

<https://osf.io/preprints/socarxiv/xs7qr/>

Testing a Digital Inequality Model for Online Political Participation

Moritz Büchi¹ and Florian Vogler

University of Zurich

Increasing Internet use is changing the way individuals take part in society but research on the mobilizing effects of the Internet for political participation shows mixed results. The present study takes a digital inequality perspective and analyzes the role of political interest and Internet expertise for the social structuration of online political participation. Analyses are based on two-wave nationally representative survey data from Switzerland and use cluster analysis and structural equation modeling. A distinct group of political users emerged characterized by high education and income. Further, online political participation is predicted by political interest and Internet skills, which increasingly mediated the effects of social position. Digital information policies should therefore include the promotion of Internet skills and effective use, particularly in marginalized social groups, to avoid reinforcing traditional participatory inequalities in the digital society.

Internet use can facilitate democratic processes from information seeking to debating political issues and voting. However, various obstacles to “digital democracy” remain (Mossberger, Tolbert, and Stansbury 2003; Hindman 2009; Schlozman, Verba, and Brady 2010). There are still sizeable percentages of the population that are excluded from the digital society due to lack of basic physical Internet access (ITU 2016). Non-users are likely to become marginalized as key resources for societal participation are increasingly or exclusively found online. Even under the assumption that further diffusion of the Internet will close the access divide, questions regarding the uses and consequences of the Internet for social inclusion remain (Willis and Tranter 2006; Witte and Mannon 2010). The web’s nearly unlimited

¹ m.buechi@ipmz.uzh.ch

information sources and spaces for political discussion brought with them high hopes for a revitalizing and mobilizing effect on democratic participation. The utopic visions were quickly accompanied by cautionary voices proposing that the “political resources available via the Internet will empower those with the resources and motivation to take advantage of them, stranding the disengaged farther behind” (Norris 2001:238). The question thus remains in how far online political participation is socially structured in a way that reflects traditional inequalities. This article tests the relationship between social position and online political participation, including the mediating effect of political interest and Internet skills.

The present study uses rich primary data from a nationally representative two-wave survey which affords a high level of reliability and validity. Statistical results are based on multivariate modeling (structural equation modeling; SEM) including measurement invariance testing. The literature review identified two existing studies that used SEM to explain online political participation as the key dependent variable. This article extends the model proposed by De Marco, Robles, and Antino (2014) by including political interest, a crucial determinant of political behavior. The model by Min (2010), on the other hand, is advanced by modeling Internet skills and political interest as mediators between social position and digital participation. Finally, we address digital political engagement from the theoretical perspective of sociological digital inequality research (Hargittai and Hsieh 2013; Robinson et al. 2015): full social inclusion in the digital society increasingly requires advanced uses of the Internet such as online political participation.

Theoretical Background

Democratic Potentials of the Internet

The rapid diffusion of the Internet spurred scholarly interest regarding the effects on the political behavior of citizens: “The hope has been that the

Internet would expand the public sphere, broadening both the range of ideas discussed and the number of citizens allowed to participate” (Hindman 2009:7). According to the view of optimistic technological determinism, the massive amounts of (political) information online would form the basis of participatory democracy across all segments of society (see Dahlgren 2000; Coleman and Blumler 2009).

The Internet has the potential to redistribute political power, break the monopolistic positions of traditional elites and media, and amplify the voice of the common citizen. This potential is derived from the Internet-enabled access to vast amounts of information, interactivity, opportunities for discussion and the spreading of content and opinions without traditional gate-keeping (see Margetts 2013). The once clearly defined roles of elite senders—political actors and journalists—and the mass audience as receivers of political messages was challenged by the fundamental openness of the web. The Internet potentially enables political discourse with a wide range of ideas and communicators, a digital public sphere, that counteracts the widespread feeling of political inefficacy (Coleman and Blumler 2009). At the core of this *mobilization hypothesis* is the expectation that the disadvantaged and excluded attain new ways of informing and organizing themselves to participate in political processes (Norris 2001). Technological advancements and diffusion, mainly by reducing communication costs, can therefore act as a driver of democracy (Mossberger, Tolbert, and McNeal, 2008; Margetts 2013; Theocharis et al., 2016). For instance, Hirzalla, van Zoonen, and De Ridder (2010) found mobilizing effects among youth for education and gender for the specific case of vote advice applications. Many other studies have shown that online activities like political information seeking or discussion have positive effects on offline and online forms of participation (Tolbert and McNeal 2003; Lutz, Hoffmann, and Meckel 2014). Pre-existing social inequalities and differences in motivations, however, also suggest a different mechanism. The *reinforcement hy-*

pothesis holds that the Internet does not generate political interest and engagement because it is primarily adopted by those already interested and engaged in politics (Norris 2001; Margolis and Resnick 2000; Boulianne 2011). Individuals of higher social status are at an advantage in putting the Internet to efficient and effective use (DiMaggio et al. 2004).

