

Digital Media and Political Participation:
The Moderating Role of Political Interest across Acts and Over Time

Bruce Bimber
University of California, Santa Barbara

Marta Cantijoch Cunill
University of Manchester

Lauren Copeland
University of California, Santa Barbara

Rachel Gibson
University of Manchester

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Abstract

Political interest is a potentially important moderator of the relationship between digital media use and traditional forms of political participation. We theorize that the interaction between interest and digital media can be either positive or negative, depending on whether the action is voting, an elite-directed act, or a self-directed act. To test our expectation, we use British Election Studies data from 2001, 2005, and 2010. We find that digital media use is positively and consistently associated with political talk for those lower in political interest. For voting we find a similar relationship that appears to be strengthening over time. For the elite-directed acts of donating money and working for a party, we find a highly variable moderating effect of political interest that can be positive, negative, or non-existent.

Keywords

Internet, digital media, social media, political participation, civic engagement, voting, donating, volunteering, political talk, political interest.

Research on the relationship between use of digital media and political participation began in the late 1990s. Since then, many studies have reported that digital media use has a small, positive association with various forms of participation (Althaus & Tewksbury, 2000; Bimber, 1999, 2001, 2003; Bimber & Copeland, 2013; Boulianne, 2009; Cho et al., 2009; DiMaggio et al., 2001; Gibson et al., 2005; Gil de Zúñiga, Copeland, & Bimber, 2013; Mossberger et al., 2008; Prior, 2007; Shah et al., 2000, 2007; Tolbert & McNeal, 2003; Xenos & Moy, 2007). A central theoretical question in this literature is whether digital media use is primarily associated with participation for those higher in political interest, which would suggest a reinforcing role for online political information. Despite persistent optimism from many observers that digital media tools can serve as a stimulant to participation among people who are less interested in public affairs, evidence has indeed pointed in the direction of a reinforcing role: The association between online political information and participation is concentrated among those people higher in political interest (Boulianne, 2009; Xenos & Moy, 2007).

At least two key puzzles have not been solved in the study of digital media and traditional participation.¹ First, almost all the survey literature on digital media and politics rests on the assumption that single cross-sections are useful for testing or advancing general theories of online behavior. However, several studies show that relationships between use of digital media

¹ We do not foresee newer or alternative forms of political action—such as online petitioning, “clicktivism” and “hactivism,” blogging, uses of social media for politics, citizen journalism, political consumerism, street protest, and various incarnations of global activism—replacing most traditional participation, but rather contributing to an expanded portfolio of political activities open to citizens. Certainly voting and many of the face-to-face aspects of politics are here to stay. For this reason, it is important to understand better how the digital media tools, which may be implicated in alternative forms of action, are affecting traditional political acts. Indeed, attempting to draw a line between traditional participation and “online” participation is unhelpful in some cases, as in the case of contacting public officials, making political donations, or volunteering to work for a party or campaign. This too suggests that understanding political behavior in the digital media era requires answering some questions that linger about traditional political behavior.

and traditional participation that appear in one election season do not necessarily recur in others (Bimber, 2003; Bimber & Copeland, 2013; Boulianne, 2009; Mossberger et al., 2008; Tolbert & McNeal, 2003). It may be that some of these inconsistencies reflect differences in measurement and model specification (Boulianne, 2009). Using 1996-2008 American National Election Studies (ANES) data, however, Bimber and Copeland (2013) demonstrate that relationships vary idiosyncratically across different forms of participation from year to year. Those findings cast some doubt on studies that offer analysis of single cross-sections in support of general theories about digital media, political interest, and behavior across time.

There are a variety of reasons why relationships that appear in one year or election may not generalize to others. As diffusion of new tools proceeds, and as more people employ digital media in more aspects of their lives, the likelihood of behavioral effects may increase. Concomitantly, political elites' use of digital media has intensified over time, especially beginning in the mid-to-late 2000s. But we should not simply expect to see stronger relationships between technology use and behavior over time. Technology itself is changing rapidly. New tools and applications appear regularly, and they have varying affordances that facilitate different kinds of communication. As digital tools offer greater choice to elites, we should expect greater sensitivity of outcomes to varying context and strategies by different parties over time. That is, rather than simply a growing effect of technology over time, we should expect more and different effects.

