

Running head: POLITICAL EFFICACY ON THE INTERNET

Political Efficacy on the Internet: A Media System Dependency Approach

Katherine Ognyanova

University of Southern California

Author Note

This study was conducted with support from the USC Annenberg Center for the Digital Future and the USC Annenberg School for Communication and Journalism. The author would like to thank Peter Monge, Robert Lunn, and Michael Suman for the valuable feedback provided on early drafts of this work.

Abstract

Grounded in Media System Dependency theory, this article investigates the impact of new media on political efficacy. It suggests that dependence on online resources affects people's perceptions about the democratic potential of the Internet. Using structural equation modeling, the study tests the relationship between political attitudes and the perceived utility of the Web. The analysis employs measures that take into consideration the facilitating role of communication technologies. Results indicate that online political efficacy is associated with individual views about the comprehensiveness and credibility of new media. Efficacy is also linked to the perceived ability of online tools to aid the maintenance of ideologically homogenous social networks. The intensity of Internet dependency relations is found to be predicted by the perceived comprehensiveness - but not credibility - of online news.

Keywords: political efficacy, online participation, new media, media system dependency, Internet dependency, media credibility, political homophily

Political Efficacy on the Internet: A Media System Dependency Approach

Political efficacy is one the most prominent drivers of democratic participation (Morrell, 2003). Research has demonstrated that media use - and news consumption in particular - enhance efficacy, public affairs knowledge, and civic engagement (Pinkleton & Austin, 2001; Scheufele & Nisbet, 2002). With the emergence of the Internet as a major news source and an important social platform, scholars have launched investigations into the democratic potential of digital media (Shah, Cho, & Eveland, 2005). Studies exploring the link between online activities and political efficacy have, however, reported inconsistent results (Coleman, Morrison, & Svennevig, 2008; K. M. Lee, 2006; Scheufele & Nisbet, 2002). This article addresses the discrepancies in existing literature, proposing a media system dependency (Ball-Rokeach, 2008) approach to the study of Internet use and political attitudes. It advocates the use of Internet-specific indicators of political efficacy and maintains that dependency on online resources is more relevant than exposure measures. The study explores the relationship between efficacy, perceived utility of online news, new media credibility, and individual preference for ideological homogeneity of social ties.

Literature Review

Media System Dependency

Media System Dependency (MSD) was developed in the 1970s in response to weak-effects models of mass communication (Ball-Rokeach, 1974; Ball-Rokeach & DeFleur, 1976). MSD suggests that the cognitive, behavioral and affective consequences of media use are premised upon characteristics of both individuals and their social environment (Ball-Rokeach, 1985). The theory is grounded in classical

sociological literature positing that media and their audiences should be studied in the context of larger social systems. Personal psychological attributes and properties of media content are considered important, but not sufficient to fully explain the nature and origin of media effects (Ball-Rokeach, 1988).

Taking an ecological perspective, MSD sets out to explicate power relations among various social entities. The theory focuses on *dependency*: a relationship in which "the attainment of goals by one party is contingent upon the resources of another party" (Ball-Rokeach & DeFleur, 1976). Media influence is seen as derived from the possession of scarce information resources: the capacity for information gathering/creating, processing, and dissemination (Ball-Rokeach, 1998).

The power structures studied by MSD operate at multiple levels of analysis. The media system has two-way resource-dependency relations with individuals (micro-level), groups and organizations (meso-level), and other social systems (macro-level). According to Ball-Rokeach (1985), the most consequential macro-level media dependency relationships in modern capitalist societies are those with the economic and political systems. These relations are seen as relatively symmetric as each of the three systems relies on the other two for its survival. The political system, for instance, depends on media to reinforce social values and norms, support the maintenance of order and help mobilize citizens. Media, on the other hand, rely on political institutions for legitimation, judicial and legislative protection, as well as a constant supply of relevant story material.

Much of the MSD literature explores the predictors and consequences of micro-level relations (Ball-Rokeach, 2008). As discussed above, the intensity of individual media dependencies is influenced by macro factors. It is also affected by the structural stability within a society and the levels of uncertainty experienced by audience members (Ball-Rokeach, 1998; Loges, 1994). As the complexity of navigating a social environment increases, media assume a broader variety of important functions.

MSD takes into consideration individual differences in demographic and psychological characteristics to the extent that they determine personal goals, perceived utility of resources, and access to information

(Loges & Ball-Rokeach, 1993). The theory provides a conceptual typology of dependency dimensions based on the nature of goals attained by individuals through media use. Under that classification, major information goals include understanding one's social environment, orientation with view to meaningful and effective action, solitary and social forms of play (Ball-Rokeach, Rokeach, & Grube, 1984). Dependency on media for those purposes has been shown to predict a variety of attitudes and behaviors, including selective exposure (Ball-Rokeach, et al., 1984), newspaper readership (Loges & Ball-Rokeach, 1993), product purchases (Grant, Guthrie, & Ball-Rokeach, 1991; Skumanich & Kintsfather, 1998), participation in public deliberation (De Boer & Velthuisen, 2001), political perceptions (Halpern, 1994), and voting decisions (Davies, 2009).

Examining the role of online media, MSD takes a position that appears closer to social constructivism than to technological determinism. Digital platforms are seen as necessarily operating within the established macro framework of interrelated social systems (Ball-Rokeach, 1998). Even on the Internet, individuals are still placed in asymmetric dependency relations that privilege producers over consumers. At the same time the theory allows for the possibility that people who have the necessary resources may assume the role of content creators. With the introduction of new communication technologies, micro MSD relations are becoming more diverse as audiences get involved in the production and dissemination of information (Loges & Jung, 2001). In this process of renegotiating dependency structures, however, legacy media have succeeded in retaining much of their traditional influence (Kelly, 2008).

Political Efficacy and the Internet

Political efficacy is one of the most important and well-studied predictors of democratic participation (Morrell, 2003). First introduced in the 1950s by Campbell and associates, it is defined as the belief that one's actions can influence political processes, which in turn makes civic participation worthwhile

(Campbell, Gurin, & Miller, 1954). Research on political attitudes and behavior has since confirmed the link between efficacy and political engagement (Delli Carpini, 2004).

Further investigations suggest that political efficacy consists of two interrelated components. *Internal efficacy* describes the belief that one can understand political life and participate effectively in it, while *external efficacy* refers to the perception that political actors and institutions are likely to be responsive to citizen demands (Niemi, Craig, & Mattei, 1991). External efficacy is related to the concept of political trust. Citizens who trust their government are also more likely to think that they can influence its decisions (Davis & Owen, 1998).