Internet Use and the Democratic Divide

Findings of social divides regarding media use and knowledge gains certainly predate the emergence of Internet technology. The knowledge gap hypothesis proposed that individuals of higher socioeconomic status as measured by education are better able to absorb the increasing flow of information from mass media and therefore the difference in knowledge, for example on public affairs, between population segments tends to increase (Tichenor, Donohue, and Olien 1970). The factors that allow individuals of higher socioeconomic status to better process media information are all related to education: communication skills and literacy, prior knowledge, selective exposure, and a social environment where public affairs topics are more likely to be discussed. The sociopolitical relevance of this hypothesis lies in the transferability of information and knowledge into social power (see Duff 2011). While Tichenor et al. (1970) focused on the trans-situational socioeconomic antecedents of the knowledge gap, Ettema and Klein (1977) introduced motivation as a key situation-specific predictor of information acquisition. Bonfadelli (2002) applied the knowledge gap hypothesis to the Internet and detected access, usage, and skills gaps—inequalities that were associated with differences in level of education. The higher educated were more likely to have Internet access and engage in information seeking or e-commerce (Bonfadelli 2002). Compared to legacy media, the Internet requires more active and skilled users and its technical openness imposes fewer constraints on the usage modality—which can lead to even greater knowledge gaps (Wei and Hindman 2011). Consequently, research on digital divides has moved from describing access gaps

to asking how individuals use the Internet in their everyday lives and how this is connected to social inequality (see e.g. van Dijk 2005; Hargittai 2008; Robinson 2009; Helsper 2012). This digital inequality approach generally assumes that Internet activities vary in their utility. Because certain uses of the Internet are beneficial in that they can enhance users' economic, cultural, or social capital, digital divides are related to social power and quality of life (see Bourdieu 1986; Hargittai and Hinnant 2008; van Deursen and Helsper 2015). De Marco et al. (2014:44) use the term "beneficial and advanced uses of the Internet" to characterize these capital-enhancing online activities and consider online political participation a prime example of this category. Beneficial and advanced uses of the Internet require particularly high levels of Internet skills, which have consistently been demonstrated to be unequally distributed in society (e.g. Hargittai 2010; van Deursen and van Dijk 2011).

Overall, digital inequality research finds that the establishment of Internet-based communication as a requisite resource for societal participation has added a new layer to social inequality rather than ameliorated existing forms (e.g. van Dijk 2005; Hargittai 2008). Regarding the mobilization of new participants, Anduiza, Gallego, and Cantijoch (2010) found that Internet knowledge and frequency and breadth of use are key in explaining online participation while traditional resources are only relevant to Internet access. Boulianne (2009) surveyed 38 studies on Internet use and political engagement and concluded that when political interest is controlled, the effect of Internet use tends to be insignificant. The somewhat contradictory empirical support for the mobilization hypothesis can be in part explained by the finding that "[t]he individuals [...] who most need the benefits of a new idea (the less educated, less wealthy, and the like) are generally last to adopt an innovation" (Rogers 2003:295). The reasons are failure to recognize the potential benefits from within the current social position and lower levels of knowledge and skills necessary for effective adoption compared to elites. Accordingly, Di Gennaro and Dutton (2006) found that

individuals in lower social positions were marginalized because online political participation was predominantly driven by those already engaged offline.

Uses of the Internet are thus structured along socioeconomic factors. Demographic and socioeconomic variables such as age, gender, education, and income has consistently been shown to affect which Internet applications are used and in what ways (Bonfadelli 2002; Willis and Tranter 2006; Zillien and Hargittai 2009; Brandtzaeg, Heim, and Karahasanovic 2011). Recent cross-country results on these usage divides show that online information seeking is predicted by young age, high education, and years of Internet experience (Büchi, Just, and Latzer 2016). In addition to such structural inequalities, motivational factors have also been found to influence beneficial and advanced uses of the Internet (e.g., Lievrouw and Farb 2003; Zillien and Hargittai 2009). Motivation, that is, interest and expected outcomes, guides users' attention to specific media content—media use accordingly satisfies specific needs (Katz, Blumler, and Gurevitch 1973). Applied to online political participation, Min (2010) concluded that Internet users actively select uses consistent with their interests. Importantly, these interests are themselves influenced by one's social environment and social position. In sum, both a vertical dimension of social and economic structuration as well as a horizontal dimension of within-group variance in interests and expertise need to be considered in explaining online political participation. A central argument of this paper is therefore that any explanation of participatory behavior needs to include motivation (political interest) *and* ability (Internet skills). For online citizens with sufficient skills and interest, the Internet offers more and easier options to stay informed and participate in political processes and thereby increase the vitality of democracy—but failure to digitally mobilize the disengaged increases the digital democratic divide, that is, the social inequalities in using the Internet for political participation (Norris 2001; Min 2010).

Explaining Online Political Participation

The minimum consensus in previous research is that mere access to the Internet does not automatically prompt users to engage in beneficial and advanced uses such as online political participation. The percentage of users who use the Internet for political purposes is generally very low, particularly for active forms of participation (see Krueger 2002 for the US; Di Gennaro and Dutton 2006 for the UK; Just et al. 2013 for Switzerland; De Marco et al. 2014 for Spain; Kruikemeier et al. 2014 for the Netherlands; Vonbun and Schönbach 2014 for Austria). In this study, we conceptualize online political participation in a relatively broad sense, encompassing active and passive engagement (see Conway 2000; Di Gennaro and Dutton 2006). Particularly in the online realm, it is adequate to consider both behavior that is aimed directly at influencing political processes as well as simply paying attention to the political environment (Krueger 2002).

Political interest typically has the greatest effect on political engagement (Prior 2010). In addition, socioeconomic status has been shown to strongly influence online behavior even when controlling for interest and digital experience (e.g. Zillien and Hargittai 2009). The key predictors of online political participation are thus social position, political interest, and Internet expertise. Min (2010) combined these elements and concluded that human interest and capacity explain political Internet use while socioeconomic factors lose their significance. The model, however, does not expound on structural inequalities in Internet skills and political interest highlighted in related research (Hargittai 2010; Gallego 2014). Mirroring the debate on knowledge gaps, some digital divide research suggests that social structure ceased to determine participation which can result in unintentional “victim blaming” in that responsibility is transferred to individual motivation (see Viswanath and Finnegan 1996; Zillien and Hargittai 2009; Duff 2011). De Marco et al. (2014) tested a mediation model where social status effects on digital political participation were explained by Internet

expertise and proficiency. However, these authors did not account for political interest as an intervening variable.

