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Internet literacy and digital natives' civic engagement: Internet skill literacy or Internet information literacy?

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ABSTRACT

This study aims to show the role of Internet literacy in empowering digital natives' civic engagement. Using a survey of 10th graders, we analyzed the effects of digital media use and Internet literacy on adolescents' political and social interest, participation, and efficacy, controlling for their home and school environments. In doing so, we try to highlight the following points. First, we emphasize that there are two separate dimensions of Internet literacy: Internet skill literacy and Internet information literacy. Second, we adopt a broader concept of civic engagement reflecting the changing youth practices observed in the contemporary media environment. The study empirically found that Internet information literacy, not Internet skill literacy, is intricately related to adolescents' civic engagement. It was also shown that adolescents' Internet use contributed only to new and alternative forms of participation. Overall, the findings show that an adolescent who can critically understand and effectively evaluate online information is more likely to become an active civic participant than one who lacks such skills. The study concludes with a few policy suggestions.

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Introduction

Despite concerns over adolescents' political apathy toward politics, today's youths show increasing interest in politics and social participation and are becoming actively engaged in certain issues via innovative activities. The Internet and mobile media are not only continually feeding today's youths with information but also enabling them to connect with one another and express and share their viewpoints and emotions.

Participation now includes many types of behavior, including some that used to be considered too playful or atypical to be called 'participatory' in a traditional sense. Various innovative forms of civic engagement include conversing casually about contemporary social issues, mixing cute emoticons and avatars into serious conversations, conversing in chat rooms, participating in online social campaigns via social network service and playing games designed to advance awareness of environmental issues. These activities, which pertain not only to politics but also to wide-ranging social issues, are gradually

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being accepted as legitimate forms of participation (Bennett 2008) and have triggered efforts to reconceptualize the political and civic engagement (O'Neill 2007).

Previous studies have long noted the relationship between the Internet and adolescents' political participation (Bennett 2008; Delli Carpini 2000; Jenkins 2006; Lee, Shah, and McLeod 2013). Because online activities are at the core of a wide range of participatory and deliberative behavior, Internet literacy has emerged as one of the key factors in understanding and accounting for such youth civic engagement (e.g. see Borge and Cardenal 2011; Hargittai and Shaw 2013; Kahne, Lee, and Feezell 2012). Studies of youth media literacy have tended to be oriented toward 'protecting' youth against potential harm. However, with the diffusion of digital technologies offering new possibilities for user involvement and interaction, media literacy is increasingly being considered as competency for empowerment (Hobbs 2011; Mihailidis 2009). Indeed, the Internet is teaching adolescents to be responsible consumers, active learners and engaged citizens (Livingstone and Helsper 2010). However, the overall level of youth Internet literacy may not be as high as frequently assumed (Hargittai 2010).

This poses an interesting case for Korean youth's use of the Internet and civic engagement behaviors. Korea is a country equipped with the world's highest broadband penetration and Korea has been leading the trend in innovative online communications practices such as online newspaper made up of 'citizen reporters' (the case of OhMyNews) and social media predating Facebook (the case of Cyworld). On the other hand, a cross-national comparisons of civic participation and social capital revealed Korea to remain at a relatively low level (Schulz et al. 2010). Korean youths, despite under the authoritarian school and family culture which discourages youth organized civic or social activities, have been increasingly visible in socio-political activities involving digital media use. This study focuses specifically on the two components of Internet literacy: *Internet skill literacy* and *Internet information literacy*. It attempts to analyze the effect of each component on adolescents' civic engagement. Often when discussing the difference between traditional media literacy and Internet literacy, the operational aspect of Internet technology is highlighted as a key factor, as new skills are required to navigate the Internet. However, when it comes to using the Internet to advance youth civic engagement, the ability to filter and assess information from a nearly infinite set of messages can be an equally or even more important factor.

The following section reviews how civic engagement practices are changing with an increasing repertoire of innovative online behaviors. We then discuss the concept of Internet literacy and its components and review previous studies that have linked Internet literacy and civic engagement to present our hypotheses. We then describe our survey data and methodologies, present our empirical findings and discuss our results. The evidences in Korea will show how young people navigate in the online space and how it relates to civic engagement practices in a well-connected environment.

Theoretical background

Changing civic engagement practices

The city center of Seoul, Korea's capital, was filled with millions of candles during summer 2008. The government had reversed a ban on the import of U.S. beef in spite of prevalent

public concern related to the potential breakout of mad cow disease. Differentiating this event from previous public demonstrations was the diversity of the crowd that gathered for the protest, which included uniformed students and young mothers pushing strollers.