At a deeper level of change, digital media tools facilitate more personally-mediated interaction among citizens in the absence of organizations and elites. Although organizations and elites still play an important role, this role is no longer as dominant as in the past. As a result, participation may be increasingly subject to the whims of first-mover effects and social influence,

viral spirals and positive feedback, and other systems effects. Although these latter phenomena are not well understood at the level of political behavior, they imply behavior that is less predictable than in cases when a relatively stable body of political elites drove political participation levels. These factors are likely to affect different forms of participation in different ways.

A second puzzle in the literature is how the interaction between political interest and digital media use varies across different forms of traditional political participation. As researchers have long known, several clusters of political action exist and these acts have somewhat different causes, contributors, and influences (Verba & Nie, 1972; Verba, Scholzman & Brady, 1995). The literature on digital media and participation has only begun to wrestle with this question (e.g., Gil de Zúñiga et al., 2013; Hirzalla & Van Zoonen, 2010; Rojas et al., 2009), and it is not clear whether the interaction between digital media use and political interest occurs similarly for all political acts.

In this paper we examine variation in the moderating role of political interest across time and behaviors using data from the British Election Study (BES) for the 2001, 2005, and 2010 elections. This longitudinal dataset frames the revolution in social media that occurred in the 2000s nicely, and it captures the point in time when a majority of UK citizens came online. It is one of only two national-scale datasets that contain questions about participation, interest, and digital media use spanning this length of time, with the other being the ANES for the US.

Our regression analysis below shows that use of online information can be associated with political behavior for people with either more or less interest in politics, depending on the type of behavior as well as the year. We find the most consistent relationship over time for political talk, where the interaction between interest and online information is negative in all

three years, which means that digital media promoted political talk among the less politically interested, both before and after the rise of social media, and apparently unrelated to the strategies of elites in these campaigns. For voting, we find no relationship in 2001. In 2005 and 2010, however, frequent Internet use for political information stimulated people who were less interested in politics to vote, and it also reinforced the likelihood of voting among those higher in political interest. For donating and working for a party, we find no consistent relationship over time, suggesting that elite strategies and tactics affect this relationship in variable ways, or that it is otherwise not easily predictable. This leads us to conclude that the role of political interest as a moderator of the relationship between digital media use and participation is multifaceted. There is more to the story than simply reinforcement of behavior for the politically interested.

Theoretical Expectations: Political Interest across Time and Behaviors

Almost all the survey literature about digital media and traditional political participation rests on the assumption that the relationship between digital media use and behavior generalizes from one election or year to the next. This assumption has been crucial to researchers' efforts to draw conclusions and support general theoretical interpretations from single cross-sections, or in some cases pairs of cross-sections and single-election panels.

Yet, there are several reasons to doubt the assumption that relationships between media use or attention to news media and political behavior are invariant over time and across behaviors. As diffusion of new tools proceeds, and as more people employ digital media in more aspects of their lives, the likelihood of behavioral effects may have increased. Only recently, and not in all cases, have campaign organizations adapted comprehensively to the digital media environment; many continued for several election cycles to continue to employ strategies

developed in the broadcast media era. The evolution of digital media use and campaigning in the UK offers a useful case for examining these changes. In what follows, we describe the context in which the 2001, 2005, and 2010 UK elections occurred, with an emphasis on the competitiveness of elections, the extent to which citizens used digital media, and how parties incorporated digital media as part of their overall campaign strategies. This then provides the basis for developing some expectations about digital media use and political interest.

Digital Media Use in the 2001, 2005, and 2010 UK Elections

In the UK, parties campaigned online in a national election for the first time in 1997 (Ward and Gibson, 1998). Parties' homepages were fairly rudimentary and experimental at that time. Though some dynamic elements existed, the majority presented reams of text with few navigational aids (Auty & Nicholas, 1998). With only 7% of the UK public online at that point, it is not surprising that parties did not invest in state-of-the-art sites and professional designers (Gibson & Ward, 1998).

In 2001, the first year for which BES data with measures of digital media use are available, around a third of the UK electorate was online (Ward & Lusoli, 2005). Although voters returned the Labour Party to power with a second landslide (Geddes & Tonge, 2001), there was a sharp and unprecedented dip in voter turnout, especially among younger people. This decline in turnout was seen as registering deep disappointment with Labour and its failure to deliver the 'New Dawn for Britain' that Tony Blair and his colleagues had promised.

At the same time, digital media were being given more serious attention by campaigners in both the large and smaller parties. Sites had improved in their design and content (Auty and Cowen, 2001). Interactive features were also more common. For example, voters could

customize the Conservative Party's website to make it more relevant to their policy interests. Similarly, the Labour Party offered a mortgage calculator, through which users could calculate the benefits of their tax policies. Through the website, voters could also send text messages to their friends to encourage them to support the party.