Theoretical Research Model

Figure 1 illustrates the research model we developed based on previous theoretical and empirical research presented above. The first block, antecedents, comprises social position indicators, amount of Internet use, and Internet experience. Social position is marked primarily by income and education. This set of variables further includes the sociodemographic attributes age and gender. Based on exploratory factor analysis, De Marco et al. (2014) aggregated diverse variables such as years of Internet use, number of places of connection, e-banking, and online shopping in a construct called Internet expertise. Here, we tried to disentangle Internet expertise to separate the effects and propose that its essential dimensions are amount of Internet use, Internet experience (i.e., years of use), and Internet skills.

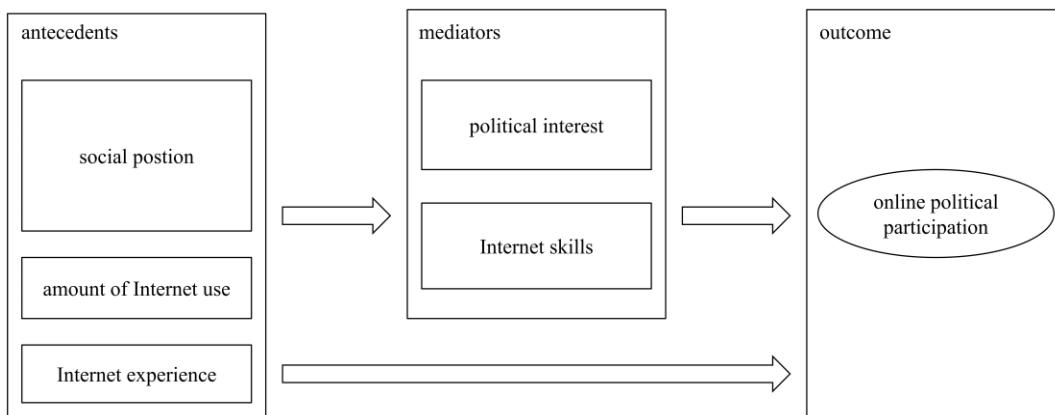


Figure 1. Theoretical research model.

Internet skills follow from use and experience, and are thus included in the second block (mediators). The second mediator in the model is political interest. While those in higher social positions and with higher

interest and skills are presumably more active online, the positioning of Internet skills and political interest as mediators allows us to additionally analyze the social structuration of these factors.

Method

Procedure and Participants

Two surveys were conducted in Switzerland within the framework of a major, international research project that has been investigating the social, political, and economic impact of the Internet and other new technologies since 1999. An independent survey research institute conducted computer-assisted telephone interviews, which provided nationally representative samples with regards to the demographic characteristics age, gender, and region. The 2011 survey was conducted from 9 May to 21 June, the 2013 survey from 28 May to 29 June. Total sample sizes were $n=1104$ (2011) and $n=1114$ (2013). Exclusion of respondents that were non-users of the Internet led to $n=841$ and $n=949$ relevant cases. Using data from two years means that changes in the relationships between antecedents, mediators, and outcome can be detected. The mean age of participants in 2011 was 43.12 years ($SD=16.33$) and 43.54 ($SD=17.02$) in 2013. For both years, 49% of respondents were female. The mode for monthly household income was 4,500–7,000 CHF across both survey years (33% in 2011 and 39% in 2013); 20% (2011) and 18% (2013) did not answer this question. One third of participants (2011, 34%; 2013, 32%) had completed a degree in higher education (university, university of applied sciences); 58% (2011) and 57% (2013) had completed a vocational school or gymnasium degree, whereas 8% (2011) and 10% (2013) had basic education (primary or secondary school).

The typology of Internet users relied on two-step cluster analysis with log-likelihood as a distance measure and Schwarz's Bayesian information criterion to determine the number of clusters in IBM SPSS 23. Advanced analyses of the relationships between online political participation,

Internet expertise, political interest, and social position indicators used SEM. Our model involved a latent variable (online political participation) and mediated relationships and thus benefitted from the greater versatility of SEM as compared to ordinary regression. Models were tested in the software environment R with the *lavaan* package using a weighted least squares mean- and variance-adjusted test statistic (see Rosseel 2016). Global model fit was evaluated in accordance with widely-accepted criteria in the literature (Hu and Bentler 1999; Schermelleh-Engel, Moosbrugger, and Müller 2003): Values for $\chi^2/df \leq 2$, $CFI \geq .97$, and $RMSEA \leq .05$ indicated a good model fit; Cutoffs for an acceptable model fit were $\chi^2/df \leq 3$, $CFI \geq .95$, and $RMSEA \leq .08$.

Measures

Exogenous variables (antecedents)

The first group of exogenous variables included the socioeconomic and demographic variables income, education, gender, and age. For income, respondents were asked to indicate their gross monthly household income in five categories ranging from *less than 4,500 CHF* to *more than 12,000 CHF*. Income was split into a high and a low category at 9,000 CHF for analyses. Education was measured in five categories from primary or secondary school to university degree and recoded into low, medium, and high.

The second group of exogenous variables included two of the three components of Internet expertise, that is, *Internet experience* and *amount of Internet use*. Internet experience was measured in years by asking respondents for how long they had been using the Internet. Amount of Internet use was calculated as hours of weekly use from the sum of four variables: amount of Internet use on average per week *at home, the workplace, school or university*, as well as *other places*.