Research has established that media use in general and news consumption in particular are associated with increased efficacy (Pinkleton & Austin, 2001; Scheufele & Nisbet, 2002). Around the turn of the century, scholars also began investigating the impact of Internet use and online news exposure on political actions and attitudes. While positive associations were often hypothesized, results have been far from conclusive (Bakker & de Vreese, 2011; Boulianne, 2009; Delli Carpini, 2004). One group of studies reported sizeable positive effects of Internet access on engagement (Kenski & Stroud, 2006; Mossberger & McNeal, 2008). Others found small or no effects (Boulianne, 2009; Scheufele & Nisbet, 2002). One explanation for these discrepancies is that the typically used exposure measures were not nuanced enough to serve as a good predictor of political participation (Bakker & de Vreese, 2011; Shah, McLeod, & Yoon, 2001).

Studies looking specifically at political efficacy have been similarly inconsistent in their findings (Coleman, et al., 2008; Zhang, Johnson, Seltzer, & Bichard, 2010). In one of the early works investigating this, Davis and Owen (1998) found that online audiences tend to score high on efficacy measures, having a greater confidence in their ability to influence the political process compared to the general public. Davis & Owen further suggested that attention to new media can be seen as a manifestation of a general connectedness to the political world.

Lee (2006) hypothesized that the Web can lower barriers to political participation and increase efficacy by providing an easy way to communicate with activist groups and elected officials. Based on a survey of US college students, he concluded that information-related Internet use and online political communication were predictors of internal, but not external efficacy.

Using data from the 2000 National Annenberg Election Survey, Kenski and Stroud (2006) discovered a positive association between Internet access and efficacy. Though statistically significant, the impact of Internet use they saw was relatively small.

Another set of scholars exploring the impact of the Internet on political efficacy reported results that were even less encouraging. A study by Scheufele and Nisbet (2002) found no effect of using the Internet for information, and a negative effect of entertainment uses. The researchers concluded that the Internet had a rather limited role when it came to promoting citizenship. Longitudinal analyses also found a limited or no association between efficacy and online exposure to political information (Jennings & Zeitner, 2003; Johnson & Kaye, 2003).

Online Efficacy and Dependency Relations

Responding to the stated need for more research on the impact of new media on political efficacy (Delli Carpini, 2004), this paper addresses the inconsistencies in existing literature in two ways. First, it advocates the use of a medium-specific measure of efficacy. Second, it posits that Internet dependency would be a more reliable predictor of political attitudes than exposure indicators.

One possible explanation for the observed discrepancies is that they stem from the use of general measures of efficacy. It is likely that Internet-related variables will be consistent predictors of the perceived efficacy associated specifically with *online* political actions. Thus the present study uses an adapted index of relative online efficacy. Traditional items (e.g., "I think people like me have a say in what the government does") are replaced with medium-specific versions (e.g., "I think by using the

Internet, people like me can have more say in what the government does"). The belief that online tools have the capacity to empower individuals should inform behavioral intentions and drive online participation (Postmes, 2007).

Grounded in the MSD framework, this article further maintains that the intensity of individual dependency upon online resources will prove to be a better predictor of efficacy compared with exposure or access measures. Internet dependency and related constructs have been employed by scholars as a more adequate way to capture the meaning and context of usage patterns (Jung, Qiu, & Kim, 2001; Loges & Jung, 2001; J. Melton & L. Reynolds, 2007).

In general, MSD relations are expected to determine both one's media use and the consequent effects on attitudes and behavior (Ball-Rokeach, 1985, 1998). Dependency is, furthermore, less constrained by environmental factors that may suppress or enhance exposure (Ball-Rokeach & Grant, 1990; Grant, 1996). Consumers relying heavily on a source for the fulfillment of personal goals will experience greater effects, even if their exposure is limited. News reading, for instance, has been found to produce different cognitive responses in people who report similar exposure time but different dependency intensity (De Boer & Velthuisen, 2001).

In their comprehensive MSD field study, Ball-Rokeach et al (1984) demonstrate that dependency patterns do in fact predict selective exposure. Other research has confirmed that media importance measures have greater validity and stronger relation to efficacy compared with media use (Pinkleton & Austin, 2001). Based on similar premises this study hypothesizes that:

H1a: Internet dependency will predict Internet exposure.

H1b: Internet dependency will predict online political efficacy.

H1c: Internet dependency would be a better predictor of efficacy than Internet exposure.

Perceived Utility: News Scope, Credibility and Political Interaction Online

The perceived utility of media resources is an important individual-level factor affecting dependency strength (Ball-Rokeach, 1998). The intensity of MSD relations is influenced not only by individual goals, but also by the expected usefulness of media in achieving these goals (Ball-Rokeach, 1985). The rest of the hypotheses put forward in this paper propose that the utility of Internet as a source of comprehensive and credible news coverage, and as a way to interact with politically similar discussants, should predict the intensity of individual dependency relations. The extent to which online resources are seen as serving those goals is also expected to influence the perceived political efficacy associated with online activities.

Information-seeking is a key motive predicting Internet use (Papacharissi & Rubin, 2000). Goals related to information-gathering and understanding one's social environment are also a major factor in media dependency relations (Ball-Rokeach, et al., 1984). Internet dependency in particular is positively associated with online news reading (Patwardhan & Yang, 2003). The perceived utility of the Web as serving information-related goals should thus enhance individual Internet dependency:

H2a: The perceived utility of online media as a comprehensive source of relevant news will predict individual Internet dependency.

News consumption is further expected to result in higher levels of political efficacy (McLeod, Scheufele, & Moy, 1999; Nisbet, 2008). Public affairs news increases civic knowledge, which in turn strengthens the belief that one can understand the political system well enough to participate effectively in it (de Zuniga, Veenstra, Vraga, & Shah, 2010; Pinkleton & Austin, 2001). As discussed in previous sections, studies have found some qualified support for the hypothesized positive effects of online news gathering on political efficacy (Kaye & Johnson, 2002, 2004; K. M. Lee, 2006). Consistent with the MSD framework, this paper suggests that online political efficacy will be predicted by the perceived utility of Internet in serving individual information goals:

H2b: The perceived utility of online media as a comprehensive source of relevant news will predict online political efficacy.

Perceived credibility, or the extent to which news coverage is seen as fair, unbiased, and trustworthy, is another factor affecting individual relationships with media (Ball-Rokeach, 1998). Past research has shown that credibility is linked to media use (Stavrositu & Sundar, 2008). People tend to judge their preferred news sources as more credible and pay less attention to media that seem biased or untrustworthy (Johnson & Kaye, 1998). Internet reliance, a construct somewhat similar to dependency, has been shown - albeit somewhat inconsistently across studies (Johnson & Kaye, 2010b) - to have a stronger association with credibility than pure exposure measures (Johnson & Kaye, 2010a).