The adolescents' participation was quite surprising considering the highly hierarchical school culture in Korea, which emphasizes respect for and obedience of established orders such as lessons from the elderly and government policies. Furthermore, Korean students' participation in social activities outside school has typically been quite limited compared with that in Western countries, as their school culture has prioritized academic performance above all else. Networking, constant online messaging and various uses of mobile media paved the way for the voluntary, dispersive and yet coordinated mobilization of adolescents at 'the candlelight rally'. Adolescents proactively exchanged messages in groups or as individuals, shared their sentiments and encouraged one another to participate in civic engagement.

Civic engagement refers to 'involvement in the public sphere, incorporating participation in constitutional politics as well as less formally constituted activity' (Davies et al. 2012). According to Davies et al. (2012) and Park and Perry (2009), civic engagement includes both electoral and non-electoral elements, each of which can be further divided into deliberative and action-oriented engagement. Deliberative and action-oriented engagement are even more tightly connected and assimilated on the Internet in the way they instantly mobilize people into various online and offline actions, as exhibited by the candlelight rally. Valenzuela, Arriagada, and Scherman (2012) suggested that using Facebook to acquire news and socialize can tangibly influence unconventional protest activities such as boycotts, the display of witty slogans and the signing of petitions.

In the deliberative aspect, adolescents show increasing interest in a broad range of topics. Recent data have shown that young people are more interested in emerging global (Gerodimos 2008) and social issues (Min and Roh 2011) and less interested in more traditional political issues such as party politics and elections. According to a recent survey of Korean adolescents, 48.2% of the respondents stated they were willing to engage in conversations about political and social issues, and only 24.7% were willing to participate in campaign activities for a candidate or a party during an election period (Lee, Kim, and Lee 2012). Although adolescents may seem less interested in traditional political issues, they may simply have different interests.

Given the profound changes in the public sphere related to the types of political activities and range of issues capturing the interest of young people, scholars have suggested reformulating the concepts of citizenship and civic participation (Dahlgren 2000; Delli Carpini 2000; Livingstone, Bober, and Helsper 2005).

Bennett (2008) aptly defined new citizenship as 'actualized citizenship' (AC) and differentiated it from 'dutiful citizenship' (DC), which has traditionally been considered ideal. DC is based on electoral engagement, such as voting and institutional participation, within the established rules of political parties. AC refers to a broader range of actions related not only to governmental issues but also to various social issues. Bennett (2008) contrasted the respective political socialization processes. Fostering DC requires public organizations such as schools and the mass media and fostering AC involves participation in online networks.

Adolescence is the most important period of political socialization (Langton 1969). The affective and behavioral aspects of political orientation developed during this period may

determine lifelong citizenship (Jennings and Niemi 1968; Prior 2010). Although family and school are considered major venues for developing desirable citizenship (Chaffee, McLeod, and Wackman 1973; Langton 1969), the Internet has become a crucial agent in political socialization (Bennett 2008; Delli Carpini 2000; Lee, Shah, and McLeod 2013). It became especially so to cultivate AC in Korea.

As political education is one of the controversial and sensitive subjects in Korea due to its contemporary history of democratization overcoming the dictatorship and the ongoing confrontation with the Communist North Korea, the standard curriculum puts emphasis on explanation of contemporary political institutions and factual political history and limits in-depth discussions on civic organizations and activities (Kim 2007). Furthermore, opportunities for extra-curricular activities, volunteer club activities and social experiences which can be a fertile training ground for participatory behaviors are very limited in youth culture because of the tremendous academic pressure stemming from one of the most competitive university entrance examination system in Korea. This makes the online experience as a political socialization process all the more meaningful for Korean youth.

Based on the preceding discussion about changing the civic engagement concept, the following section examines adolescents' political/social interests and institutional/alternative participatory actions and how they relate to the adolescents' levels of Internet literacy.

Internet literacy: Internet skill literacy and information literacy

According to Dimaggio et al. (2001), the association between an individual's Internet use and level of civic engagement may be ambivalent. Early research that focused on the time spent using the Internet and the type of content accessed or activity performed (commonly grouped as information acquisition, entertainment and communication) gave way to more nuanced studies involving socioeconomic or psychological factors (Hargittai and Shaw 2013). The type of content alone does not predict whether it will enhance or harm one's level of engagement. Although the same type of content can play a positive role by providing information, inspiring interest and increasing participation, it may also increase disaffection, cynicism and distrust (Hanson et al. 2010; Pinkleton, Austin, and Fortman 1998).

Access and ability are two separate factors that are necessary to fulfill the potential of Internet usage (Bunz 2004; Van Dijk 1999). Studies have examined the ways in which differences in Internet usage ability affect the level of benefit attained from that usage (Hargittai and Hinnant 2008; Van Dijk 2005). Self-reported skills are mediating factors that determine the level of 'capital-enhancing' online activities such as seeking news, election information and financial services (Hargittai and Hinnant 2008). Borge and Cardenal (2011) showed that Internet skills had a direct effect on participation, independent of the individual's political interests. Internet literacy has been added to the list of determinants of civic participation, which also includes money, time, motivation and civic skills.