Mediators

Analyses employed two mediators, *Internet skills* and *political interest*. These variables were expected to be influenced by the above set of exogenous variables and in turn predict online political participation. Respondents were asked to assess their Internet skills from 1=*poor* to 5=*excellent* (see Bonfadelli 2002; General Social Survey 2004; Min 2010; Vonbun and Schönbach 2014 for similar operationalizations; see Hargittai and Shafer 2006; Litt 2013 for a discussion). In 2011, 73% of participants reported *good*, *very good*, or *excellent* Internet skills and 77% did so in 2013. The mean score for Internet skills was 3.12 ($SD=.96$) in 2011 and 3.22 ($SD=.99$) in 2013. Political interest was also measured using a single item by asking respondents how much they were interested in politics and political topics from 1=*not at all interested* to 4=*very interested* (see Prior, 2010). The majority of Swiss Internet users was politically interested: 59% (2011) and 64% (2013) were *interested* or *very interested*. The mean score for political interest was 2.65 ($SD=.98$) in 2011 and 2.76 ($SD=.98$) in 2013.

Dependent variable (outcome): online political participation

The specific type of Internet use we sought to explain, *online political participation*, was measured using four variables. Respondents were asked if they had been politically engaged in the past year by seeking information on political topics, by participating in political discussions, by joining a protest movement or sending out a protesting letter, or by creating their own political content such as flyers or blog posts. The response categories were *no*; *yes, offline*; *yes, online*; and *yes, both offline and online*. The last two categories were coded as one, indicating *online* political participation. The first two categories were coded as zero. The first activity, information seeking, was considered a rather passive form of participation with lower investment; accordingly, the number of respondents who engaged in this use was comparably high: 38% in 2011 and 35% in 2013. The other three forms of political participation were expectedly infrequent (between 2%

and 7%). Therefore, the three dichotomized variables for online political discussion, protest, and content creation were summed, resulting in a four-point variable ranging from zero to three, indicating the intensity of active participation. The latent variable online political participation was thus reflected by two manifest indicators in the model, *passive online political participation* and *active online political participation*. These indicators produced consistently high factor loadings between .74 and .96 (see Table 1).

Results

A Typology of Internet Users: Political and Nonpolitical

As discussed above, a relatively small percentage of Internet users engaged in online political participation. Cluster analysis was performed on the aggregated data from the two surveys in order to build a user typology. The input variables were age, gender, education, income, political interest, Internet skills, and online political participation. Two clusters, i.e. types of Internet users, emerged from the analysis with a silhouette measure of .30 indicating acceptable clustering quality in terms of cohesion and separation. The two clusters were interpreted and labeled as *nonpolitical Internet users* (cluster 1) and *political Internet users* (cluster 2). As Figure 2 shows, the first user type was characterized by low online political participation and political interest, low education and income, low Internet skills, more women, and young age and contained 57.2% of cases. The second user type was distinguished by high online political participation and political interest, high education and income, high Internet skills, more men, and older age and comprised 42.8% of the cases.

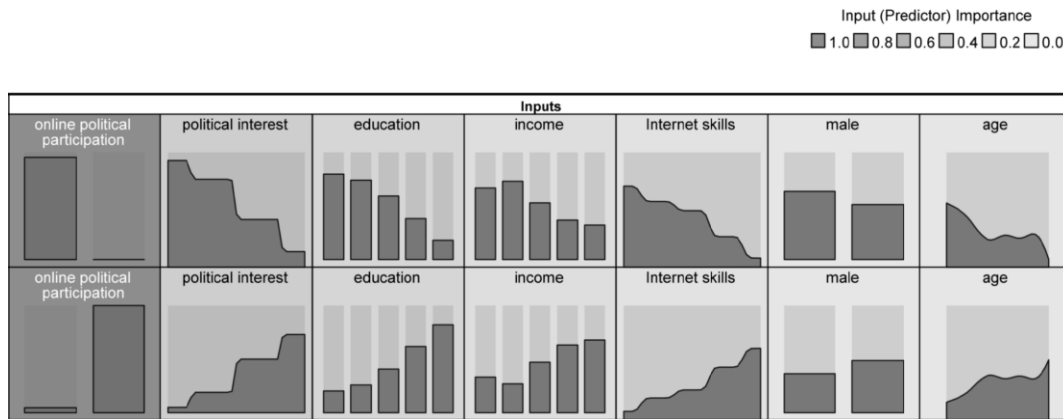


Figure 2. Two distinct Internet user types. The figure shows the distribution of the input variables in two clusters of Internet users. Cluster 1 (top row): non-political Internet users; cluster 2 (bottom row): political Internet users.

Of the respondents that had not engaged in any online political participation, 95.4% were classified into the first cluster and those who had participated online were all members of the second cluster (Figure 2). Accordingly, the participation variable was the most important input in determining cluster membership (normalized importance value = 1.00), followed by political interest (.28), education (.20), income (.10), and Internet skills (.07). The predictive values of age (.02) and gender (.02) were minimal.

Structural Equation Models

The cluster analysis above provided a first insight into the distribution of online political participation. Structural equation modeling was then used to further scrutinize the interrelations between social position indicators, Internet expertise, political interest, and online political participation. For this purpose, the theoretical research model developed above was translated into a statistical model. A first structural equation model accordingly tested for all direct and indirect effects, that is, all exogenous variables (antecedents in Figure 1) predicted both mediators as well as the outcome var-

iable (online political participation), and the mediators predicted the outcome variable. The fit measures of this model were good with $\chi^2(22)=38.96$ ($p=.014$), $\chi^2/df=1.77$, $CFI=.984$, and $RMSEA=.033$, indicating that the empirically measured relationships between the data are very well represented by the theoretical model.