As the utility of news sources is premised on whether they can be trusted, individual dependency relations are also influenced by perceived credibility. Previous research has found that media dependency is associated with credibility (Becker, 1978; Colman, 1990), as well as with the related construct of trust in media (Jackob, 2010). Similarly, this work suggests that:

H3a: The perceived utility of online media as a credible news source will predict individual Internet dependency.

While there is not much direct evidence linking media credibility to enhanced political efficacy, studies have found associations between other closely related concepts. Perceived media credibility has a positive association with trust in the government, a construct connected to external efficacy (Johnson & Kaye, 2002, 2004). A study by Lee (2010) also found some support for an association between efficacy, political trust, and trust in the media. Cynicism and negative perceptions about the media, on the other hand, have an adverse effect on political efficacy (Pinkleton, Austin, & Fortman, 1998). As this article employs an Internet-based operationalization of political efficacy, a direct link with the trustworthiness of online news seems even more plausible. Previous research on media-specific efficacy indicates that it

is tied to perceived credibility, but also to general political efficacy and participation (Hofstetter, Zuniga, & Dozier, 2001). Thus it is likely that:

H3b: The perceived utility of online media as a credible news source will predict online political efficacy.

The content of traditional media serves a range of social functions as it provokes conversation, provides cues about social norms, and delineates the boundaries of acceptable interpersonal conduct (Ball-Rokeach, 1985; Ball-Rokeach, et al., 1984). The Internet additionally allows for two-way communication, which has direct implications for social interaction. In an analysis of online motivations and behavior Melton and Reynolds (2007) find communication-related goals to be an important aspect of Internet dependency. One social goal that has political consequences is the wish to interact with ideologically similar discussants. Individuals have a well-known preference for associating with like-minded others, as this reduces the discomfort of encountering diversity (Brass, 1995). As a result, personal ties are often homogenous with regard to multiple socio-demographic characteristics (McPherson, Smith-Lovin, & Cook, 2001). The observed ideological homogeneity in social networks is driven by a constellation of factors including conscious individual choices, influence from peers, the preference for similarity in demographic attributes, and environmental causes (Lazer, Rubineau, Chetkovich, Katz, & Neblo, 2010). It is known, furthermore, that people not only prefer conversation partners with compatible political views, but are also likely to selectively misperceive social cues in order to retain the assumption that others are ideologically similar (Huckfeldt & Sprague, 1987).

As the Internet allows for more selectivity than offline social environments, it permits individuals to seek out interaction with those who share their political opinions (Levine, 2007). Some examples of this emerge in research studying links between political bloggers (Adamic & Glance, 2005) and social network users (Boutyline & Willer, 2011; Yardi & Boyd, 2010). This study proposes, therefore, that both

individual dependency and the perceived political efficacy of Internet will be predicted by the capacity of the medium to enhance communication with ideologically similar others:

H4a: The perceived social utility of the Internet as a way to communicate with ideologically like-minded discussants will predict individual Internet dependency.

H4b: The perceived social utility of the Internet as a way to communicate with ideologically like-minded discussants will predict online political efficacy.

Some additional support for H4b is provided by studies linking political discussion to efficacy (Kenski & Stroud, 2006). Safe political environments (one where disagreement is minimized) are also expected to stimulate some forms of civic activity (Eveland & Hively, 2009; Mutz, 2002).

Method

Procedures

The hypotheses of this study were tested using data from the 2010 US Digital Future Survey conducted by the USC Annenberg Center for the Digital Future. The survey used a national random digit dialing (RDD) telephone sample, giving every number in the 50 states and the District of Columbia an equal chance of being selected. As recruitment over landline phones causes RDD sample respondents to skew significantly older than the general population, the Digital Future Survey also included an age-targeted (12-35 years) supplemental sample.

The interviews were conducted between April 27th and August 30th of 2010. During the initial phone call, interviewers obtained a roster of household members and randomly selected from it an individual aged 12 and over as the interviewee. When interviews were interrupted, up to three attempts were made to complete them later. Households that refused to participate during the initial call were not contacted again. Respondents who indicated that they had Internet access were prompted to take an

online version of the survey. They could also choose to be interviewed over the phone if that was their preferred option. More information about the sampling strategy, survey procedures and specific items included in the questionnaire can be found in the 2011 Digital Future Report (Cole et al., 2011).

Participants

A total of 1926 respondents completed the Digital Future Survey. Internet use was reported by 82.2% of the survey participants. As this study investigates patterns of online dependency and efficacy, only Internet users were included in the analysis. Since younger participants were not asked questions related to politics, the sample was further restricted to the individuals of age 16 and over who had given responses to the set of political questions included in the study ($n = 1254$).

Given the sufficiently large sample size, respondents who had missing data on one or more of the variables used in this study were excluded from the analysis. The final sample used in the study contained 1150 respondents.

Measures

Endogenous Variables.

Online Political Efficacy was operationalized through a four-item index aimed at measuring the extent to which the Internet enhances individual internal and external efficacy. Participants were asked whether they thought that by using the Internet, "people like you can have more political power", "people like you will have more say in what the government does", "people like you can better understand politics", "public officials will care more what people like you think". Responses were recorded on a five point Likert scale (1 = *Strongly Disagree*, 5 = *Strongly Agree*). Confirmatory factor analysis conducted in LISREL 8.8 (Joreskog & Sorbom, 2006) indicated that the index was acceptable: all loadings were significant and the overall fit of the model was good ($\chi^2 = 1.42$, $p = .51$ $DF = 2$, $GFI = 1$, $RMSEA < 0.01$). The scale had

good internal consistency ($\alpha = .83$). The final measure of political efficacy (range 4 to 20, $M = 12.7$ $SD = 3.6$) was calculated as the sum of scores on the four items¹.

Internet Dependency. Melton and Reynolds (2007) used factor analysis to uncover dimensions of media system dependency in the case of the Internet. Their results suggested that overall dependency was based on the extent to which Internet serves goals related to *information seeking, news, communication* and *entertainment*. In view of that, the present paper used a cumulative index adding together respondent scores for three separate dimensions of dependency. Those measured how much the respondent depended on the Internet for *information/news, maintaining social ties, and entertainment*. The survey items used to operationalize these dependency types accordingly asked participants how important the Internet was to them for information, entertainment, and the maintenance of social relationships. As each dependency type represents a separate construct dimension, reliability was assessed using McDonald's omega coefficient ($\omega = .75$). The answers were recorded on a scale ranging from 1 (*Not important at all*) to 5 (*Very Important*). The Internet Dependency index (range 3 to 15, $M = 11.3$ $SD = 2.5$) was computed by summing individual scores on the three items.