The increasing dependence on information accessed through the Internet has made Internet literacy a vital resource in actualizing a democratic society in terms of civic and lifelong education (Correia 2002; Mihailidis and Cohen 2013). The logical next question relates to which kinds of skills are required and the roles they play.

Scholars have provided various definitions of Internet literacy. In general, they have defined it as the ability to access, understand/analyze/evaluate and produce (Buckingham

2009; Livingstone 2004; Martin 2005). 'Access' refers to not only owning a device but also having the operational knowledge and essential skills required to use it. 'Understand/ analyze/ evaluate' refers to the information processing skills that are applied when encountering an infinite supply of online messages. 'Produce' refers to the operating skills and general communication competency required to make expressions and formulate messages that fit the medium. Production capability is unique in digital media. It requires a user who is able to deal with the technical aspects of the medium and process information to construct content. In a way, production is a mix of the other two abilities.

Following van Deursen, van Dijk, and Peters's (2011) conceptualization, this study focuses on two broad components of Internet literacy: *Internet skill literacy* and *Internet information literacy*. Internet skill literacy is conceptually parallel to access. It relates mainly to the set of basic skills required to use Internet technology, including the ability to navigate hypermedia environments. Adolescents are generally considered to have high Internet skill literacy, and older generations experience difficulties that necessitate their re-socialization with ICT skills. Compared with traditional media, digital media require more sophisticated skills, and young people are generally more technologically able as digital natives (Leung and Lee 2012).

Internet information literacy refers to one's ability to sift through information to achieve certain needs. This often involves searching, collecting, understanding and evaluating content. Van Deursen and Van Dijk (2011) defined four Internet skills, including operational, formal, information and strategic skills, and regrouped them into medium – (operational and formal) and content-related (information and strategic) skills. The distinction between skills and critical understanding is theoretically apt because it underlines the distinctions between tool and text and between medium and message (Kim 2011; Livingstone 2009; Tyner 1998). This two-pronged approach can be applied to the conceptualization of media literacy in both new and traditional media environments.

The levels of Internet skill literacy and Internet information literacy do not always go together. In the Netherlands, the former is generally quite high and the latter varies from person to person (Van Deursen and Van Dijk 2011). Internet usage experience increases Internet skill literacy but not Internet information literacy, which increases with age (van Deursen, van Dijk, and Peters 2011). The respective effects of the Internet literacy components must be evaluated separately to establish a link between Internet literacy and the positive outcomes of Internet usage.

Despite the importance of Internet information literacy, Hargittai and Young (2012) suggested that today's Internet users have somewhat limited ability to filter information from increasingly abundant online sources. Many educators have expressed their concerns about adolescents' inability to critically consume and produce information (Ba, Tally, and Tsikalas 2002; Leung and Lee 2012). Differences in Internet information literacy may lead to knowledge gaps and also to participation gaps. This study first compares the levels of the two components among Korean youths.

RQ: Is the level of Internet skill literacy higher than that of Internet information literacy?

Studies have examined the effects of Internet literacy on political participation. However, the majority have regarded operational capabilities, that is, Internet skill literacy, as Internet literacy. Krueger (2002) found Internet skills (the ability to navigate the Internet and deal with e-mails) to be the most important predictor of online participation. In the

context of Korea, Min (2010) found Internet skills to be more important than socioeconomic or demographic factors in helping individuals take advantage of the political opportunities available online. Borge and Cardenal (2011) also confirmed that Internet skills were significant predictors of participation independent of motivation, as skillful users encountered many political messages and requests to engage in participatory activities.

Studies examining the relationship between Internet skills and increased civic engagement have attributed increased participation to an exposure to the increasing amount and diverse sources of online political information. However, Borge and Cardenal (2011) observed that the decreasing cost of information access did not necessarily extend to processing the information required to understand an issue or form an opinion, the cornerstones for further deliberation. In terms of general information literacy, the competencies required to read, evaluate and interpret information are essential in this essentially communicative process.

Therefore, it is important to emphasize Internet information literacy along with Internet skill literacy (Hargittai et al. 2010; Jenkins 2006; Livingstone 2004; Van Dijk and Van Deursen 2010), especially in terms of their link to civic engagement. Internet information literacy refers to how an individual finds, analyzes and evaluates information (Hargittai et al. 2010), a capability that has always been important in the traditional media environment. Although Van Deursen and Van Dijk (2011) emphasized the importance of information literacy, they warned against assuming that the skills required for Internet literacy are totally different from those required for traditional media.

Kahne, Lee, and Feezell (2012) found that youths who received Internet literacy education, including assessing online information and producing new information, showed changes in their political participation patterns. This suggests that how a person absorbs mobilizing information may determine how he or she reacts to that information. According to one Korean study, simply reading online postings may affect one's participation in online political deliberation (Kim and Rhee 2006).