Inspection of the path coefficients revealed that the effect of medium education level on Internet skills, as well as the direct effects of gender, income, and amount of Internet use on online political participation did not reach statistical significance in either years. The only exogenous variables with a significant *direct* effect on online political participation were age and Internet experience, ultimately supporting a mediation model. The model was thus respecified retaining only the significant paths. This final model (Figure 3) also showed a good model fit, $\chi^2(34)=52.92$ ($p=.020$), $\chi^2/df=1.56$, $CFI=.982$, and $RMSEA=.028$; the increase in χ^2 was balanced by an increase in the degrees of freedom. Configural invariance between 2011 and 2013 was confirmed by the good model fit. In addition, metric invariance was confirmed (see Steenkamp and Baumgartner 1998; Büchi 2016): constraining the factor loadings of the two indicators of online political participation to be equal in 2011 and 2013 increased χ^2 only marginally and insignificantly. This indicated that the structural effects explaining online political participation were directly comparable across the two years.

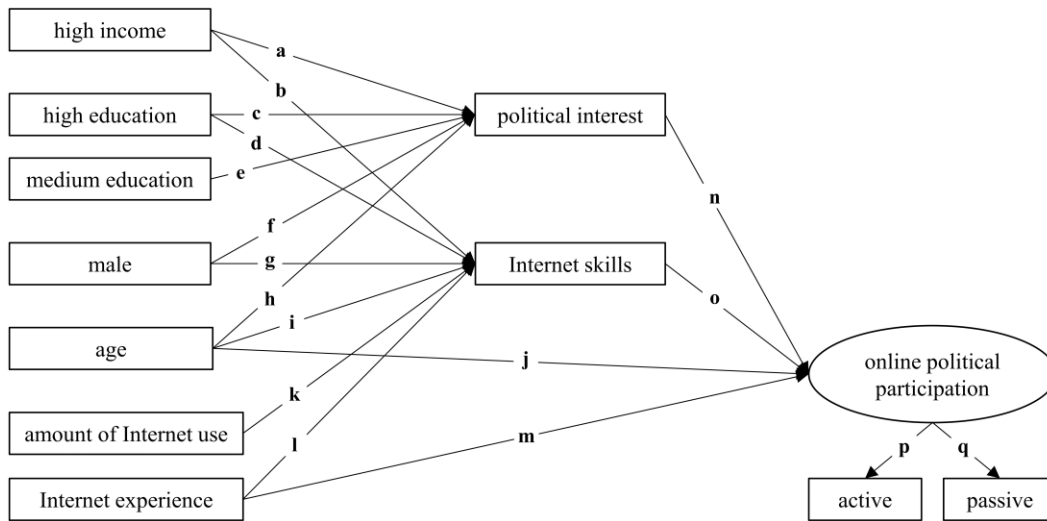


Figure 3. Structural equation model explaining online political participation.

In the following we report the effects in the final model (Figure 3) shown in Table 1. Age positively predicted political interest, i.e. older adults were more interested. Gender was a weak predictor, significant only in 2013: men reported higher levels of political interest. In agreement with previous research, the strongest influence on political interest was education; in particular, high education positively predicted political interest. The effects of household income on political interest were rather small but positive. Turning to Internet skills, age was a strong predictor: Younger users showed higher skill levels, the effect being particularly pronounced in 2013. Similar to political interest, effects of income and gender (male) were positive but small. Internet users with high education had higher Internet skills than those with low or medium education. Internet experience and amount of Internet use positively predicted Internet skills.

Table 1
Parameter Estimates for the Structural Equation Model

parameter	2011		2013	
	estimate (b) (p-value)	standardized estimate (β)	estimate (b) (p-value)	standardized estimate (β)
<i>a</i>	.164*** (.000)	.077	.237*** (.002)	.114
<i>b</i>	.126* (.094)	.059	.201*** (.004)	.088
<i>c</i>	.729*** (.000)	.363	.734*** (.000)	.377
<i>d</i>	.345** (.019)	.171	.310** (.018)	.146
<i>e</i>	.200 (.221)	.102	.496*** (.000)	.267
<i>f</i>	.127* (.096)	.066	.205*** (.002)	.112
<i>g</i>	.154** (.022)	.080	.183*** (.003)	.091
<i>h</i>	.013*** (.000)	.215	.019*** (.000)	.346
<i>i</i>	-.015*** (.000)	-0.242	-.020*** (.000)	-.334
<i>j</i>	-.009* (.010)	-.137	-.005 (.150)	-.088
<i>k</i>	.017*** (.000)	.229	.018*** (.000)	.223
<i>l</i>	.053*** (.000)	.291	.053*** (.000)	.327
<i>m</i>	.032*** (.008)	.166	.028*** (.003)	.183
<i>n</i>	.621*** (.000)	.586	.567*** (.000)	.563
<i>o</i>	.182*** (.002)	.172	.174*** (.000)	.189
<i>p</i>	.765*** (.000)	.750	.834*** (.000)	.735
<i>q</i>	1.000 ^a	.957	1.000 ^a	.864

Note. See Figure 3 for parameter labels.

* $p \leq .10$ ** $p \leq .05$ *** $p \leq .01$

^a Reference item fixed to unity

Age had an opposite effect of comparable magnitude on the two mediators, political interest and Internet skills. Younger individuals were more skilled Internet users than older adults, yet less interested in politics, resulting in a virtually non-existent direct effect of age on online political

participation. The evident age gap in online political participation found in bivariate analyses is thus explained by varying levels of skills and interest. The amount of variance explained (R^2) by the exogenous variables was 17.1 % (2011) and 22.8% (2013) for political interest and 28.8% (2011) and 36.1% (2013) for Internet skills. This means that the dependence of interest and skills on social position increased over time. The explained variance in the outcome variable online political participation was very high, and stable (2011: 43.4%; 2013: 42.5%). In sum, the structural equation model supported the theoretical research model and was able to explain a large part of the varying levels of online political participation by taking social position indicators, Internet expertise, and political interest into account.