E-newsletters also rose in prominence during this period. Most parties offered some kind of email distribution list, which allowed voters to sign-up to receive updates from the campaign trail regularly. The major parties also made their websites accessible through mobile phones. Overall, however, campaign tools online reflected a certain timidity among parties toward digital technology, with most using it to represent and supplement their offline material, rather than making use of the features of the web that made it different from traditional media (Auty & Cowen, 2001; Dorling et al, 2002). By 2001 the web could be characterized as more of a supplementary campaign tool rather than a tool of substantial adaptation or evolution by the parties. It would be surprising, then, if citizens' use of digital media had a substantial effect on campaign-related behavior in 2001.

By 2005, a majority of the UK population were online (Ward & Lusoli, 2005; Schifferes et al., 2009), and a more weary and skeptical electorate returned Labour to power (Whiteley et al., 2005). Parties' use of digital media tools entered somewhat of a holding pattern. As in 2001, parties had an online presence, but the main political game was played offline (Ward & Lusoli, 2005; Schifferes et al, 2009). In addition, only 15% of the public went online to look for political information online, and less than 3% visited official party and candidate sites (Ward & Lusoli, 2005; Ward, 2005). The social media revolution was not yet fully underway. These circumstances suggest that the context for digital media tools to exert the influences cyber-optimists hoped to see may still not have been adequately developed.

The 2010 UK elections exhibited a break with the past and the possibility of large changes in citizen responses to online campaigning. Labour was rejected at the polls and a coalition government elected, only the second in Britain's post-war history. There was greater uncertainty about the outcome in 2010 than had been the case in 2005 and 2001. This was a result of the sudden surge of interest in the Liberal Democrats and their leader Nick Clegg, who made a strong performance during Britain's first televised debates. In concert, voter turnout increased. Electoral Commission data show that turnout rates, which had descended to an all-time post-war low of 59% in 2001 and risen slightly in 2005 to 61%, reached 65% in 2010. Expectations were running higher than ever that this would be *an*, if not *the* "Internet election." The success of Obama in the US two years before had provided one of the first clear signals for campaigners of the possible impact of digital media use on an election outcome. There had also been a significant jump in people's use of general Internet and social media from 2005. Several senior UK party personnel traveled to the US before the UK election to observe directly Obama's online efforts (Crabtree, 2010).

At the beginning of the 2010 UK campaign, therefore, newspapers predicted that digital media tools would be major forces in the election (Daily Telegraph, 4 April, 2010). All three main parties launched a website akin to MyBO.com, where activists and supporters could self-organize and campaign on behalf of the parties (Gibson, 2013). In addition, key differences in the online campaign styles of the three parties emerged, with the Conservatives seen as taking the broadest 'catch-all' approach through Google ads and significant investment in the website. Labour and the Liberal Democrats followed a more targeted approach, using their online hub sites and email campaigns to energize their activist base (Painter, 2010). The 2010 election was therefore the first where all the pieces were in place, so to speak. A majority of citizens were

online, a variety of social media tools had matured, and the parties made their first serious efforts to campaign online. The non-routine nature of the contest itself, with high interest and uncertainty also denoted a break with the past. These factors suggest that the role of digital media in political behavior should, all else being equal, be more evident in 2010 than in previous elections.

Evolution of Digital Media Tools over Time

But there is more to the story than simply growing effects over time. There are also contributors to more idiosyncratic variation over time in the role of . One of these is the growing heterogeneity of media affordances. It is not only the case that there are more media tools over time at the disposal of citizens, but also that there are more kinds of media tools. Twitter, for example, excels as a tool for one-to-many text communication at the medium scale. The first Tweets were sent in 2006, and within just three years Twitter was an important tool in the uprisings of Arab Spring as well as in many other contexts (Chadwick, 2011). Other digital media tools have different key affordances. YouTube and many photo-sharing sites excel at one-to-many visual communication, at either medium or large scale (Karpf, 2010; Wesch, 2008). Facebook and other full-featured social media sites can be used for many things, but are especially powerful for interpersonal communication among small to medium-sized sub-networks. The web was originally mainly useful in politics as an informational and financial tool, but increasingly allows search for audiovisual, geographic, and other kinds of information as well.

This means that different kinds of actions can be accomplished with different types of digital media use. As the tools offer greater choice to elites, we should expect greater sensitivity

of outcomes to varying context and strategies by different parties over time. Where political interest is concerned, this may mean that in some contests and contexts, elites use video tools to make turnout appeals to voters with low interest while appealing to highly interested party regulars via Twitter or email for donations or party work.

