

A STUDY ON THE SOCIAL DAMAGE FROM INDIVIDUAL MOBILE DIGITAL DIVIDE

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Abstract: With the advent of smartphones, both quantitative and qualitative aspects of information exchanged by people have improved significantly. However, various types of digital divides are still emerging. The digital divide occurs in various forms according to educational background, age, occupation, and region. However, there is a lack of research on the digital divide in the wireless network environment and the calculation of the social damage from the viewpoint individual perception. Therefore, this study examines the mobile digital divide at the individual level and examines the social cost to solve it. In this paper, we focus on the types of social damage according to mobile digital divides in terms of work (education) and economic activities, social participation activities (politics, economy, issues), cultural life and consumption activities, family related problems and medical services. Unlike previous researches, it is expected that it will be possible to suggest a new direction to the establishment of the government policy to solve the digital divide by identifying social damage types according to the mobile digital divide at the individual level.

Keywords: Digital divide; Mobile digital divide; Information Gap; Social Damage Cost;

I. INTRODUCTION

The emergence of smartphones has provided an environment in which people can exchange information anytime, anywhere. As a result, both quantitative and qualitative aspects of the information exchanged by people are greatly improved.

However, various types of digital divides are still emerging. Even the digital divide in the wireless network environment is greater after the spread of the smart phones. The digital divide has been studied in various forms such as education, age, occupation, and local scale. However, research on the digital divide in the wireless network environment is still insufficient and research on the computation of the social cost and the perceived individual digital divide are still lacking.

In this study, we try to identify the mobile digital divide by measuring the individually perceived value about mobile ability. Moreover we classify the social damages into several types. By empirical studying about social damages affecting from the mobile divide, we can derive meaningful insights which can be applied to government policy about mobile digital divide.

II. LITERATURE REVIEWS

2.1 Digital Divide and Mobile digital divide

The concept of the digital divide was defined through several previous studies. The digital divide was first raised by scholars who viewed the information society as a critical view, and they saw that the information gap between the social classes would be widened due to informationization (Castells, 1989). The meaning of digital divide in the emergence of the

term was the difference in information accessibility among social groups. The difference in acceptance of information technology depends on socioeconomic differences, personal inclination, (Loader, 1998). OECD (2001) defined the digital divide in 'Understanding the digital divide' as the differences in the information gap between individuals, households, enterprises and regions, due to different socio-economic conditions.

The digital divide is mainly caused by demographic variables, especially gender, age, education level, income, race, and region (Hoffman & Novak, 1998). The introduction of information and communication technology has intensified income and information inequality, and the income of higher educated people who are engaged in information-related industry has increased due to informationization, while the income of low educated people who are engaged in simple labor occupation has decreased (Castells, 1989).

The digital divide has emerged from the initial knowledge gap to the information gap with the development of information and communication devices such as PC and Internet, and has expanded to the mobile digital divide due to the emergence of mobile devices and smart devices. The emergence of mobile devices and smart devices is expected to solve the digital divide problem, but it is getting worse.

In terms of usability, the research on the digital divide problem will be needed not only by group comparison but also by interpersonal comparison.

2.2 Social Damage Due To Digital divide

The digital divide is not only a mere difference due to the access and utilization of information, but also causes social problems such as various social, political, economic and family problems. Based on

the previous studies, the type of social damage according to the mobile digital divide can be divided into five categories: work (education) and economic activities, social participation activities (politics, economics, issues), cultural life and consumption activities, family related problems and medical services (Suh, 2000; Kang, 2006; Park & Lee, 2004; Jun & Hong, 2014).

Therefore, this study estimates the cost of social damage according to the digital divide, classifies the types of social damages caused by the digital divide, and examines the types of damages of individuals using mobile devices.

III. RESEARCH METHOD

In the first stage, social damage caused by mobile digital divide was classified by type. Based on the previous studies, the type of social damage according to the mobile digital divide can be divided into five categories: work (education) and economic activities, social participation activities (politics, economics, issues), cultural life and consumption activities, family related problems and medical services. For each type, the degree of damage felt by individuals and the level of digital divide are surveyed.

This study is to investigate the extent of the damage by analyzing the difference between the groups in which the digital divide is present and the group in which it is not present. In this way, individuals who use mobile devices are expected to empirically verify the type of social damage they experience. Data in this study were collected through surveys. The survey collected 800 data through Mbrain, a specialized research firm.

Based on the collected data, an independent sample t-test was conducted to understand the degree of social damage perceived by individuals in each field based on the analysis of the type of social damage between the group in which the mobile digital divide exists and the group in which it does not exist.

IV. RESULTS

By comparing the difference between the price of the mobile device currently in use and the price of the mobile device that the user want to use through the secured data, it is classified into the group in which the digital divide exists and the group in which it does not exist. As a result, it was classified into 316 groups with digital divide and 484 without digital divide.

The independent sample t-test was conducted to verify the difference between the two groups as Table 1. The significance level of 90% was calculated for social participation activities, family problems, interpersonal relations, and medical services. The significance (p-value) of social participation activity was 0.002, and the probability of significance of family problem and interpersonal relationship was 0.74, and the probability of significance of medical services was 0.44. In other words, the group with the digital divide is more affected by the damage in social participation activities, medical services, and family problems and interpersonal relations than the group without the digital divide. However, there was no difference between work (education) and economic activities, cultural life and consumption activities

Table 1 –t-test result

Types	Groups	Avg.	SD	t-value	p-value
Work and economic activities	Digital Divide(Y)	3.66	0.86	0.62	.535
	Digital Divide(N)	3.62	0.92	0.63	
Social participation activities	Digital Divide(Y)	3.49	0.89	3.09**	.002
	Digital Divide(N)	3.28	0.95	3.14**	
Cultural life and consumption activities	Digital Divide(Y)	3.81	0.83	0.59	.555
	Digital Divide(N)	3.78	0.82	0.59	
Family related problems and interpersonal relations	Digital Divide(Y)	3.96	0.74	1.73*	.074
	Digital Divide(N)	3.85	0.88	1.80*	
Medical services	Digital Divide(Y)	2.56	0.95	2.01**	.044
	Digital Divide(N)	2.42	0.92	2.00**	

*p<.10, **p<.05

CONCLUSION

From this study, the level of damage perceived by individuals by type of social damage can be checked and the level of cost according to the digital divide that individuals perceive can be derived.

This study sought to classify and rank the types of social damage according to the individual mobile digital divide. In summary, the results show that there

is a difference between the group with and without the digital divide in social participation activity, medical services, and family problem and interpersonal relationship. However, there was no difference between the two groups in work (education) and economic activities, cultural life and consumption activities. Based on the results of this study, it can be seen from the aspect of social participation activity, family problem, and

interpersonal relationship that the individuals who feel the current digital divide recognize that there is a problem in communication with people due to digital divide. Conversely, groups that do not feel the digital divide can be described as feeling that the mobile device they are using is not a problem for communication with people. Also, in terms of medical services, it can be interpreted as the difference in the ability to use various smart devices to provide medical services due to the existence of digital divide.

The results of this study suggest various policy implications. First, it can be seen that the damage caused by the digital divide, which individuals perceive, suffer from communication problems from family and interpersonal relations to social activities. Therefore, when establishing policies based on the digital divide, it is necessary to recognize and solve the problem as the priority problem to be solved. Second, the convenience of providing various medical services due to the development of smart devices needs to be considered. It is needed to present various medical services and guidelines for digital poor.

Based on the results of this study, it is expected that it will contribute to the study of social integration as well as the direction of the government's policies for resolving the digital divide in the future smart society.

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