

**3.2 Media as the extension of social network**

People need to select different ICTs to contact with each other. Existing research indicates that different ICT provide different function when people need communicate with someone. e-mail enables asynchronous communication to occur, so that people can have enough time to organize their information; instant messag tools not only support asynchronous communication, but also supports synchronous communication. As mobile phones increasingly embedding different communication oriented software, people are allowed to use different communication tools for emergency contact, miniature cooperation, emotional support becomes possible [15].

ICT carries different types of social relations. The diversity of social relations determines people will use different types of media to maintain social relations: on one hand, people use all kinds of media keep in touch with the social network, on the other hand, basing on the type of their friends, they might choose specific tools to communicate with specific relationship [4, 16, 17]. Some scholars have pointed out that, in addition to face to face, most of the participants will try to use all the media to maintain their social relations, as people use instant messaging or social networking software to maintain weak ties. An South Korea's research indicates that people tend to use the phone and face to face interaction to maintain strong community relations

Social networking is the sum of the individual social relations, which is a relatively stable structural elements. So how social networks affect ICT use? The problem in the United States through a nationwide empirical test, but in Asia, only South Korea, Singapore and Taiwan study the question based on a particular

group rather than a national investigation. So, in China, how might the status of social networks affect the use of ICT it?

#### **4. Social capital, ICT use and Loneliness**

The concept of networked individualism, on one hand emphasizes the structural impact of social relations on the use of ICT, on the other hand focuses on how ICT can be used to enhance social capital. When the ideal of social relations cannot be obtained, it may face a higher risk of ill feeling out of control. In Durkheim's book "On suicide" it has pointed out that one important reason causes suicide is lack of ideal social relationship which would cause loneliness[22]. In this study, Loneliness is conceptualized as a negative experience arising from lack of ideal social relations in the social network.

Media and social networks together have an impact on loneliness. Keep in touch with people in social networks through the use of different types of media could significantly affect social capital and happiness. IM, SNS, e-mail as the primary network communication tools, has a high penetration rate in China (CNNIC, 38th Statistical Report on China Internet Network Information Center, 2016.7) can be speculated that the three social media networks as intermediaries may have a significant impact on individual loneliness.

#### **5. Data gathering and analysis**

In order to illustrate the feasibility and effectiveness of the theory, we construct two studies according to examples in literature[9-12]. We solve them by two different approaches. The first is the approach proposed in this paper, and the second approach is the same as the first one except using the regression function to answer the question how might mediated social network impact loneliness.

The measurement of variables are shown as follows:

The first part of the questionnaire asked participants to answer background information

The second part of the questionnaire used to obtain data mediation of social networks. According to Tesung's research, mediation of social networks can be measured by two indicators: one is the size of social networks, the data is obtained by adding the total number of social networks in each media; the other is the intensity of social network relations, by getting the data of relationship type and the closeness of the relationship, we can calculate the strength of ties in the specific media. By modifying Tesung's mediated social networks questionnaire, the data of EMAIL, IM, SNS mediated social networks could be obtained through participants recalling the social relations ICT carried last week.

UCLA loneliness. By correcting UCLA loneliness questionnaire by Likert scale measuring loneliness condition of the individual, four topics ranging from 1 (strongly disagree) to 5 (strongly agree) score, the higher the score the higher the feeling of loneliness. To test the stability and the intrinsic validity of the questionnaire, the factor analysis and reliability analysis had been used. The

KMO value (.826), is greater than 0.8, and therefore the questionnaire was suitable for factor analysis. Via factor analysis, factor loading amount of each question item 0.6, so each question item has good convergent validity. Eigenvalues 1.0 to arrive at a factor of the total variance explained by the amount of (73.123)%. Internal consistency coefficient (Cronbachs'  $\alpha$ ) is (.877), greater than 0.7. The correlation between scale item is is greater than 0.3, project-related amended greater than 0.5. Specific scale entry in Table 1 and Table 2.