Young people are spending more hours exposing themselves to civic and political issues on digital media than ever before (Kahne, Lee, and Feezell 2012). The ability to understand and assess a message critically can restrain impulsive or irrational outbursts of emotion and help one recognize the benefits of online deliberation (Burkhalter, Gastil, and Kelshaw 2002). Mihailidis and Thevenin (2013) highlighted developing critical media literacy for formal and informal civic competencies in daily life as critical in contemporary society.

Given that the process of fostering actualized citizens involves their abilities to process information (Bennett 2008; Flanagan and Levine 2010), we expect Internet literacy and especially information literacy to play critical roles in encouraging engaged citizenship. Being exposed to a wide range of information, sharing personal views and interacting with others can stimulate interest in different social issues. Political deliberation and communication through online networks depend especially on the quality of the information and communication involved due to the collective nature of the online environment (Park and Perry 2009). Young Internet users who are able to assess the credibility of online information and decipher the ideological and political meanings of messages are likely to be active participants (Correia 2002; Kahne, Lee, and Feezell 2012).

H1: Internet skill literacy has a positive effect on adolescents' civic engagement.

H2: Internet information literacy has a positive effect on adolescents' civic engagement.

H3: Internet information literacy has a relatively stronger effect on civic engagement than Internet skill literacy.

In analyzing the effects of Internet skill literacy and Internet information literacy, this study compares adolescents' levels of interest in political and social issues, and likewise their intentions to participate in institutional and alternative activities. It would be interesting to determine whether Internet skill literacy and Internet information literacy have stronger effects on adolescents' interest in social issues rather than political issues and stronger effects on their interest in alternative participatory activities rather than institutional participatory activities.

Unlike traditional media, the Internet provides not only factual but also mobilizing information, which triggers people to act (Eveland and Scheufele 2000). It also provides detailed information and especially information about the political processes; enables discussion and debate; and informs people about how to realize their own political opinions. In doing so, it enhances political efficacy and participation. Many studies have shown that political efficacy and participation increase when more information reaches individuals (McLeod, Scheufele, and Moy 1999).

Political efficacy refers to one's self-evaluated confidence that he or she can influence the political process through his or her actions, leading to political participation (Bandura 1977). Studies have acknowledged the relevance of political efficacy to Internet usage (Pinkleton and Austin 2001). Traditional media have supported the idea that media usage positively influences political efficacy (Norris 1996). Similarly, low political efficacy among the youth, isolated people and minorities was previously attributed to their lack of information, leading to their low influence on politics (Scheufele and Nisbet 2002). However, the Internet has reportedly been effective at raising political efficacy. It provides not only information but also opportunities to connect with other citizens and engage in debate (Livingstone, Couldry, and Markham 2007). Young people are likely to have lower political efficacy as long as they consider participatory activities to be 'adult stuff'. However, using the Internet to engage in a broader range of activities may lower the barrier for young people by allowing them to accumulate experience gradually. Therefore, we predict that Internet use increases confidence in online participation.

H4: Internet skill literacy has a positive effect on enhancing adolescents' political efficacy.

H5: Internet information literacy has a positive effect on enhancing adolescents' political efficacy.

In summary, this study divides the Internet literacy into Internet skill literacy and Internet information literacy, and hypothesizes each component's influence on civic engagement (H1, H2). In addition, it tests if the effect of Internet information literacy is indeed stronger than the Internet skill literacy (H3). Internet skill literacy and Internet information literacy are hypothesized to increase political efficacy as well (H4, H5).

Methods

Sample and procedures

We surveyed first-year high school students in March 2012. Korean students start learning political science in ninth grade as required by the national curriculum, so 10th grade

students were sampled in this study to include the effect of formal education . With permission from the principals of two public high schools in Seoul,[1] the researchers and assistants attended four classes in each school and oversaw the participants as they completed the surveys in 30–40 minutes. Two hundred and fifty-seven students completed the questionnaire. A rejection of invalid questionnaires produced 238 valid questionnaires. The subjects consisted of 119 males (50%) and 119 females (50%). The majority of their parents' highest levels of education were college (53.7%) followed by high school (32.3%). The respondents' average economic status matched the median Korean household income in 2012[2] ($3994.13 per month). The median household income was between US$3000 and US$4000 per month, close to the national average.

Measurements

Internet literacy

The questionnaire asked the respondents to self-assess their online abilities from 1 ('Not confident at all') to 5 ('Very confident'). Internet skill literacy was measured based on Web fluency (Bunz 2004) and the skill measures adopted by Schumacher and Morahan-Martin (2001). The respondents ranked their abilities in the following categories: surfing friends' blogs or mini homepages, uploading images to online bulletin boards, sending e-mail attachments, downloading documents or images from websites, listening to music or watching video clips on the Web and downloading music or video files and transferring them to other devices.

