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Internet Use and Trust in Government

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Abstract: The prevalent use of the internet has increased the tendency of people making decisions based on the information found on the internet, however there have been limited research on how the internet use influences trust in government. Thus, the purpose of this study is to examine the extent to which the use of the internet influence trust in government. In addition, this study examines moderating effects of using social media and internet forum on relationship between the use of the internet and trust in government. The regression analysis has been conducted using the data from the citizen perception survey of 2012 to study the effects of the internet usage on the trust in government. Interaction terms were added to the baseline model in order to test moderating effects. The results of this analysis suggests that the misguided information from the internet may negatively influence people's trust in government. Multiple regression analyses showed that the more the government-related information is acquired from the internet, the more negative impact is on the trust in government in the case of the Korean people. Furthermore, the negative relationship between the use of the internet and trust in government appears to be reinforced when the government-related information is retrieved through the internet fora and social media. Civil efforts such as developing internet literacy should be continued to encourage the individuals to distinguish quality and credible information from false information. Governments also need to put in an effort to provide citizens with a proper guidance for acquiring information and to inform them of risks of free contents from free media and other different sources.

Key words: Internet use, trust in government internet forum, social media, distinguish quality, Korea

INTRODUCTION

As the internet has become a major source of information, people rely more on the internet to acquire information rather than on traditional media such as television and printed newspapers (CFDG, 2000; Johnson and Kaye, 2009). Because the internet provides improved accessibility, reduced cost and fast communication it brings about great benefits for users and is likely to decrease the impacts of traditional information providers (Krimsky, 2007; Weare, 2002). Due to the prevalence of mobile phones and smart phones, it has become one of the most powerful methods for information acquiring and sharing. Unlike traditional media, the information available on the internet can be created and delivered by many different actors including individuals, groups and organizations. Such information takes many different forms such as text, photo and video and can be easily transmitted from one person to another through various channels like email, social media and blogs.

Nonetheless, the problem of inaccuracy or biasedness of information found on the internet has been consistently discussed by many scholars. Previous studies have shown that people tend to believe in such false information even when they know it is invalid (Chung, 2011; Rapp and Braasch, 2014). There has been an ongoing debate over reliability of the information available on the internet and an extensive literature has grown up concerning its credibility and possible impacts (Johnson and Kaye, 2009). In spite of the growing body of literature, little research has been conducted on the relationship between the internet usage and trust in government (Im *et al*., 2012). Considering that people rely heavily upon websites to acquire information including public services, it is necessary to examine how the internet usage of citizens influences their attitudetoward the government.

Many online materials contain information about government services and policies including food, safety, economy and political issues which are closely related to our daily lives. Because the internet functions as a platform that connects anonymous actor's communication and collaboration information can readily be accessible and diffused. It should be however, noted that the internet contents can be easily manipulated or

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distorted. In addition, people may encounter articles that maliciously criticize government's mistakes, poor public services or unfavorable attitude of public officers. Therefore, we can assume that the use of the internet may have a negative impact on people's trust in government. However, valid causal inferences aboutthe effects of the use of the internet remain elusive.

Accordingly, the research questions addressed in this study are: how the use of internet information which is focused on the political and governmental issues, impacts citizen's trust in government and under what circumstances the relationship between variables may be reinforced or alleviated. We assume that if citizens are frequently exposed to the internet information about political issues and government activities it may influence citizen's evaluation on the government. This study attempts to test hypotheses we put forth using representative data collected from 16 South Korea metropolitan cities.

Theoretical background and hypothesis

Trust in government: Following by Rotter (1967), trust can be rendered as individual or collective expectation that certain entity's implicit or explicit expression is reliable. The term trust includes many sub-concepts and can be defined as many different types, however, the studies on trust in government have suggested that it is mainly related to whether or not governments are performing effectively according to expectations held by citizens (Miller and Listhaug, 1990). Thus, trust in government links to citizen participation (Putnam, 1995), performance of governments and relations with the public (Vigoda and Yuval, 2003). Even though researchers have not reached an agreement upon core concepts constituting trust in government, most studies have focused on the outcomes of government's activities and performances (Abramson and Finifter, 1981; Craig, 1993; Orren, 1997).