Internet Exposure (range 1 to 70, $M = 20$ $SD = 15.3$) was defined as the participant's total time of Internet use measured in hours per week.

Exogenous Variables.

Information Utility. The information utility of the Web was operationalized through two measures: *News Scope* and *Perceived Credibility*.

The News Scope index included five items. Three of them asked how well the Internet met the respondent's needs for local, national, and international news. The other two requested that the

¹ Note: In an earlier version of the analysis, all composite measures used in this study were calculated by summing items weighted by factor loadings. As factor loadings in all cases were high and similar in size, weighing by them did not significantly change the resulting model fit and path coefficients. Based on that, a decision was made to use unweighted items in order to facilitate future replications of this study with other datasets.

respondents rate the scope/comprehensiveness of online news, and the extent to which the Internet provides information that allows people to put news in context.

Perceived Credibility included five items asking whether online news was fair and balanced; based on reliable sources; its intent was transparent; it served as a watchdog for government/business; and was overall of high quality.

All items included in *News scope* and *Perceived credibility* were measured on a scale ranging from 1 (*Poor*) to 4 (*Excellent*). As information gratifications are known to have a strong association with credibility (Johnson & Kaye, 2010a), a confirmatory factor analysis was conducted with News Scope and Perceived Credibility as correlated factors. All item loadings were significant. The overall model fit ($\chi^2 = 72, p < .05, DF = 28, GFI = .99, RMSEA = .03$) was acceptable with $\chi^2/DF = 2.6$ (Wheaton, Muthen, Alwin, & Summers, 1977). Furthermore, this model had a better fit to the data than a model with two orthogonal factors, or one where all items loaded on a single factor.

Both News Scope ($\alpha = .85$) and Perceived Credibility ($\alpha = .86$) had good internal consistency. The final measures were calculated by summing the respective items for each construct.

Social Utility/Politically Similar Ties was a single-item measure ($M = 3.2, SD = .7$) asking respondents whether Internet use had increased their contact with people who share their political views. Answers were recorded on a five point scale (1 = *Greatly Decreased*, 5 = *Greatly Increased*).

Control Variables. Three exogenous control variables: *age* (range 16 to 90, $M = 49, SD = 17$), *education* (range 1 to 12, $M = 8.3, SD = 2$), and *political ideology* (range 1 to 5, $M = 3, SD = 1.3$) were included in the model. Education was measured by asking about the last year of education completed by the respondent. Political ideology was measured on a scale from 1 (*Very conservative*) to 5 (*Very liberal*).

Analysis

The nine hypotheses put forward by this study were tested in LISREL 8.8 (Joreskog & Sorbom, 2006) through a structural equation model using maximum likelihood estimation procedures. The hypothesized structural model is presented on Figure 1. The significance of individual paths and the global fit of the model to the observed data were used to determine whether hypotheses were supported. The alpha level determining significance of individual path coefficients was set at .05.

In order to test H1c which stated that Internet dependency should predict efficacy better than exposure, a path from exposure to efficacy was added to the model. The goodness of fit of the augmented model along with the path coefficient and its standard error were used to determine whether the hypothesis would be supported.

< Figure 1 about here >

Results

Preliminary Analysis

Prior to estimating the model, the dataset was pre-processed in PRELIS. Cases that contained missing data were removed. Measurement models for the composite indexes were estimated in LISREL 8.8 and the scores computed as discussed in the previous section. The correlation matrix of variables included in the analysis is available in Table 1.

<Table 1 about here>

Primary Results

Global fit of the model.

Figure 2 presents the coefficients for the structural model estimated in LISREL 8.8 which tested the hypotheses of this study. The global fit of the model was very good. The chi square statistic was non-significant even with the large sample size of the study ($\chi^2 = 13.6, p = .26, DF = 11$), indicating that the

reconstructed and observed covariance matrices for the model were fairly similar. The ratio of chi-square to degrees of freedom was satisfactory: $\chi^2/DF = 1.2$ (Wheaton, et al., 1977). The goodness of fit index (GFI), comparative fit (CFI) and the normed fit (NFI) were all close to 1 ($GFI = 1$, $AGFI = .99$, $CFI = 1$, $NFI = .99$). The root mean square error of approximation was also acceptable ($RMSEA = .01$).

Individual path coefficients.

<Figure 2 about here>

Table 2 shows direct, indirect and total effects for the paths included in the model. The estimated path coefficients provided support for eight out of the nine hypotheses of the study. The exception was H3a which posited a link from online media credibility to Internet dependency ($\gamma = .01$, $SE = .04$, $p > .05$).

As suggested by H1a to H4a, online political efficacy was predicted by Internet dependency ($\beta = .17$, $SE = .03$, $p < .01$), online news scope ($\gamma = .14$, $SE = .04$, $p < .01$), perceived credibility ($\gamma = .20$, $SE = .04$, $p < .01$), and the social utility of maintaining contacts with politically similar alters ($\gamma = .15$, $SE = .03$, $p < .01$). The three control variables: education ($\gamma = .10$, $SE = .03$, $p < .01$), age ($\gamma = .06$, $SE = .03$, $p < .05$), and political ideology ($\gamma = .08$, $SE = .03$, $p < .01$), were also significant predictors of efficacy, though their effects were smaller. Combined, the variables in the model explained 24% of the variance in online political efficacy.

Internet dependency was significantly predicted by online news scope ($\gamma = .31$, $SE = .04$, $p < .01$) as suggested by H2a, and social utility ($\gamma = .20$, $SE = .03$, $p < .01$) as proposed in H4a. The paths from age ($\gamma = -.25$, $SE = .03$, $p < .01$) and political ideology ($\gamma = .12$, $SE = .03$, $p < .01$) to Internet dependency were significant, but not the one from education ($\gamma = .03$, $SE = .03$, $p > .05$). Overall, 29% of the variance in Internet dependency was explained by the model.

Consistent with H1a, Internet dependency was a significant predictor of exposure time ($\beta = .28$, $SE = .03$, $p < .01$).

In order to test H1c, a path from Internet exposure to online political efficacy was added to the model. The path coefficient ($\beta = .02$, $SE = .03$, $p > .05$) was not significant, which supported the hypothesis. As can be expected, adding this path also did not significantly improve the global fit of the model ($\chi^2 = 13$, $p = .23$, $DF = 10$, $GFI = 1$, $RMSEA = .02$) as shown by a chi-square difference test: $\Delta\chi^2/\Delta DF = .6$.