The questions related to Internet information literacy were designed according to the criteria used by van Deursen, van Dijk, and Peters (2011), who based their measurements on a study by Marchionini (1995). These questions related to the actions users took to meet their needs for information. The following four items were used: selecting a search engine to find required information, formulating questions or manipulating search options to search for information, identifying necessary information among search results and evaluating information sources.

A factor analysis (varimax) of above 10 items indeed produced 2 separate factors, both with high Cronbach's α values (Internet skill literacy = .90, Internet information literacy = .84).

Civic engagement

Political interest. Five questions pertained to the respondents' interest in political issues (elections, politicians, political party activities, public institution activities and government policy) ($\alpha = .94$). Interest in social issues was measured on a 5-point Likert scale from 1 ('I am strongly disinterested in that issue') to 5 ('I am strongly interested in that issue') with items pertaining to the environment, human rights and minorities, consumer movements, education and international relief efforts ($\alpha = .90$).

Political participation. Institutional and alternative participation were measured based on the classifications implemented by Verba and Nie (1972) and Kim and Yang (2013). Institutional participation related to one's intention to engage in political activities and was measured by six items (e.g. elections, campaigns, civil complaints and visits to government websites) ($\alpha = .88$). Intention to engage in alternative forms of participation was

measured according to six items (signature-seeking campaigns, boycotts, rallies, posting messages to persuade others, sharing others' posts and joining online campaigns) (α = .92) using the same 5-point Likert scale.

Political efficacy. The questions were designed to measure adolescents' political efficacy based on the criteria used by Craig, Niemi, and Silver (1990). Seven statements were presented, such as 'I am qualified to participate in the political process' and 'I fully understand the political and social issues of our society' (α = .75). The same 5-point Likert scale was used.

Control variables

Family background and performance in school's civics curriculum. We attempted to include the family and school factors as control variables, as they have traditionally been considered influential in adolescents' political socialization process. The family background variables were income, parents' level of education and family communication patterns. We considered family communication style by including whether the family communication was conversation oriented (Chaffee, McLeod, and Wackman 1973; Ritchie and Fitzpatrick 1990). As school is also an important political socializing agent, we included the students' civics curriculum (social studies) grades to control for the effect of school learning.

Media use. The respondents were asked about the amount of time they spent per week reading newspapers, watching television and using the Internet. Internet usage was broken down into three categories: information seeking, communication and entertainment. The respondents were asked to rate on a 5point scale how much time they spent online for each of the following purposes: informational usage (seeking information via e-mail, news and message boards), communicative usage (social media such as Facebook, blogs and online chat platforms) and entertainment usage (YouTube and P2P, music and game sites).

Data analysis

After cleaning the data by determining the within-questionnaire internal validity of the answers and outliers, we subjected the major variables to validity and reliability tests. We also checked the multi-collinearity of the regression analysis. Finally, we conducted hierarchical regressions for each civic engagement variable while controlling for the influence of political socialization within the respondents' families and schools in addition to their media usage.

Results

Internet skill literacy and Internet information literacy

Table 1 presents the means of the major variables. All of the differences between the means of the paired variables were statistically significant.

The respondents' Internet skill literacy was significantly higher (3.92) than their Internet information literacy (3.52), a finding consistent with previous studies (van Deursen, van Dijk, and Peters 2011; Eshet-Alkalai and Chajut 2010). They indeed showed greater proficiency in using the Internet than in critically evaluating online information.

Table 1. Descriptive statistics and compared means of major variables.

Descriptive Statistics						Paired sample *t*-test		
						Paired differences		
	N	Min	Max	*M*	SD	*M*	SD	*Paired t*
Internet skill literacy	235	1	5	3.92	0.83	0.40	0.71	8.70***
Internet information literacy	235	1	5	3.52	0.88			
Interest – political issues	235	1	5	2.42	1.01	0.60	0.85	10.89***
Interest – social issues	237	1	5	3.01	0.91			
Participation – institutional	234	1	5	2.68	0.91	0.10	0.48	3.34***
Participation – alternative	235	1	5	2.79	1.03			

***$p < .001$.

The respondents' level of interest in social issues (3.01) was indeed higher than their level of interest in political issues (2.42). Moreover, their intention to engage in alternative forms of participation (2.79) was stronger than their intention to engage in institutional forms of participation (2.68). This indicated that the respondents' patterns of contemporary civic engagement were indeed changing, as discussed in the literature review. Overall, these findings clearly showed signs of the transition from DC to AC (Bennett 2008).

Political interest

To understand the effects of Internet skill literacy and information literacy on young people's political interest, we conducted regressions for each of the two political interest variables: political issues and social issues (see Table 2).

Table 2. Hierarchical regression analysis of political interest.