Other studies outlined that citizens evaluate their governments based on the perception of how government are responsive, open and fair (Donovan and Bowler, 2004). In this case, trust in government is related to how the government communicates with people and reacts to their needs and requests rather thanhow it successfully achieves desirable outcomes and results of government policies. Thus, disclosure of information on government processes and transparency are considered to be a quintessential democratic value that can substantially influence on the level of trust in government.

After reviewing voluminous literature on determinants of trust in government, we have found several implications as following. Firstly, the performance of governments has been recognized as a major influencing factoron trust in government. Many researchers have identified that performance indicators perceived by citizens such as social security and responsiveness have positive impacts on trust in government (Mishler and Rose, 2001; Turner and Martz, 1997). Among many performance indicators, some indicators related to the national economy were found to be more important in Asian countriescountries (Chang and Chu, 2006).

Secondly, the level of citizen's support for governmental agencies is associated with trust in government. For example, citizen's support for the president can increase trust in government (Brewer and Sigelman, 2002). Therefore, trust in politicians such as president can provide partial explanation for trust in government. Furthermore, attitude of a citizen toward congress and other quasi-government agencies can have a positive/negative effect on trust in government.

Beyond the ongoing enquiry into the features, elements and determinants of trust in government, the current development of regarding theories and empirical studies have commonly emphasized its importance in the process of government's activities. Trust in government plays an influential role for the legitimacy and stability of law enforcement and government involvement. The common findings are that higher level of trust in government encourages citizen's compliance and public action (Kim, 2005). Thus, an attempt to look for determinants of trust in government is meaningful for the operation of representative government. This study aims to provide an empirical literature in this field by focusing on the internet and social media use.

Internet use and trust in government: The internet has become a major source of information by providing quick access to valuable data and information. Based on its low-cost and unrestrictedaccessibility, the internet has become a useful means to release issues and information not only for individual uses but also for people in business and public sectors (Chung, 2011). Because of its positive and significant advantages, governments are encouraged to use the internet and social media as an important policy tool for the communication with people. By delivering government information and services online through the internet, citizens can acquire information at their own convenience which leads to greater public confidence in government and increased transparency of decision making process of the government (West, 2004; Grimmelikhuijsen and Welch, 2012).

On the other hand, the internet contents, at times, offer biased, exaggerated or misleading information while

invoking a substantial amount of public attention. Because the internet offers two-way communication and links for users, it also can facilitate the use of such misleading information when it seems provocative (McComas, 2006). Furthermore, unverified or fake information can expand exponentially through online interaction especially when they involve controversy (Krimsky, 2007).

To this end, many researchers have raised questions about reliability and credibility of information available on the internet and its possible effect on attitude of people or societal factors such as communication methods and governmental activities has been tested (Weare, 2002; Welch *et al*., 2005). Previous studies suggested that information found on the internet could distort true facts and provide biased information due to the lack of verification. As a result, people may be deluded into believing unreliable information as true facts (Chung, 2011). In line with these arguments, there has been growing debate over whether people are capable of discerning good and reliable information from inaccurate and misguided information (Johnson and Kaye, 2009).

Recognizing there is much work in the evaluation of the internet, greater attention is now paid to explore possible impacts of the internet usage. While evaluation on the impact of the internet is somewhat conflicting, little research has focused on a relationship between the use of the internet and attitude to the government (Im *et al*., 2012). Some studies noted that increased use of the internet may have a negative impact on trust in government (Im *et al*., 2012). For example, unconfirmed rumors about a US beef spread widely through the internet and social media during mass demonstrations against US-Korea FTA in 2008 (Park and Myung, 2009). It stirred up a considerable controversy about Korean government's and politician's decision on the ratification of FTA. The South Korea's high penetration rate of mobile phone and high-speed internet helped people to pass on the information.

Considering internet users are connected by a rich web of communication links where a lot of unverified information about political and governmental issues is exchanged, researchers can assume that the use of the internet may be negatively related to trust in government. This idea is based on the assumption that information has an effect on attitude and belief (Van de Walle and Bouckart, 2003). Former studies have already identified causal path linking the rise of the internet to increased social fragmentation (Weare, 2002). Thus, the purpose of this study is to explain how the use of the internet affect citizen's attitude toward government (trust in government).