Post-hoc Analysis

Model revision.

Using LISREL 8.8, a new model was estimated by deleting sequentially the three non-significant paths (perceived credibility to Internet dependency, education to Internet dependency, and education to Internet exposure). Non-significant covariances between exogenous variables were also fixed to zero. The global fit of the revised model ($\chi^2 = 18.6$, $p = .42$, $DF = 18$, $GFI = 1$, $AGFI = .99$, $CFI = 1$, $NFI = .99$, $RMSEA < .01$) did not change significantly, with $\Delta\chi^2/\Delta DF = .71$. The direct, indirect and total effects for this more parsimonious model are presented in Table 2. All included paths were significant and coefficient sizes changed very little between the hypothesized and revised model.

<Table 2 about here>

Discussion

This study set out to investigate the impact of Internet dependency relations on political efficacy. It proposed that individual differences in the perceived utility of new media will affect people's confidence in their ability to participate meaningfully in the political process. The analysis employed a medium-specific measure of political efficacy reflecting the facilitating role of technology.

The results of the analysis confirmed eight of the nine hypotheses tested here. Internet dependency was associated with exposure time (H1a) and efficacy (H1b). Exposure, on the other hand, was not significantly related to efficacy (H1c).

The level of online political efficacy reported by respondents was further affected by their views about the comprehensiveness (H2b) and credibility of online news (H3b). The usefulness of the Internet in maintaining relationships with people on the same side of the ideological spectrum was another significant predictor (H4b). Higher levels of education also contributed to an enhanced sense of efficacy. Internet dependency was best predicted by the subjective information utility of the Web as a source of comprehensive local, national and international news (H2a). The perceived utility with regard to maintaining politically homogeneous ties was another driver of Internet dependency relations (H3a). Younger people were, unsurprisingly, more likely to be highly dependent on the Internet and spend more time online. Another control variable, political orientation, was also positively associated with both dependency and efficacy.

One hypothesized relationship not supported by the analysis was that between Internet dependency and the perceived credibility of online news. Considering new media to be trustworthy and unbiased led to higher efficacy, but it did not seem to significantly affect dependency. One plausible explanation for this lack of association is the operationalization of the measure used in this study. The items included in this index asked respondents to assess the credibility of news found on the Internet in general. The credibility of those specific news sites that the respondent relies on for information may be a better predictor of dependency relations. Additionally, credibility had a strong bivariate correlation with the news scope and comprehensiveness measure ($r = .73$), which increases the probability of Type II errors (Grewal, Cote, & Baumgartner, 2004) of failing to reject a false null hypothesis.

One advantage of the Internet-specific efficacy measure used in this study is that it can be expected to better predict online forms of political participation. Further studies should be conducted to gain a more nuanced understanding of this relationship.

The impact of structural stability on new media dependency and online efficacy provides another fruitful avenue for future research. A longitudinal analysis may capture the shifts in MSD relations driven by

increasing levels of social uncertainty (Ball-Rokeach, 1998; Loges, 1994). The global economic crises and regional geopolitical instability are altering people's relationship with media around the world. Digital platforms have emerged as important spaces for social organization. In this environment, changes in both scope and intensity of Internet dependencies can be expected.

Lastly, this study looked at Internet in its capacity to provide information and serve social goals. Measures of perceived utility, in line with previous research on traditional media, were grounded in practices of consumption rather than production. Digital tools, however, can also be used to create content, altering the nature of dependency relations (C. S. Lee, 2011). Authoring user-generated online content has been associated with psychological empowerment and an enhanced sense of political efficacy (Leung, 2009). Further research is needed on the production-driven dependency dimensions and their impact on political attitudes.

References

- Adamic, L., & Glance, N. (2005). *The Political Blogosphere and the 2004 U.S. Election: Divided They Blog*. Paper presented at the Third International Workshop on Link discovery, Chicago, Illinois
- Bakker, T. P., & de Vreese, C. H. (2011). Good News for the Future? Young People, Internet Use, and Political Participation. *Communication Research*, 38(4), 451. doi: 10.1177/0093650210381738
- Ball-Rokeach, S. J. (1974). *The Information Perspective*. Paper presented at the Annual Conference of the American Sociological Association, Montreal.
- Ball-Rokeach, S. J. (1985). The Origins of Individual Media-System Dependency: A sociological framework. *Communication Research*, 12(4), 485.
- Ball-Rokeach, S. J. (1988). Media System Dependency Theory. In M. DeFleur & S. J. Ball-Rokeach (Eds.), *Theories of Mass Communication* (pp. 297-327). White Plains, NY: Longman Group.
- Ball-Rokeach, S. J. (1998). A theory of media power and a theory of media use: Different stories, questions, and ways of thinking. *Mass Communication and Society*, 1(1), 5-40. doi: 10.1080/15205436.1998.9676398
- Ball-Rokeach, S. J. (2008). Media System Dependency Theory. In W. Donsbach (Ed.), *The Blackwell International Encyclopedia of Communication*: Blackwell Publishing.
- Ball-Rokeach, S. J., & DeFleur, M. L. (1976). A Dependency Model of Mass-Media Effects. *Communication Research*, 3(1), 3.
- Ball-Rokeach, S. J., & Grant, A. E. (1990). *Media dependency relations: An alternative measure of media use*. Paper presented at the Annual Conference of the American Sociological Association, Washington, DC.
- Ball-Rokeach, S. J., Rokeach, M., & Grube, J. W. (1984). *The Great American Values Test: Influencing Behavior and Belief Through Television*. New York, NY: Free Press New York.
- Becker, L. B. (1978). *Newspaper and Television Dependencies: Their Effects on Evaluations of Governmental Leaders*. Paper presented at the ICA Annual Conference, Chicago, IL.