Another contributor to variation over time is the potentially diminished role of elites and increased importance of personally-mediated interaction. While organizations and elites still matter for political discourse and many kinds of action, it is increasingly the case that self-organized or individually-brokered action can be important on a large scale, as well as at the personal level (Bennett & Segerberg, 2013). The implications for the social and political dynamics of mass societies in which hierarchy is less important, and personally-mediated action more important, are enormous. Consequently, behavior should be more subject to the vagaries of first-mover effects and sensitive dependence on small changes in conditions, social influence, positive feedback, and other systems effects and features of network dynamics (Barabási & Albert, 1999; Castells, 2008; Jervis, 1998; Muchnik, Aral & Taylor, 2013; Pierson, 1993). For instance, public attention to campaigns and issues is driven by news coverage, yet the spread of digital media suggests that news can be increasingly responsive to what citizens themselves are discussing and posting (Meraz, 2009; Ragas & Kioussis, 2010; Wallsten, 2007). Feedback loops of this kind involving media have long been present, as popularity drives news as well as the other way around. Digital media tools make these feedback loops potentially much more common and substantively more important.

Although these phenomena are not well understood in the area of political behavior, a common implication is non-linearity and path dependence. Such conditions violate assumptions of regression and confound causal interpretation. As Jervis (1998) argues, the denser the

interconnections are among social units, the more difficult it is to tell causal stories after the fact of events or changes. This implies that standard behavioral models may perform unreliably where dense communicative linkages tie people together. Rather than finding an increasingly strong moderating influence of political interest on the relationships between digital media use and political behavior over time, or an influence directly related to elite strategies, relationships may be variable over time in unpredictable ways rather than growing stronger.

Through the 2000s, digital media tools diffused at both the elite and citizen levels in the UK, from nominal levels in 2001 to quite intensive levels by 2010. Elites responded by adapting their strategies, especially in 2010. This suggests that as a first approximation, we might expect to see more and stronger relationships in 2010 than the previous years. Yet the deeper effects of digital media imply that we may see increasing variation and unpredictability over time in the role of digital media in behavior. In what follows we consider specific behaviors and offer some considerations for how the role of political interest may vary across them and over time.

Variation across Behaviors: Voting, Elite-Direct Acts, and Self-Directed Political Talk

Scholarly discussion of the relationship between digital media use and traditional political behavior has been limited by lack of agreement about what the object of study is at times. This limitation is partly inherited from the classic literature on participation, which has a long history of classifying behavior in multiple ways. While early empirical work tended to focus mostly on voting and treated election-related behaviors as homogeneous acts (Berelson et al., 1954; Campbell et al., 1960; Lazarsfeld et al., 1948), subsequent work demonstrated that political participation is multi-dimensional. Pioneering work by Verba and Nie (1972) led to a four-fold categorization that covered turnout, campaigning, communal, and particularized

contacting activities. By the end of the 1970s, scholars argued for inclusion of a wider range of extra-institutional forms of political action, such as strikes and demonstrations (Marsh, 1977; Barnes and Kaase, 1979), and then later scholars further distinguished a range of “low-level” types of unconventional behavior, such as joining a march or boycotting certain products, and violent forms of direct action (Bean, 1991; Parry et al., 1992; Teorell et al., 2007). Teorell et al. (2007) use a basic division between action taking place via representational or extra-representational channels and participation that is exit-based (i.e., a “one time” form of engagement) or “voice” based (i.e., is sustained over time) to differentiate five main types of participation: voting, party activity, protest, consumerism, and targeted forms.

For the most part, the literature on digital media use and traditional participation has not been sensitive to potential differences among categories of behavior. For instance, in their study of the participatory effects of various media, Cho et al. (2009) use a six-item index of participation that does not discriminate among types of acts. Similarly, Gil de Zúñiga et al. (2013) use a five-item index of civic participation and a ten-item index of political participation. Xenos and Moy (2007) differentiate civic from political engagement using multi-item scales for each. Although they also isolate political talk, they do not find substantial differences between talk and their multi-item index. For this reason, much of the debate about whether digital media use is reinforcing or stimulating in politics has conceptualized political behavior in generalized terms (for a review, see Boulianne, 2011). This approach is useful for determining the presence or absence of small undifferentiated effects and for guiding further investigation, but examination of moderation and other nuances can benefit from disaggregating behaviors that are likely to have different antecedents.