Discussion

Cluster analysis clearly showed the existence of a digital democratic divide. Internet users can be grouped into distinct categories of political and non-political users. These types were also predicted by variables such as education, income, and skills, indicating that the social structuration of unequal participation is also found in the realm of online politics (also see Theodoris et al. 2016). From the often observed circumstance that online political participation is generally very low and that this stands in contrast to the Internet's technological affordances, this article sought to identify the key explanatory variables and test their effects using SEM. Those who use the Internet for political purposes—by seeking information, engaging in discussions, protesting, or producing content—are those with high interest in political issues. Political interest and political participation are connected in a cycle of mutual enhancement, meaning that the more interested individuals are, the more they will engage in political activities which in turn stimulate knowledge and interest—a mechanism that can presumably be found in virtually all domains of societal participation. In so far, the results support the reinforcement hypothesis.

The plethora of participatory opportunities enabled by the Internet cannot themselves mobilize new citizen groups. Internet use in general, and online political participation in particular, is socially structured. However, despite controlling for political interest, Internet expertise variables had influenced participation, confirming a more moderate position demonstrated in related research (Xenos and Moy 2007; Borge and Cardenal 2011): The Internet does not eliminate the relevance of interest or motivation but Internet experience and skills independently promote online political participation. Still, because Internet skills—and even experience as a relic of first-level digital divides—are also socially structured, the mobilization of new participants is certainly an infrequent occurrence and presumably limited to very specific cases (Hirzalla et al. 2010; Schlozman et al. 2010).

This study confirms the substantive findings of Min (2010) who used US data from 2004 nearly a decade later in Switzerland. The diffusion of the Internet has further progressed, yet digital democratic divides persist. The social structuration of both explanatory mediators, political interest and Internet skills, and their effects on online political participation can ultimately be traced back to educational attainment, replicating the democratic divides of the offline realm (see Gallego 2014; Theocharis et al. 2016). The total explained variance of online political participation remained stable, yet the finding that the importance of social position in predicting Internet skills and political interest increased from 2011 to 2013 is an indication of widening participatory divides.

Analyses were based on representative data and the structural equation model fit the theoretical model well, confirmed invariance across two time points, and showed very high explanatory power with regards to online political participation. Nonetheless, this study also has several important limitations. Despite having repeated the survey two years apart, the data were cross-sectional. Panel data on political Internet use have been rare but could substantiate causal claims. For example, it is reasonable to

assume that online political participation can also increase interest. The limitations of self-evaluations in surveys, here in particular amount of Internet use and skills, also need to be considered. Furthermore, a more conclusive statement on the development of digital democratic divides over time would certainly require an extended observation period than was analyzed here. Future research may also refine the operationalizations of Internet use and online political participation and differentiate between different mechanisms.

Conclusion

This article analyzed online political participation within a digital inequality framework. Analyses demonstrated the persistence of digital democratic divides using two waves of a nationally representative survey of Swiss Internet users. This social structuration of Internet use for political participation is an indicator of second-level digital divides (also see Min 2010). While socioeconomic position did not directly affect participatory uses, Internet-related variables did: The level of individuals' online experience and skills co-determine their online political participation. Importantly, political interest and Internet skills are strongly predicted by social position.

Based on these empirical findings we argue that public policies aimed at social inclusion and increasing democratic participation in the digital society may need to complement the traditional promotion of political interest through education. For example, institutional reforms working towards benefitting society's least advantaged members should ensure freedom of information, strengthening the right to privacy, and foster Internet skills development (see Duff 2011). Technical measures could include, for example, the further development of easy-to-use online tools in the style of voting advice applications (Thurman and Gasser 2009; Hirzalla et al. 2010). Moving away from the reinforcement of existing social inequalities in political participation to the mobilization of historically un-

derrepresented groups in democratic processes will be an ongoing challenge in public policy. This issue is particularly timely in Switzerland and other countries with high Internet access rates where many resources for effective democratic participation are available online. Ensuring citizens have the opportunity to participate is at the core of any democracy. Access to and use of the Internet have become requirements for full participation in the digitally enabled state, therefore ad hoc cursory initiatives are insufficient in addressing the right to take part (Gurstein 2015). Policies aimed at social and political inclusion consequently need to focus on effective use of the Internet and become a permanent activity of digital societies.

References

- Anduiza, Eva, Aina Gallego, and Marta Cantijoch. 2010. "Online Political Participation in Spain: The Impact of Traditional and Internet Resources." *Journal of Information Technology & Politics* 7(4):356-68.
- Bonfadelli, Heinz. 2002. "The Internet and Knowledge Gaps." *European Journal of Communication* 17(1):65-84.
- Borge, Rosa and Ana S. Cardenal. 2011. "Surfing the Net: A Pathway to Participation for the Politically Uninterested?" *Policy & Internet* 3(1):1-29.
- Boulianne, Shelley. 2009. "Does Internet Use Affect Engagement? A Meta-Analysis of Research." *Political Communication* 26(2):193-211.
- Boulianne, Shelley. 2011. "Stimulating or Reinforcing Political Interest: Using Panel Data to Examine Reciprocal Effects Between News Media and Political Interest." *Political Communication* 28(2):147-62.
- Bourdieu, Pierre. 1986. "The Forms of Capital." Pp. 241-58 in *Handbook of Theory and Research for the Sociology of Education*, edited by J. Richardson. New York: Greenwood.
- Brandtzaeg, Petter Bae, Jan Heim, and Amela Karahasanovic. 2011. "Understanding the New Digital Divide—A Typology of Internet Users in Europe." *International Journal of Human-Computer Studies* 69(3):123-38.
- Büchi, Moritz, Natascha Just, and Michael Latzer. 2016. "Modeling the Second-Level Digital Divide: A Five-Country Study of Social Differences in Internet Use." *New Media & Society* 18(11):2703-22.
- Büchi, Moritz. 2016. "Measurement Invariance in Comparative Internet Use Research." *Studies in Communication Sciences* 16(1):61-9.
- Coleman, Stephen and Jay G. Blumler. 2009. *The Internet and Democratic Citizenship: Theory, Practice and Policy*. Cambridge, UK: Cambridge University Press.
- Conway, Margaret M. 2000. *Political Participation in the United States*. Washington, DC: CQ Press.
- Dahlgren, Peter. 2000. "The Internet and the Democratization of Civic Culture." *Political Communication* 17(4):335-40.
- De Marco, Stefano, Jose Manuel Robles, and Mirko Antino. 2014. "Digital Skills as a Conditioning Factor for Digital Political Participation." *Communications* 39(1):43-65.
- Di Gennaro, Corinna and William H. Dutton. 2006. "The Internet and the Public: Online and Offline Political Participation in the United Kingdom." *Parliamentary Affairs* 59(2):299-313.
- DiMaggio, Paul, Eszter Hargittai, Coral Celeste, and Steven Shafer. 2004. "From Unequal