- Boulianne, S. (2009). Does Internet use affect engagement? A meta-analysis of research. *Political Communication, 26*(2), 193-211. doi: 10.1080/10584600902854363
- Boutyline, A. G., & Willer, R. (2011). The Social Structure Of Political Echo Chambers: Ideology Leads To Asymmetries in Online Political Communication Networks. *Political Networks Paper Archive*. Retrieved from <http://opensiuc.lib.siu.edu/pn/>
- Brass, D. J. (1995). A social network perspective on human resources management. *Research in personnel and human resources management, 13*.
- Campbell, A., Gurin, G., & Miller, W. E. (1954). *The Voter Decides*. Westport, CT: Greenwood Press.
- Cole, J., Suman, M., Schramm, P., Zhou, L., Salvador, A., Ognyanova, K., & Lebo, H. (2011). The 2011 Digital Future Report: Surveying The Digital Future. Los Angeles, CA: USC Annenberg School Center for the Digital Future.
- Coleman, S., Morrison, D., & Svennevig, M. (2008). New media and political efficacy. *International Journal of Communication, 2*.
- Colman, W. R. (1990). *Health moves to prime time: evaluating the impact of a prime-time television movie of the week on viewers' content-relevant health beliefs*. University of California, Los Angeles, Los Angeles, CA.
- Davies, J. J. (2009). The Effect of Media Dependency on Voting Decisions. *Journal of Media Sociology, 1*(3/4), 160.
- Davis, R., & Owen, D. M. (1998). *New media and American politics*. New York, NY: Oxford University Press.
- De Boer, C., & Velthuisen, A. S. (2001). Participation in conversations about the news. *International Journal of Public Opinion Research, 13*(2), 140.
- de Zuniga, H. G., Veenstra, A., Vraga, E., & Shah, D. V. (2010). Digital democracy: Reimagining pathways to political participation. *Journal of Information Technology & Politics, 7*(1), 36-51.

- Delli Carpini, M. X. (2004). Mediating democratic engagement: The impact of communications on citizens' involvement in political and civic life. In L. L. Kaid (Ed.), *Handbook of Political Communication Research* (pp. 395-434). Mahwah, NJ: Lawrence Erlbaum.
- Eveland, W., & Hively, M. (2009). Political discussion frequency, network size, and "heterogeneity" of discussion as predictors of political knowledge and participation. *Journal of Communication*, 59(2), 205-224.
- Grant, A. E. (1996). Media dependency and multiple media sources *The psychology of political communication* (pp. 199–210): University of Michigan Press.
- Grant, A. E., Guthrie, K. K., & Ball-Rokeach, S. J. (1991). Television shopping: A Media System Dependency Perspective. *Communication Research*, 18(6), 773.
- Grewal, R., Cote, J. A., & Baumgartner, H. (2004). Multicollinearity and measurement error in structural equation models: Implications for theory testing. *Marketing Science*, 519-529.
- Halpern, P. (1994). Media dependency and political perceptions in an authoritarian political system. *Journal of Communication*, 44(4), 39-52.
- Hofstetter, C. R., Zuniga, S., & Dozier, D. M. (2001). Media self-efficacy: Validation of a new concept. *Mass Communication & Society*, 4(1), 61-76.
- Huckfeldt, R., & Sprague, J. (1987). Networks in context: The social flow of political information. *The American Political Science Review*, 1197-1216.
- Jackob, N. G. E. (2010). No Alternatives? The Relationship between Perceived Media Dependency, Use of Alternative Information Sources, and General Trust in Mass Media. *International Journal of Communication*, 4, 589-606.
- Jennings, K. M., & Zeitner, V. (2003). Internet use and civic engagement: A longitudinal analysis. *Public Opinion Quarterly*, 67(3), 311.
- Johnson, T. J., & Kaye, B. K. (1998). Cruising Is Believing?: Comparing Internet and Traditional Sources on Media Credibility Measures. *Journalism and Mass Communication Quarterly*, 75(2), 325-340.

- Johnson, T. J., & Kaye, B. K. (2002). Webbelievability: A Path Model Examining How Convenience and Reliance Predict Online Credibility. *Journalism Mass Communication Quarterly*, 79(3), 619-642.
- Johnson, T. J., & Kaye, B. K. (2003). A Boost or Bust for Democracy? Web Influenced Political Attitudes and Behaviors in the 1996 and 2000 Elections. *The International Journal of Press/Politics*, 8(3), 9.
- Johnson, T. J., & Kaye, B. K. (2004). Wag the Blog: How reliance on traditional media and the internet influence credibility perceptions of weblogs among blog users. *Journalism and Mass Communication Quarterly*, 81(3), 622-642.
- Johnson, T. J., & Kaye, B. K. (2010a). Choosing is believing? How Web gratifications and reliance affect Internet credibility among politically interested users. *Atlantic Journal of Communication*, 18(1), 1-21.
- Johnson, T. J., & Kaye, B. K. (2010b). Still cruising and believing? An analysis of online credibility across three presidential campaigns. *American Behavioral Scientist*, 54(1), 57.
- Joreskog, K., & Sorbom, G. (2006). LISREL 8.8: Scientific Software International, Inc.
- Jung, J., Qiu, J., & Kim, Y. (2001). Internet Connectedness and Inequality: Beyond the "Divide". *Communication Research*, 28(4), 507.
- Kaye, B. K., & Johnson, T. J. (2002). Online and in the know: Uses and gratifications of the Web for political information. *Journal of Broadcasting & Electronic Media*, 46(1), 54-71.
- Kaye, B. K., & Johnson, T. J. (2004). A Web for all reasons: uses and gratifications of Internet components for political information. *Telematics and Informatics*, 21(3), 197-223.
- Kelly, J. (2008). *Pride of Place: Mainstream Media and the Networked Public Sphere*. Media Re:public: Berkman Center for Internet & Society.
- Kenski, K., & Stroud, N. J. (2006). Connections Between Internet Use and Political Efficacy, Knowledge, and Participation. *Journal of Broadcasting & Electronic Media*, 50(2), 173-192. doi: 10.1207/s15506878jobem5002_1

- Lazer, D., Rubineau, B., Chetkovich, C., Katz, N., & Neblo, M. (2010). The coevolution of networks and political attitudes. *Political Communication, 27*(3), 248-274.
- Lee, C. S. (2011). Exploring emotional expressions on YouTube through the lens of media system dependency theory. *New media & society*.
- Lee, K. M. (2006). Effects of Internet use on college students' political efficacy. *CyberPsychology & Behavior, 9*(4), 415-422.
- Lee, T. T. (2010). Why they don't trust the media: An examination of factors predicting trust. *American Behavioral Scientist, 54*(1), 8.
- Leung, L. (2009). User-generated content on the internet: an examination of gratifications, civic engagement and psychological empowerment. *New media & society, 11*(8), 1327.
- Levine, P. (2007). *The future of democracy: Developing the next generation of American citizens*: University Press of New England.
- Loges, W. E. (1994). Canaries in the coal mine: Perceptions of Threat and Media System Dependency Relations. *Communication Research, 21*(1), 5.
- Loges, W. E., & BallRokeach, S. J. (1993). Dependency Relations and Newspaper Readership. *Journalism Quarterly, 70*(3), 602.
- Loges, W. E., & Jung, J. Y. (2001). Exploring the Digital Divide: Internet Connectedness and Age. *Communication Research, 28*(4), 536.
- McLeod, J., Scheufele, D., & Moy, P. (1999). Community, communication, and participation: The role of mass media and interpersonal discussion in local political participation. *Political Communication, 16*(3), 315-336.
- McPherson, M., Smith-Lovin, L., & Cook, J. M. (2001). Birds of a feather: Homophily in social networks. *Annual Review of Sociology, 415-444*.