Table 1: UCLA factor analysis

Item	Factor
UCLA1 When I need to, no one to help me	.69
UCLA2 I'm missing my partner	.74
UCLA3 feel left out	.77
UCLA4 I feel isolated	.72

Table 2: correlation between scale items

	Item correlation	Confidence efficiency				
	UCLA1	UCLA2	UCLA3	UCLA4	Corrected item correlation	Cronbachs' $\alpha$
UCLA1	1.00				.70	.88
UCLA2	.65	1.00			.75	
UCLA3	.63	.67	1.00		.77	
UCLA4	.58	.63	.70	1.00	.73	

The mediated social network are shown as follows:

Table 3 the mediated social network

Mediated network	mediated social network				
	relationship	number	percentage	mean	std
EMAIL	Family	2110	29.00	2.13	0.05
	Close friend	2625	36.00	2.64	0.06
	Nomal friend	2577	35.00	2.59	0.07
IM	Family	2711	30.00	2.73	0.05
	Close friend	3270	35.00	3.29	0.06
	Nomal friend	3262	35.00	3.28	0.07
SNS	Family	2455	29.00	2.47	0.06
	Close friend	3098	36.00	3.11	0.07
	Nomal friend	3017	35.00	3.03	0.07

As can be shown in the table, Chinese mainland residents mainly use instant messaging tool to maintain social relationships. Survey results show that the number of people using the instant messaging tools of social relations is 9243, e-mail and social media related number is 7312 and 8570 respectively. Mean number of social relations in each media as follows: people use IM to maintain about 9 people on average, while the number of social relationships through EMAIL and SNS is 7 and 8 respectively (Table 3).

The Numerical mean number of social relationships are significantly different EMAIL ( $x^2 = 66.41, df = 2, p < .00$ ) , IM ( $x^2 = 66.66, df = 2, p < .00$ ) , SNS ( $x^2 = 85.86, df = 2, p < .00$ ) . The mean number of social network data shows the characteristics of media diversity: people will focus on the use of three different types of ICT with family, friends and the general relationship. Strong relationship between the three mediation differs, the number of friends is larger than the family relations ( $x^2 = 181.20, df = 1, p < .00$ ) .

**Table 4 The impact of mediated social network on UCLA loneliness**

	Model1		Model2		Model3		Model4		Model5		Model6		Model7	
	$\beta$	SE												
Edu	-.06	.03	-.06	.03	-.06	.03	-.06	.03	-.05	.03	-.05	.03	-.06	.03
Sex	.03	.05	.01	.05	.01	.04	.02	.05	-.01	.01	.05	.01	.04	.01
Age	-.03	.02	-.02	.02	-.02	.02	-.03	.02	-.03	.02	-.02	.02	-.03	.02
Eml num			-.02**	.01										
Im num					-.05**	.01								
SNS num							-.03**	.01						
E-fml num									.05**	.02				
E-frd num									-.09**	.02				
E-nrm num									.02	.02				
I-fml num											.03	.02		
I-frd num											-.08**	.02		
I-nrm num											-.01	.01		
S-fml num													.08**	.02
S-frd num													-.07**	.02
S-nrm num													-.03	.02
N	995		995		995		995		995		995		995	
Adjusted R	.005		.013		.038		.018		.031		.049		.045	

As can be seen from table 4, we use the social network in the email, instant messaging and social media as predictors.

Model 2 to 4 show email, instant messaging network, social media network negatively impact UCLA Loneliness significant, which shows that the larger social networks in email, instant messaging and social media networks, the lower UCLA loneliness.

Model 5 to 7 measuring link between the different types of social relations in each media channels and loneliness. It shows that the more close friends in email,, instant messaging networks, social media networks, the lower UCLA Loneliness, while the Internet, the more family member in social media networks, The higher UCLA loneliness.

## 6. Conclusions

In the proposed theory framework, the ambiguous problem is transformed into the relationship between the social network, communication channel and loneliness. The current study points out the importance of the ICT for people nowadays. The major advantage of this study is it takes ICT not separately, which could get a more grand picture of ICT significance. Hence, it can be used to give modern people more clear understanding of how to use ICT properly, and shows the necessity of media literacy education.

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