	Interest in political issues		Interest in social issues	
	β	*p*	*β*	*p*
Control variable				
Sex	−.145	.056	.080	.266
Family background				
Parents' education	−.027	.713	.005	.941
Income	.007	.926	−.040	.582
Conversation-oriented communication pattern	.096	.175	.048	.479
School: civics curriculum				
Academic performance	.186	.013*	.125	.081
Media usage				
Overall newspaper usage	.013	.859	.011	.872
Overall TV usage	.094	.223	−.024	.748
Overall Internet usage	−.065	.400	.030	.689
Internet usage for information	.146	.056	.260	.000***
Internet usage for communication	.096	.214	.014	.852
Internet usage for entertainment	−.157	.037*	−.102	.157
Internet literacy				
Internet skill literacy	−.185	.060	−.126	.180
Internet information literacy	.268	.007**	.366	.000***
R^2	.191***		.249***	

Notes: Regression coefficients are standardized. Cell entries are final-entry ordinary least squares (OLS) standardized coefficients. Multi-collinearity was checked.

*$p < .05$.

**$p < .01$.

***$p < .001$.

There was a significant relationship between the respondents' Internet information literacy and level of interest in both political and social issues. As expected, the respondents' Internet information literacy ($\beta = .27$ for political issues, $\beta = .37$ for social issues) was the strongest predictor of their interest in both types of issues. However, their level of Internet skill literacy was not significant and the direction of the coefficient was negative, indicating a contrast between the effects of the two types of literacy.

None of the media usage time variables were related to the respondents' levels of political or social interest. However, the type of content showed some statistical significance. Although the time the respondents spent using the Internet was not significant, their informational usage was positively related to their level of interest in social issues. Using the Internet for entertainment ($\beta = -.16$) decreased the respondents' level of interest in political issues, as other studies (Norris and Jones 1998) have emphasized.

Family background was not important. However, academic performance in social studies ($\beta = .19$) had a meaningful influence on the respondents' level of interest in political issues. This result makes sense considering that standard civic curricula in Korea mainly cover the formal features of political systems, such as government organization and operations, political party systems and the election process. According to the results, the roles of school learning and Internet usage diverged, with school influencing the respondents' political interest and the Internet influencing their interest in various social issues.

In general, Internet information literacy and not Internet skill literacy had a powerful influence on the respondents' levels of interest in both political and social issues. This suggested that it was not Internet usage time per se but Internet information literacy and specific content that mattered in relation to the respondents' civic engagement.

Participation

The next set of analyses focused on the relationship between the two components of Internet literacy and action-oriented participation. Based on the discussion of the changing practices of civic engagement, we ran analyses for each of the two participatory actions: institutional and alternative participation (Table 3).

Internet information literacy was significant only in relation to alternative participation. Once again, Internet skill literacy was not a significant determinant of either institutional or alternative participation. This indicated the importance of the role of Internet information literacy in the respondents' civic engagement. In addition, there seemed to be little relationship between both Internet literacy components and the respondents' institutional civic participation. In summary, H1 was not supported. H2 was partially supported, as the respondents' Internet information literacy was significantly related to their political and social interest and alternative participation but not their institutional participation. The influence of Internet information literacy outweighed that of skills literacy in all four of the cases. Therefore, H3 was supported.

As with the results in the previous section, the time the respondents spent using the Internet, watching TV and reading newspapers was not related to any form of participation. However, the relationship between some types of Internet content and alternative participation was statistically significant. Both informational Internet usage ($\beta = .15$) and communicative Internet usage ($\beta = .15$) were positively related to alternative participation.

Table 3. Hierarchical regression analysis of political participation.

	Institutional participation		Alternative participation	
	β	*p*	*B*	*p*
Control variable				
Sex	.022	.765	.014	.848
Family background				
Parents' education	.098	.187	.094	.179
Income	−.033	.663	−.023	.745
Conversation-oriented communication pattern	.122	.088	.110	.104
School: civics curriculum				
Academic performance	.232	.002**	.244	.001**
Media usage				
Overall newspaper usage	.059	.414	.094	.164
Overall TV usage	.005	.951	−.043	.555
Overall Internet usage	.015	.842	.002	.978
Internet usage for information	.070	.357	.146	.043*
Internet usage for communication	.139	.074	.154	.035*
Internet usage for entertainment	−.109	.149	−.066	.349
Internet literacy				
Internet skill literacy	.069	.479	.064	.490*
Internet information literacy	.116	.244	.185	.049
R^2	.195***		.279**	

Notes: Regression coefficients are standardized. Cell entries are final-entry OLS standardized coefficients. Multi-collinearity was checked.
*$p < .05$.
**$p < .01$.
***$p < .001$.

Both informational and communicative usage, which involved sharing comments and exchanging messages with peers, affected the respondents' engagement in alternative forms of participation. This inferred that messages mobilizing new and unconventional actions were prevalent online and that the respondents were influenced by such messages. Indeed, the information acquisition and communication opportunities afforded by the Internet were the building blocks for newer forms of civic participation.