In particular, Korea ranked the 1st on the International Telecommunication Union (ITU)'s ICT Development Index and United Nation (UN)'s e-Government Development Index and E-participation Index (National Information Society Agency, 2014). Moreover, according to the 2014 survey on the internet usage from Korea internet and security agency, 41,118,000 Korean people are using the internet (Security Agency, 2014). Furthermore, it appears that the Korean citizens have low level of trust toward the government in which only 23% of Korean citizens trust their government according to the better life index issued by the OECD in May, 2014. Therefore, we argue that South Korea provides a good circumstance for a case study on the relationship between the internet use and trust in government. In consideration of the discussion above, we hypothesize that increased use of the internet will have a negative impact on the level of citizen's perception of trust in government:

- H_1: individuals who spend more time using the internet are more likely to exhibit a lower level of trust in government

Another important aspect that should be considered in our model is specific types of the internet services which is likely to be associated with our first hypothesis. Some studies pointed out that public information from free media can exacerbate social uncertainty and anxiety (Huang, 2017; Kapferer, 1990). Social media internet forum, Blogs and a Webportal that brings information from diverse sources are examples of free media. Social media is defined as services where users can create online contents and profiles that allow user-generated contents (Mergel, 2012). It connects individuals directly to each other and other entities including governments and nonprofit organizations. Therefore, federal and local governments are increasingly adopting social media as a communication tools to inform and share information (Hand and Ching, 2011; Campbell *et al*., 2014).

Within the body of studies on social media, researchers have found that adoption of social media is positively related to increased communication with stakeholders and satisfaction with the government (Bortree and Seltzer, 2009). While most of the researchers studying the use or adoption of social media have recognized its great potentiality as third-party platforms and communication tactic the US Government Accountability Office (GAO) presented a report which indicated risks inherent in the use of social media (GAO, 2011). Because the government agencies have less control over social media they are not likely to wield strong influence over disclosure and exchange of

user-generated information. Accordingly, a problem of credibility and reliability of information from social media should not be neglected.

An internet forum also provides a platform where citizens can make conversations with other people in the form of posted messages. Generally interested individuals, experts and organizations discuss particular topics and specific subjects. Participants can freely express their views, opinions and arguments. Still, the government cannot easily control or manipulate the system. Thus, it is possible to assume that information found on the internet forum may have a problem of lack of verification.

Given these common features of free media, we can assume that the use of social media/internet forum will affect the way people understand information from the internet regarding topics about governments. Consequently, the degree of the use of social media/internet forum needs to be considered when examining how internet use affects trust in government. A reasonable model is that the use of the internet is likely to undermine trust in government and that acquisition of information about political/public issues from social media/internet forum might reinforce negative effects of internet use:

- H_{2-1}: use of social media will negatively moderate the effect of internet use on trust in government
- H_{2-2}: use of forums on the internet will negatively moderate the effect of internet use on trust in government

MATERIALS AND METHODS

Data and methods

Sample: The data set we use for this study is obtained from the 'Citizen Perception Survey' in 2012 which was designed by the Knowledge Center for Public Administration and Policy of Graduate School of Public Administration (GAPA) of Seoul National University. Basically, this survey is to explore the capacity of civil society and governments and to find out some of the issues surrounding politicians and government's decision making and activities. It contains a wide range of citizen's perception on public sectorsregarding leaders of society, public policy, social problems, media, politics and so on. We choose several items in order to measure variables used in our conceptual models.

The survey was conducted from December 7, 2012 to January 7, 2013. Respondents were selected by stratified and multistage cluster sampling methods. The 2012 survey data set includes a total of 1,200 respondents who is over 19 years old. Thus, we argue that the data we use in this study well represent the population group. Data collection was done by a professional survey company, Korea Gallup. After the selection of targeted respondents interviewer visited their residence and received a response face-to-face. Supervisors educated and conducted each interviewer in the process of whole survey in order to minimize non-sampling error. In the process of analysis, we removed some missing values from the raw data. Finally, a total of 1,185 samples were used in the analysis. Table 1 shows demographic characteristics of the respondents.