- Melton, J., & Reynolds, L. (2007). Measuring Internet Dependency. In R. A. Reynolds, R. Woods & J. D. Baker (Eds.), *Handbook of research on electronic surveys and measurements*. London, UK: Idea Group Reference.
- Melton, J. L., & Reynolds, J. L. (2007). Measuring Internet Dependency. In R. A. Reynolds, R. Woods & J. D. Baker (Eds.), *Handbook of research on electronic surveys and measurements* (pp. 126-135): IGI Global.
- Morrell, M. E. (2003). Survey and experimental evidence for a reliable and valid measure of internal political efficacy. *The Public Opinion Quarterly*, 67(4), 589-602.
- Mossberger, K., & McNeal, R. S. (2008). *Digital citizenship: the Internet, Society, and Participation*: The MIT Press.
- Mutz, D. C. (2002). The consequences of cross-cutting networks for political participation. *American Journal of Political Science*, 838-855.
- Niemi, R. G., Craig, S. C., & Mattei, F. (1991). Measuring internal political efficacy in the 1988 National Election Study. *The American Political Science Review*, 1407-1413.
- Nisbet, E. C. (2008). Media Use, Democratic Citizenship, and Communication Gaps in a Developing Democracy. *International Journal of Public Opinion Research*, 20(4), 454.
- Papacharissi, Z., & Rubin, A. M. (2000). Predictors of Internet use. *Journal of Broadcasting & Electronic Media*, 44(2), 175-196.
- Patwardhan, P., & Yang, J. (2003). Internet dependency relations and online consumer behavior: a media system dependency theory perspective on why people shop, chat, and read news online. *Journal of Interactive Advertising*, 3(2), 79-95.
- Pinkleton, B. E., & Austin, E. W. (2001). Individual motivations, perceived media importance, and political disaffection. *Political Communication*, 18(3), 321-334.
- Pinkleton, B. E., Austin, E. W., & Fortman, K. K. J. (1998). Relationships of media use and political disaffection to political efficacy and voting behavior. *Journal of Broadcasting & Electronic Media*, 42(1), 34-49.

- Postmes, T. (2007). The Psychological Dimensions of Collective Action, Online. In A. Joinson, K. McKenna, T. Postmes & U. Reips (Eds.), *The Oxford Handbook of Internet Psychology* (pp. 165-184). New York, NY: Oxford University Press.
- Scheufele, D., & Nisbet, M. C. (2002). Being a citizen online: New Opportunities and Dead Ends. *The Harvard International Journal of Press/Politics*, 7(3), 55. doi: 10.1177/1081180X0200700304
- Shah, D. V., Cho, J., & Eveland, W. (2005). Information and expression in a digital age: Modeling Internet effects on civic participation. *Communication Research*, 32(5), 531. doi: 10.1177/0093650205279209
- Shah, D. V., McLeod, J., & Yoon, S. H. (2001). Communication, context, and community: An Exploration of Print, Broadcast, and Internet Influences. *Communication Research*, 28(4), 464. doi: 10.1177/009365001028004005
- Skumanich, S. A., & Kintsfather, D. P. (1998). Individual media dependency relations within television shopping programming. *Communication Research*, 25(2), 200.
- Stavrositu, C., & Sundar, S. S. (2008). If Internet credibility is so iffy, why the heavy use? The relationship between medium use and credibility. *CyberPsychology & Behavior*, 11(1), 65-68.
- Wheaton, B., Muthen, B., Alwin, D. F., & Summers, G. F. (1977). Assessing reliability and stability in panel models. *Sociological Methodology*, 8, 84-136.
- Yardi, S., & Boyd, D. (2010). Dynamic Debates: An Analysis of Group Polarization Over Time on Twitter. *Bulletin of Science, Technology & Society*, 30(5), 316.
- Zhang, W., Johnson, T. J., Seltzer, T., & Bichard, S. L. (2010). The Revolution Will be Networked: Influence of Social Networking Sites on Political Attitudes *Social Science Computer Review*, 28(1), 75-92.

Table 1

Zero-order correlations between the endogenous and exogenous variables used in the analysis

	Internet Efficacy	Internet Dependency	Internet Exposure	Online Social Utility	Online News Scope	Perceived Credibility	Political Leaning	Education	Age
Internet Efficacy	1								
Internet Dependency	.316	1							
Internet Exposure	.150	.324	1						
Online Social Utility	.244	.240	.124	1					
Online News Scope	.364	.421	.221	.134	1				
Perceived Credibility	.379	.306	.170	.153	.729	1			
Political Leaning	.147	.179	.080	-.006	.106	.078	1		
Education	.133	-.013	.009	.074	-.047	.016	.160	1	
Age	-.025	-.325	-.227	.018	-.244	-.099	-.068	.261	1

Table 2

Direct, indirect and total effects: Internet exposure, dependency and online political efficacy

Variable	Direct effect on Exposure	Direct effect on Dependency	Direct Effect on Efficacy	Indirect Effect on Efficacy	Total Effect on Efficacy
HYPOTHESIZED MODEL					
Social Utility	-	.20 **	.15 **	.03 **	.18 **
Online News Scope	-	.31 **	.14 **	.05 **	.19 **
Perceived Credibility	-	.01	.20 **	.00	.21 **
Political Ideology	-	.12 **	.08 **	.02 **	.10 **
Education	.05	.03	.10 **	.01	.11 **
Age	-.15 **	-.25 **	.06 *	-.04 **	.02
Internet Dependency	.28 **	-	.17 **	-	.17 **
REVISED MODEL					
Social Utility	-	.20 **	.15 **	.03 **	.18 **
Online News Scope	-	.32 **	.14 **	.05 **	.19 **
Perceived Credibility	-	-	.20 **	-	.20 **
Political Ideology	-	.13 **	.08 **	.02 **	.10 **
Education	.05	-	.10 **	.01	.10 **
Age	-.15 **	-.24 **	.06 *	-.04 **	.02
Internet Dependency	.28 **	-	.17 **	-	.17 **

* $p < 0.05$ ** $p < 0.01$

Figure 1. Theoretical model of online political efficacy and Internet dependency relations