The variable that best explained institutional and alternative participation was a control variable: academic performance on the school's civics curriculum ($\beta = .23$ for institutional participation and $\beta = .24$ for alternative participation). Family background did not have a significant effect.

Political efficacy

Final analysis was conducted to examine the effect of the respondents' levels of Internet literacy on their political efficacy (Table 4).

Among the independent variables, Internet information literacy was the most influential ($\beta = .37$). On the contrary, Internet skill literacy ($\beta = -.23$) was negatively related to political efficacy. Thus, H4 was rejected and H5 was supported. The two components of Internet literacy once again had divergent effects on the respondents' political efficacy.

Moreover, the time the respondents spent using the Internet was negatively related to their political efficacy ($\beta = -.15$). However, communicative usage of the Internet appeared to have a positive effect on their political efficacy. The respondents' political efficacy increased as they encountered public affairs information and opinions and as they connected with one another's messages. Although family background had no significant

Table 4. Hierarchical regression analysis of political efficacy.

	Political efficacy	
	β	*p*
Control variable		
Sex	−.127	.092
Family background		
Parents' education	−.051	.488
Income	−.081	.288
Conversation-oriented communication pattern	.075	.291
School: civics curriculum		
Academic performance	.218	.004**
Media usage		
Overall newspaper usage	.032	.654
Overall TV usage	.011	.882
Overall Internet usage	−.151	.050*
Internet usage for information	.025	.744
Internet usage for communication	.168	.029*
Internet usage for entertainment	−.059	.426
Internet literacy		
Internet skill literacy	−.232	.018*
Internet information literacy	.368	.000***
R^2	.199***	

Notes: Regression coefficients are standardized. Cell entries are final-entry OLS standardized coefficients. Multi-collinearity was checked.
*$p < .05$.
**$p < .01$.
***$p < .001$.

effect, the school's civics curriculum ($\beta = .22$) did. This can be attributed to the respondents' raised levels of confidence in the subject area, as the civics courses provided general politics knowledge and encouraged the respondents to understand how the political system worked.

Discussion

Given that traditional metrics of engagement such as voting or party membership are eroding (Mihailidis and Thevenin 2013) and a new type of 'actualized citizenship' is on the rise (Bennett 2008), the factors that encourage adolescents' engagement and participation in the political process are key drivers for the future of democracy. This study examined the role of Internet literacy in the political socialization of adolescents, whose patterns of civic engagement behavior are changing. Scholars have suggested that digital media literacy can help youths offset their low political engagement motivation (Borge and Cardenal 2011; Kahne, Lee, and Feezell 2012).

As a key competency in today's changing political landscape, a systematic conceptualization is required to link Internet literacy to consequences such as civic engagement. This study emphasized the distinction between Internet skill literacy and Internet information literacy and found considerable support for such a scheme. It also found a solid evidences that specifically Internet information literacy is a key driver in promoting adolescents' civic engagement behavior by empowering them the ability to appropriate of the potential digital media provide.

In terms of the online connectivity level of access and uses Korean young generation is at the top in the world; yet, it showed that the level of information literacy falls short of that

of technical skills. Considering the cultural milieu surrounding Korean youths – over-emphasis on academic performance, little opportunity to participate in student-led activities, generally authoritative culture which values obedience to the established order, etc. – that does not exactly encourage participatory behaviors from the first place, the effects of the Internet information literacy on increasing civic participation was clear.

In the traditional media environment, most information is preselected and processed by professionals before it becomes available to the audience. However, in the contemporary environment, the responsibility of filtering through information falls mostly to the user. Although one's technical skills improve with increased Internet usage, information assessment skills do not improve over time (Eshet-Alkalai and Chajut 2010). An orchestrated policy effort is required to improve the fundamental literacy people require to filter information. Such policy program will be beneficial to all age groups. The effect of such investment would be even more fruitful for youths who are in the stage of political socialization. Proactive and prudent information seeking habits will not only do good to each individual but also to all the citizens as a group of cohorts reaping gains of externality.

Because Internet information literacy is deeply related to young people's civic engagement, there is a risk that education disparity may translate into participation gaps (Jenkins 2006, 257). Stronger public support is required to strengthen media education and improve adolescents' Internet literacy and especially Internet information literacy in and out of school. The information literacy level of the adolescents examined in this study was lower than their level of skill literacy. This should sound an alarm.

However, neither Internet skill literacy nor overall time spent using the Internet were discriminating factors in determining the respondents' levels of political interest and participation. We even found Internet usage time and Internet skill literacy to be negatively related to the respondents' political efficacy. This result emphasized the divergent effects of the two components of Internet literacy by showing a starkly contrasting picture. Subdividing Internet literacy into media and information dimensions and developing theories about each dimension should help researchers explore the effects of Internet literacy beyond civic engagement, especially as various new kinds of media services and devices are introduced. For example, future research should look into the contribution of the Internet literacy on consumption and learning behaviors as the Internet use is already critical in all realms of everyday life. People no longer live 'with' but rather 'in' the Internet (Deuze 2007) and are practically always 'on'. Internet literacy should be used to empower people to be a better consumer and learner as well as a participatory citizen.