Table 1: Demographic characteristics of respondents

Category	N	Percentage
Gender		
Male	594	50.1
Female	591	49.9
Age		
Under 29	219	18.5
30-39	244	20.6
40-49	259	21.9
50-59	226	19.1
60 or older	237	20.0
Academic background		
Elementary school	82	6.9
Middle school	100	8.4
High school	550	46.4
2 years college	133	11.2
University (4 years)	320	27.0
Employment status		
Employed	805	67.9
Unemployed	380	32.1
Political inclination		
Progressive (1-2)	308	26.0
Moderate (3)	547	46.2
Conservative (4-5)	330	27.8

Measures: The hypotheses we propose in this study seek to find an answer to the question about how the use of the internet impacts citizen's trust in government. As discussed earlier individual's trust in government is established based on many factors regarding government's processes, activities, outcomes and whether these are properly open to the public. Based on theoretical discussion on trust in government and previous empirical studies, we used four questionnaires in order to measure it. Items are as follows: "our governments are transparent, don't tell a lie, try to work effectively, research for a majority of people". Items were measured by a five point Likert style scale ranging from 1, "strongly disagree" to 5, "strongly agree". We combined 4 items and used an average score in the analysis. The Cronbach's alpha of the four items was 0.806.

The independent variable is 'internet use' which is primarily focused on the purpose of information acquisition about governmental and political issues. Previous studies understood internet usage as a concept that includes online shopping, online gaming, searching for information about sports and entertainment. However, as discussed earlier, we attempt to find a more direct relationship between the use of internet information regarding public/governmental issues and attitude toward governments. We measured it using three items: "I search

for government-related news on the internet", "I search for government-related topics on the internet", "I use the Internet as a main source of acquiring government-related information". This was also measured by five-point Likert type scale. The Cronbach's alpha of the three items was 0.896.

Our second hypothesis is that the use of social media and internet forum may affect the relationship between the internet usage and trust in government. In order to measure the use of social media, respondents were asked to answer the following question: "How often do you read articles and comments about political/public issues posted on social media?" using a five-point likert type scale ranging from 1, "not at all" to 5, "every day". The use of internet forum is measured by a following single item: "How often do you read articles and comments about political/public issues posted on the internet forum?" using the same five-point Likert type scale. Respondents who answered "yes" to the question of general internet use ("How much time do you spend on the internet?" 1, "Yes: hours and minutes", 2, "Never") answered to above two questions. Therefore, we used a sub-sample in the analysis of moderating effects (N = 869).

In the analyses, we also uses a total of seven control variables. Demographic characteristics of respondents can alter trust in government. Results of previous empirical studies on the impact of individual characteristics are somewhat obscure and conflicting. For example, Christensen and Laegreid (2005) reported that older people have higher trust in government in contrast, Uslaner (1999) suggested that older people tend to have lower trust in government. In terms of gender, Citrin and Luks (2001) argued that women than man have higher trust in government, however, Brewer and Sigelmen (2002) reported the opposite result. Effects of educational levels are also inconsistent among empirical studies. For example, Brewer and Sigelman (2002) showed that the high educated tend to have higher trust in government. In contrast, Cook and Gronke (2005) reported the opposite result. Thus, this study considered demographic variables-gender, age, academic background, family income, political inclination, region of residence and employment status as controls.

Gender was measured by a dummy variable (0 = female, 1 = male). We used a five-point Likert style scale for measuring age (1 = between 19 and 29.2 = between in this study well represent the population group. Data collection was done by a professional survey company, Korea Gallup. After the selection of targeted respondents 30 and 39.3 = between 40 and 49.4 = between 50 and 59.5 = 60 or older), academic background (1 = elementary school, 2 = middle school, 3 = high school, 4 = undergraduate, 5 = graduate) and political inclination (from 1 = strongly progressive to 5 = strongly conservative). Family income per one month was measured by a ten-point scale (1 = <1 million, 2 = from 1<1.5 million, 3 = from 1.5<2 million, 4 = from 2<2.5 million, 5 = from 2.5<3 million, 6 = from 3<3.5 million, 7 = from 3.5<4 million, 8 = from 4<4.5 million, 9 = from 4.5<5 million, 10 = 5 or >5 million, unit = KRW). We used a dummy variable in order to measurethe region of residence (1 for Southwest area and 0 for the other) and the employment status (0 = unemployed, 1 = employed). Table 2 shows the descriptive statistics of the variables.