- Access to Differentiated Use.” Pp. 355-400 in *Social Inequality*, edited by K. M. Neckerman. New York: Russell Sage Foundation.
- Duff, Alistair S. 2011. “The Rawls-Tawney Theorem and The Digital Divide in Postindustrial Society.” *Journal of the American Society for Information Science and Technology* 62(3):604-12.
- Ettema, James S. and F. Gerald Kline. 1977. “Deficits, Differences, and Ceilings: Contingent Conditions for Understanding the Knowledge Gap.” *Communication Research* 4(2):179-202.
- Gallego, Aina. 2014. *Unequal Political Participation Worldwide*. Cambridge, UK: Cambridge University Press.
- General Social Survey. 2004. “General Social Survey (GSS) 2004 Questionnaire Version 6.” Retrieved December 10, 2016 (<http://gss.norc.org/documents/quex/2004%20GSS%20V6.pdf>).
- Gurstein, Michael. 2015. “Why I’m Giving Up on The Digital Divide.” *The Journal of Community Informatics* 11(1).
- Hargittai, Eszter and Amanda Hinnant. 2008. “Digital Inequality: Differences in Young Adults’ Use of the Internet.” *Communication Research* 35(5):602-21.
- Hargittai, Eszter and Steven Shafer. 2006. “Differences in Actual and Perceived Online Skills: The Role of Gender.” *Social Science Quarterly* 87(2):432-48.
- Hargittai, Eszter and Yuli Patrick Hsieh. 2013. “Digital Inequality.” Pp. 129-50 in *The Oxford Handbook of Internet Studies*, edited by W. H. Dutton. Oxford, UK: Oxford University Press.
- Hargittai, Eszter. 2008. “The Digital Reproduction of Inequality.” Pp. 936-44 in *Social Stratification*, edited by D. Grusky. Boulder, CO: Westview Press.
- Hargittai, Eszter. 2010. “Digital Na(t)ives? Variation in Internet Skills and Uses Among Members of the ‘Net Generation.’” *Sociological Inquiry* 80(1):92-113.
- Helsper, Ellen J. 2012. “A Corresponding Fields Model for the Links Between Social and Digital Exclusion.” *Communication Theory* 22(4):403-26.
- Hindman, Matthew. 2009. *The Myth of Digital Democracy*. Princeton, NJ: Princeton University Press.
- Hirzalla, Fadi, Liesbet van Zoonen, and Jan de Ridder. 2010. “Internet Use and Political Participation: Reflections on the Mobilization/Normalization Controversy.” *The Information Society* 27(1):1-15.
- Hu, Li-tze and Peter M. Bentler. 1999. “Cutoff Criteria for Fit Indexes in Covariance Structure Analysis: Conventional Criteria Versus New Alternatives.” *Structural Equation Modeling* 6(1):1-55.
- International Telecommunications Union. 2016. “ICT Facts and Figures 2016.” Retrieved

- February 10, 2017 (<http://www.itu.int/en/ITU-D/Statistics/Pages/facts/default.aspx>).
- Just, Natascha, Michael Latzer, Sulkhan Metreveli, and Florian Saurwein. 2013. "Switzerland On the Internet: An Overview of Diffusion, Usage, Concerns and Democratic Implications." *Studies in Communication Sciences* 13(2):148-55.
- Katz, Elihu, Jay G. Blumler, and Michael Gurevitch. 1973. "Uses and Gratifications Research." *The Public Opinion Quarterly* 37(4):509-23.
- Krueger, Brian S. 2002. "Assessing the Potential of Internet Political Participation in The United States: A Resource Approach." *American Politics Research* 30(5):476-98.
- Kruikemeier, Sanne, Guda van Noort, Rens Vliegthart, and Claes H. de Vreese. 2014. "Unraveling The Effects Of Active And Passive Forms Of Political Internet Use: Does It Affect Citizen's Political Involvement?" *New Media & Society* 16(6):903-20.
- Lievrouw, Leah. A. and Sharon E. Farb. 2003. Information and Equity. *Annual Review of Information Science and Technology* 37(1):499-540.
- Litt, Eden. 2013. "Measuring Users' Internet Skills: A Review of Past Assessment and a Look Toward the Future." *New Media & Society* 15(4):612-30.
- Lutz, Christoph, Christian Pieter Hoffmann, and Miriam Meckel. 2014. "Beyond just Politics: A Systematic Literature Review of Online Participation." *First Monday* 19(7).
- Margetts, Helen. 2013. "The Internet and Democracy." Pp. 421-37 in *The Oxford Handbook of Internet Studies*, edited by W. H. Dutton. Oxford, UK: Oxford University Press.
- Margolis, Michael and David Resnick. 2000. *Politics as Usual: The Cyberspace 'Revolution'*. New York: Sage.
- Min, Seong-Jae. 2010. "From the Digital Divide to the Democratic Divide: Internet Skills, Political Interest, and the Second-Level Digital Divide in Political Internet Use." *Journal of Information Technology & Politics* 7(1):22-35.
- Mossberger, Karen, Caroline J. Tolbert, and Mary Stansbury. 2003. *Virtual Inequality: Beyond the Digital Divide*. Washington, DC: Georgetown University Press.
- Mossberger, Karen, Caroline J. Tolbert, and Ramona McNeal. 2008. *Digital Citizenship: The Internet, Society, and Participation*. Cambridge, MA: The MIT Press.
- Norris, Pippa. 2001. *Digital Divide: Civic Engagement, Information Poverty, and the Internet Worldwide*. Cambridge, UK: Cambridge University Press.
- Prior, Markus. 2010. "You've Either Got It or You Don't? The Stability of Political Interest over the Life Cycle." *The Journal of Politics* 72(3):747-66.
- Robinson, Laura, Shelia R. Cotten, Hiroshi Ono, Anabel Quan-Haase, Gustavo Mesch, Wenhong Chen, W.,...and Michael J. Stern. 2015. "Digital Inequalities and Why They Matter." *Information, Communication & Society* 18(5):569-82.