Other than examining the roles of the two components of Internet literacy, this study attempted, albeit indirectly, to assess whether adolescents' civic engagement practices were changing. Although we fell far short of directly testing whether the transformation took place, we found adolescents' scope of political interest to be broader and their levels of participation higher for alternative types of participation. Furthermore, their Internet information literacy and Internet usage behavior, such as the type of content accessed, were more closely related to their social interest and alternative participation rather than their political interest or institutional participation. This result was in line with what Bennett (2008) and Dalton (2008) called a key paradigmatic change in the concept of contemporary political citizenship. Indeed, it seems that a new type of citizenship is being introduced that is deeply related to digital media usage. Future research on the effects of adolescents' Internet usage on civic engagement should note that the effect can be

successfully captured only when ideas about citizenship and participation are broadly conceptualized.

Many researchers have considered the contribution of communicative Internet usage to adolescents' civic engagement, especially with the emergence of various social networking services (Kim and Yang 2013; Valenzuela, Arriagada, and Scherman 2012). Although the data considered in this study did not reflect the adolescents' mobile device usage, which remains a limit,[3] it showed how communicative Internet usage could increase adolescents' alternative participation and political efficacy. Adolescents' political efficacy may be critical to their transformation into participatory citizens. Interactions with other Internet users expose young people to divergent viewpoints, promoting further reflection on and deepening the awareness of complexity of social issues on a level that has not possible before. Whether the use of social media through mobile devices would cultivate a wider participatory behaviors or on the other hand narrow down users' focus on their small circles of social interactions poses an interesting and worthwhile question to pursue.

Among the control variables included in the study, the effect of academic performance on civics curricula stood out most. School learning not only contributed to a rise in the respondents' political interest, but also boosted their institutional and alternative participation. What young people learn from formal school curricula and Internet usage can produce a synergistic effect that cultivates participatory citizenship. Integrating formal education with media education may help devise an effective citizen education program. On another note, this result might be interpreted as reflecting a peculiar school culture of Korea. Academic performance is such a supreme source of student self-efficacy that those who have good grades are often selected or assigned to the leadership roles which explains the high rate of participation.

This study had several limitations. Due to the inherent weakness of its cross-sectional data, the findings did not establish causality. Another weakness was the limited measurement of the Internet literacy concept, which we measured using the self-reporting scales of shorter indexes.[4] Future research should rigorously explicate the concept and continue to test the various dimensions. The concept should be richer if a diverse set of competency factors are integrated. For example, as Jenkins (2006) emphasized, the ability to engage multimodal inquiry, multimedia platforms and information abundance through curation is related to both Internet skill literacy and Internet information literacy. Some researchers have posited that the concept of media literacy is a subset of the overarching concept of communication competence (McLeod and Pan 2005). The relationship between Internet literacy and communication competence deserves serious attention.

From town meetings and community bulletin boards to the advent of radio, television and the Internet, mediated information has always been a powerful means of informing a democratic public (Mihailidis 2009). The Internet may be the most powerful tool in civic life, and it offers terrain for adolescents to practice civic participation. But this fertile terrain has to be utilized to be able to offer positive results. Building up Internet literacy, especially information literacy is vital.

Although this study showed evidence garnered in Korea, the implications can go further to other parts of the world as well. Considering the higher connectivity to digital media in Korea, this study shows that further increasing the diffusion of the

network and speeding up the broadband alone is not enough to encourage young people to utilize the Internet's potential. Even with higher level of access and use the level of civic participation remained low unless with certain level of Internet information literacy.

In addition, higher level of Internet information literacy was associated with higher level of civic participation even with cultural background which discourages youth social participation in Korea. This certainly shows that the Internet can be a viable additional ground on which adolescents' political socialization can take place. A coordinated educational efforts to combine formal educational curriculum and Internet literacy education is strongly recommended in order for the digital natives to attain opportunities and to realize possibilities in the mediatized world.

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Notes

1. Korea has a high population density within a relatively smaller area and the distribution of inhabitants is mostly concentrated in large cities including the capital city 'Seoul'. All middle schools are public, funded by government, and follow the same standard curriculum. The two schools we chose were comparable in size and the patterns of the major variables did not show any difference depending on the school.
2. http://www.index.go.kr/potal/main/EachDtlPageDetail.do?idx_cd=2905.
3. At the time of data collection (March 2012), smartphone ownership for Korean teens was around 19% (KISDI).
4. However, Hargittai and Hsieh (2012) reported that shorter online skill indexes worked reliably and consistently compared with the longer measures of Web usage skills. Some researchers have preferred measuring real task performance, which presents a higher cost and cannot be applied to large samples.

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