Table 2: Descriptive statistics

Variables	N	Mean	SD	Min.	Max.
Trust in government	1.185	2.56	0.65	1	4.5
Internet use	1.185	2.51	1.07	1	5.0
Use of social media	869.0	2.06	0.98	1	5.0
Use of internet forum	869.0	2.28	1.02	1	5.0

RESULTS

Prior to the hypothesis testing, an exploratory factor analysis using a Varimax rotation was conducted in order to test validity of the variables. Because the use of social media and internet forum and other control variables were measured by a sing item, seven items that measure the dependent variable (trust in government) and independent variable (internet use) were used in the factor analysis. Factor loadings of four items that were used to measure trust in government ranged from 0.821-0.764 and three items for measuring the internet use ranged from 0.928-0.926.

Table 3 shows results of the baseline multiple regression analysis to test the effect of the internet usage on trust in government. As shown in Model 1 of Table 3 internet use was negatively associated with trust in government. The coefficient of internet use was statistically significant (β = -0.175, $p<0.001$). This indicates that when people get more information on the government from the internet they are more likely to have a negative attitude toward their government. In Model 2, demographic variables were addedto the basic model in order to control confounding effects. After controlling for demographic characteristics, the coefficient of internet use still remained negative and statistically significant (β = -0.114, $p<0.01$). Again, the use of the internet for acquiring information on thegovernment may undermine public trust in government. The overall results of this study are consistent with the empirical test results of the previous study (Im *et al*., 2012) which reported a negative

Table 3: Regression analysis for internet use and trust in government

	Dependent variable: trust in government	
Variables	Model 1	Model 2
Internet use	-0.175*** (0.017)	-0.114** (0.022)
Gender		0.020 (0.038)
Age		0.037 (0.017)
Academic background		0.019 (0.021)
Family income		0.080* (0.009)
Political inclination		0.167*** (0.024)
Region		-0.128*** (0.060)
Employment status		-0.125*** (0.042)

N = 1185; F = 37.52***; R^2 = 0.031; N = 1185; F = 15.83***; R^2 = 0.097; *p<0.05; **p<0.01; ***p<0.001; standard errors in parenthesis

Table 4: Regression analysis for moderating effects: use of internet forums and social media

	Trust in government			
Variables	Model 3	Model 4	Model 5	Model 6
Internet use	-0.012 (0.031)	-0.024 (0.031)	-0.010 (0.030)	-0.034 (0.031)
Use of internet forum	-0.127** (0.023)	-0.075+ (0.028)		
Internet use×use of internet forum		-0.086* (0.026)		
Use of social media			-0.148*** (0.024)	-0.041 (0.031)
Internet use×use of social media				-0.151** (0.029)
Gender	0.039 (0.045)	0.040 (0.044)	0.043 (0.044)	0.040 (0.044)
Age	-0.027 (0.019)	-0.020 (0.019)	-0.041 (0.020)	-0.035 (0.019)
Academic background	0.064 (0.024)	0.064+ (024)	0.064+ (0.024)	0.066+ (0.024)
Family income	0.050 (0.010)	0.054 (0.010)	0.059+ (0.010)	0.068* (0.010)
Policy inclination	0.177*** (0.028)	0.174*** (0.028)	0.173*** (0.028)	0.172*** (0.028)
Region	-0.123*** (0.073)	-0.116** (0.073)	-0.131*** (0.072)	-0.0125*** (0.072)
Employment status	-0.074* (0.052)	-0.076* (0.052)	-0.078* (0.052)	-0.077* (0.051)

N = 869; F = 8.65***; R^2 = 0.083; N = 869; F = 8.28***; R^2 = 0.088; N = 869; F = 9.21***; R^2 = 0.088; N = 869; F = 9.57***; R^2 = 0.100; +p<.01; *p<0.05; **p<0.01; ***p<0.001; standard errors in parenthesis

relationship between the use of the internet and trust in government (Dataset obtained from 'Citizen Perception Survey' in 2009 was used in this study. The measure for the internet use was a total amount of time spent on the internet). The results of regression analyses give strong support for the hypothesis 1.

In order to test moderating effects of the use of Internet forum and social media, we added interaction terms (Internet use×use of Internet forum, internet use×use of social media) intothe baseline regression model. Before constructing interaction terms, we conducted mean-centering in order to avoid confusion when interpreting coefficients in the moderator model that estimate simple effects of the variable (when the other variable is fixed at 0). It is also a meaningful to avoid multicollinearity.