- Robinson, Laura. 2009. "A Taste for the Necessary: A Bourdieuan Approach to Digital Inequality." *Information, Communication & Society* 12(4):488-507.
- Rogers, Everett M. 2003. *Diffusion of Innovations* (5th ed.). New York: Free Press.
- Rosseel, Yves. 2016. "The lavaan Tutorial." Retrieved December 8, 2016 (<http://lavaan.ugent.be/tutorial/tutorial.pdf>).
- Schermelleh-Engel, Karin, Helfried Moosbrugger, and Hans Müller. 2003. "Evaluating the Fit of Structural Equation Models: Tests of Significance and Descriptive Goodness-of-Fit Measures." *Methods of Psychological Research Online* 8(2):23-74.
- Schlozman, Kay L., Sidney Verba, and Henry E. Brady. 2010. "Weapon of the Strong? Participatory Inequality and the Internet." *Perspectives on Politics* 8(2):487-509.
- Steenkamp, Jan-Benedict E. M. and Hans Baumgartner. 1998. "Assessing Measurement Invariance in Cross-National Consumer Research." *Journal of Consumer Research* 25(1):78-107.
- Theocharis, Yannis, Jan van Deth, Peter Obert, and Ondrej Cisar. 2016. "We Came Unequal Into This Digital World, and Unequal Shall We Go Out of It?" Digital Media and Participatory Inequality in Europe." Presented at the SMAPP Global Conference, May 23-24, Florence, Italy.
- Thurman, James and Urs Gasser. 2009. "Three Case Studies from Switzerland: Smartvote." Cambridge, MA: The Berkman Center for Internet and Society at Harvard University. Retrieved January 20, 2017 (http://cyber.law.harvard.edu/sites/cyber.law.harvard.edu/files/Thurman-Gasser_SwissCases_Smartvote.pdf).
- Tichenor, Philip J., George A. Donohue, and Clarice N. Olien. 1970. "Mass Media Flow and Differential Growth in Knowledge." *The Public Opinion Quarterly* 34(2):159-70.
- Tolbert, Caroline J. and Ramona S. McNeal. 2003. "Unraveling the Effects of the Internet on Political Participation?" *Political Research Quarterly* 56(2):175-85.
- van Deursen, Alexander and Ellen J. Helsper. 2015. "The Third-Level Digital Divide: Who Benefits Most from Being Online?" *Studies in Media and Communications* 10:29-52.
- van Deursen, Alexander and Jan van Dijk. 2011. "Internet Skills and the Digital Divide." *New Media & Society* 13(6):893-911.
- van Dijk, Jan. 2005. *The Deepening Divide: Inequality in The Information Society*. Thousand Oaks, CA: Sage.
- Viswanath, K. and John R. Finnegan, Jr. 1996. "The Knowledge Gap Hypothesis: Twenty-Five Years Later." Pp. 187-227 in *Communication Yearbook 19*, edited by B. R. Burleson. New York: Routledge.
- Vonbun, Ramona and Klaus Schönbach. 2014. "Wer ist politisch aktiv im Social Web? Eine Studie zur politischen Online-Kommunikation in Österreich" [Who is Politically Ac-

- tive in the Social Web? A Study on Political Online Communication in Austria]. *Publizistik* 59:199-212.
- Wei, Lu and Douglas Blanks Hindman. 2011. "Does the Digital Divide Matter More? Comparing the Effects of New Media and Old Media Use on the Education-Based Knowledge Gap." *Mass Communication and Society* 14(2):216-35.
- Willis, Suzanne and Bruce Tranter. 2006. "Beyond The 'Digital Divide': Internet Diffusion and Inequality in Australia." *Journal of Sociology* 42(1):43-59.
- Witte, James C. and Susan E. Mannon. 2010. *The Internet and Social Inequalities*. New York: Routledge.
- Xenos, Michael and Patricia Moy. 2007. "Direct and Differential Effects of the Internet on Political and Civic Engagement." *Journal of Communication* 57(4):704-18.
- Zillien, Nicole and Eszter Hargittai. 2009. "Digital Distinction: Status-Specific Types of Internet Usage." *Social Science Quarterly* 90(2):274-91.