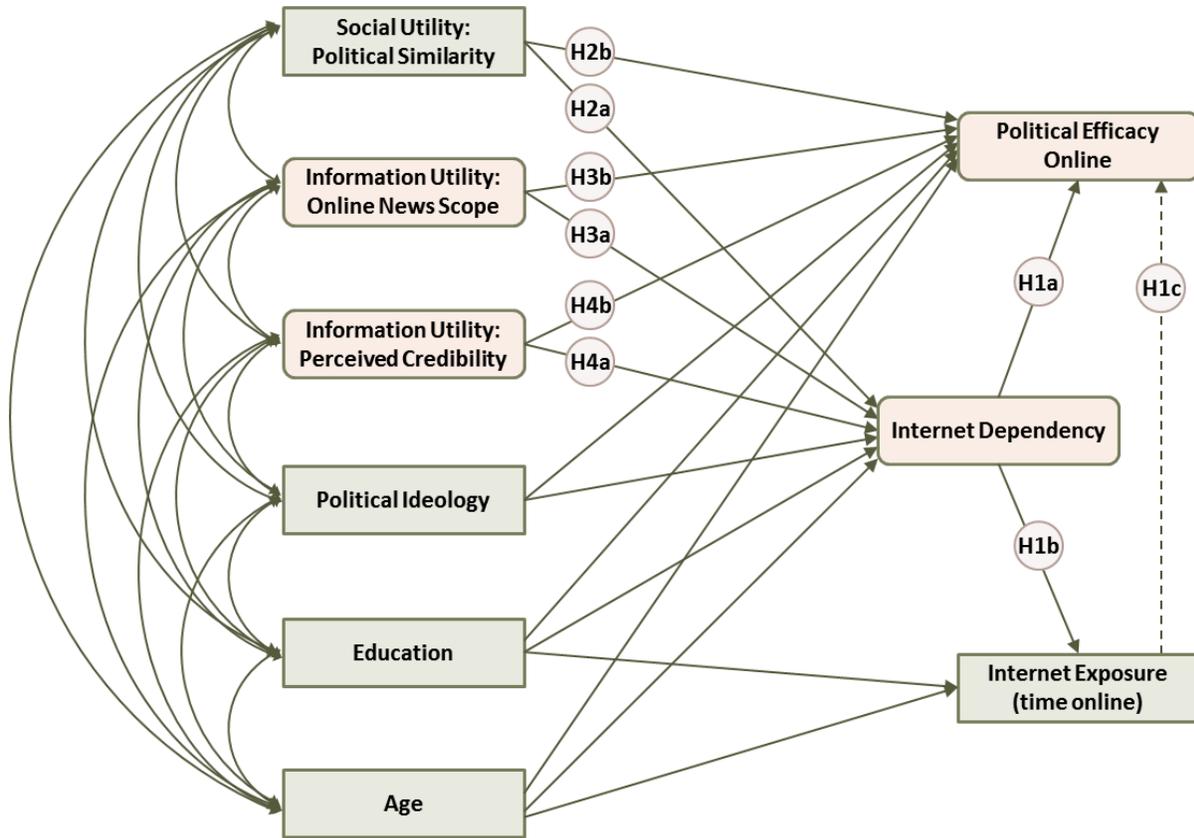
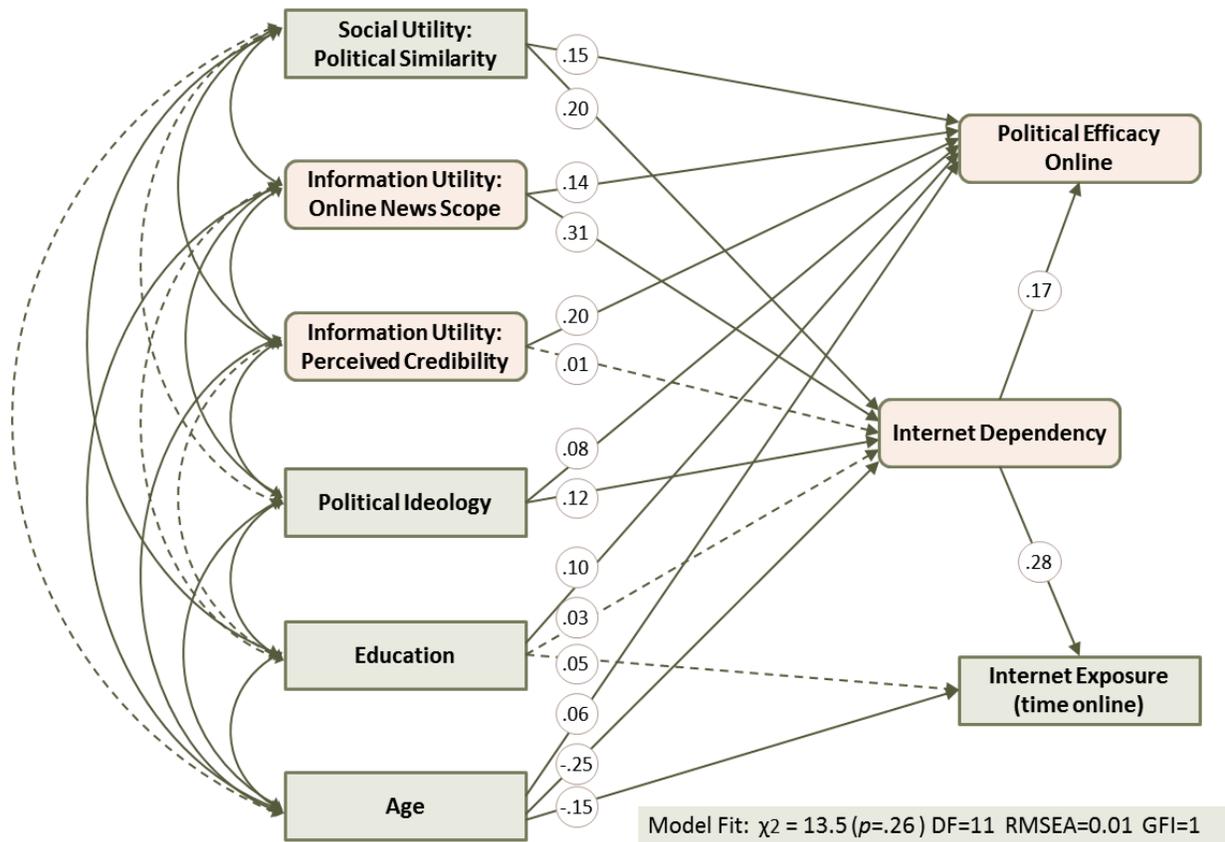


Figure 2. Structural Model of online political efficacy and Internet dependency relations



Note: Non-significant paths are presented with dotted lines.