Table 4 shows that the negative impact of internet use is generally maintained, even after controlling for the use of free media and demographic factors. In the Model 3, the use of Internet forum was negatively related to trust in government (β = -0.127, p<0.01) and statistically significant. In the Model 5, the use of social media also had a negative and statistically significant effect on trust in government (β = -0.148, p<0.001). This suggests that individuals who get information about government from free media may have a lowerlevel of trust in government. In terms of moderating effects of the use of internet forum and social media, results for the moderating models showed that using free media statistically reinforces the negative effects of internet use on trust in government. In the Model 4, the interaction term the use of the internet×the use of Internet forum was added into the Model 3. The coefficient of the interaction term was negative and statistically significant (β = -0.086, p<0.05). For each unit increase in the use of internet forum, the slope relating the use of Internet to trust in government decreases by 0.086. This indicates that as the degree of the use of the Internet forum increases, the negative relationship between the use of the internet and trust in government is intensified.

In the Model 6, the interaction term the use of the internet×the use of social media was added into the Model 5. The coefficient of the interaction term was also negative and statistically significant (β = -0.151, p<0.01) which meansthe degree of the use of social media increases the negative relationship between the use of the internet and trust in government is reinforced.

DISCUSSION

This study examinedhow the use of the internet for acquiring information about governments impacts on individual's trust in the Korean government using the survey data. We also tested the effects of the use of internet forum and social media on trust in government. In addition, moderating effects of the use of internet

forum/social media in the relationship between the use of the Internet and trust in government was tested. Given the importance of maintaining high levels of individual's trust in government, this study made a meaningful contribution to researchers and practitioners by giving empirical test results. According to the analysis of this study individuals who obtain more government-related information on the internet tend to have decreased level of trust in the Korean government. As seen in the case of protest against US beef controversy in 2008, the internet has been a major source of information for individuals however, the unverified and indiscriminate information on government policies quickly rumors through the internet which amplifies the social unrest ultimately leading to the distrust in government policies. At that time, citizen's apprehensions on the mad cow disease have rapidly spread through the internet and social media which led to the candlelight demonstration opposing the ratification of FTA between the US and Korea. During the demonstration which lasted 40 days, the approval rating recorded low of 10%.

Overall analyses results and Korean case suggest that acquiring of information through the internet fora and social media coupled with social unrest will negatively influence the trust in government. In the moderating effect tests, results showed that more use of the internet forum and social media to obtain information on political/public issues hasstrengthenedthe negative impacts of the internet usage. This seems to be due to the fact that information found on the internet may contain negative and biased information which is often unsourced. In particular, provocative information may emphasize negative aspects or provide exaggerated information for the purpose of attracting public attention. In this case, it may imply that the government is not acting properly to confront with social issues. In addition, it also implies that user-generated contents may misguide the people by providing wrong information which in turn leads to the decreased level of trust in government.

CONCLUSION

The findings from this study raise several issues that require further discussion. First, government officials need to give careful attention to the open issues and debate that are discussed on the internet. In order to enhance the trust in government upon the use of internet, it is necessary to improve the public perception of government performance by properly publicizing the government policies and achievements by utilizing the e-Government. Second, the government need to maintain high level of transparency by providing open government data where citizens have the right to access governmental documents and proceedings. If the citizens are allowed for public oversight of government's activities and performances they will have a lower chance of being misled or deluded. In this case, even if governments are failed to generate desirable outcomes, the open government will be able to provide a buffer against negative perceptions toward governments. Lastly, civil efforts such as developing internet literacy should be continued to encourage the individuals to distinguish qualityand credible information from false information. Governments also need to put in an effort to provide citizens with a proper guidance for acquiring information and to inform them of risks of free contents from free media and other different sources. In addition, the governmentneeds to participated in the interactions and communications with citizens on the internet as one of active actors by using e-Government, social media and other services.

LIMITATIONS

In spite of contributions of this study, there are some limitations to be noted. We introduced some single-item measures in the analyses. Even though previous studies suggest that single-item measures can provide validity and reliability (Moynihan and Pandey, 2004), multi-item scales are needed for further research. In addition, more close and detailed investigation including mediating effects is also needed in order to examine complex causal relationships regarding the use of internet.

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