Voting. For the purposes of our analysis, it is clear from the literature on political behavior that voting can usefully be differentiated from other acts (Teorell, 2007). It is the most common form of participation, it takes place on a single day designated far in advance, and it is associated with a traditional sense of citizen duty and obligation. For any particular election, it is also a discrete action that people either undertake or not. Theoretically, we expect that digital media use is unlikely to be associated with a measureable increase in voting among those higher in political interest, because people who are more interested in politics tend to vote frequently anyway and so a ceiling effect should occur. On the other hand, for people who are disinterested in fulfilling their duty to vote, who view voting as inconsequential, or who simply do not make the time to get to the polls, digital media provide a means for inadvertent messages to reach potential voters. Use of digital media may provide social cues to voting, provide novel means for parties to mobilize voters, or may otherwise expose less interested citizens to political messages. Yet, citizens in this category are likely to be relatively unreceptive to mobilization appeals. On the whole, therefore, we do not expect much effect from digital media use on voting for either high-interest or low-interest citizens.

Elite-directed acts: Donating and working on campaigns. What further distinctions among forms of behavior are appropriate where digital media are concerned? There are many avenues to explore, following the long tradition of categorization schemes in the political participation literature. Here we focus on the distinction between self-directed acts and elite-directed acts. Self-directed acts are those largely initiated by citizens themselves—independently of specific requests or appeals from mobilizers such as parties and other elites—and are not necessarily directed at political institutions. Elite-directed acts, by contrast, are those where opportunities for action are more closely defined by political elites and where explicit efforts at

mobilization or recruitment are likely involved. These acts are often, though not always, directed at institutionally-sanctioned processes.

A number of studies have argued that one of the key consequences of the changing media environment is expanded opportunities for citizen-initiated action, independent of central organizers and elites, and often directed away from formal political institutions (Bennett and Segerberg, 2013; Bimber, Flanagin & Stohl, 2005; Dalton, 2008; Earl & Kimport, 2011; Lupia & Sin, 2003). Outside the electoral arena, an archetypal example of self-directed action is certain cases of political consumerism, where citizens incorporate political values into their ongoing, everyday practices of making purchases, often in the absence of any specific request to do so by political mobilizers (Copeland 2013a, 2013b). Digital media use has in fact been shown to be positively associated with political consumerism (Gil de Zúñiga, Copeland & Bimber, 2013).

Elite-directed actions such as donating money or working for a party during a campaign entail substantial attention and commitment to politics. Highly interested citizens with a habit of participation may be spurred by elites donate more money or work for a party more frequently—something that can not occur with voting, which happens only once. consistently vote. This argument is consistent with the reasoning of Xenos and Moy (2007), who argue that more demanding and purposeful acts are likely to be associated with Internet use for those with more interest.

At the same time, it is possible that new opportunities to donate money online or to volunteer in novel ways may also appeal to less interested citizens. In the US, for example, many citizens were first-time donors to the 2008 Obama campaign because of the availability of digital media tools (Bimber, 2014). This suggests that elites' strategies and tactics are likely to have a large influence on whether digital media tools are associated with these acts. In cases

where campaign strategies focus on less interested citizens or irregular voters, digital media tools may serve as a channel to donating or volunteering for the less interested; in cases where campaign strategies emphasize core activists and party regulars, we would expect digital media use to spur behavior on the part of more interested citizens. The elites' strategies vary of course not only from one election to another, but among parties, and among regions. Strategies may also change over the course of an election. For these reasons, we expect to find variation over time in the direction and magnitude of the effect, with both positive and negative moderation by political interest. This means that the moderating effect of interest on the digital media--behavior connection cannot be fully forecast in advance of a specific campaign. Even analyzed retrospectively, this relationship is likely to be extremely difficult to model. Assessing the effects of these strategies and tying them analytically to national samples of voters would be a considerable undertaking that is well beyond the scope of typical survey studies.

Political talk. With respect to self-directed acts, in contrast, we expect that the role of political interest in moderating political behavior is less dependent on elite strategies and tactics. Self-directed actions are more closely associated with people's daily practices and social interactions, though they are also influenced by elites, especially news media. For instance, some people make a practice of buying fair-trade goods or locally-produced foods out of a generalized and ongoing sense of social responsibility or concern for the environment rather than in response to ongoing requests from elites. Information that people encounter through social media, email, or while browsing the web may stimulate people who are less interested in politics to engage in self-directed actions in the absence of news and messages from parties or candidates. Instead, social signals from friends and acquaintances are likely to play a role in prompting self-directed acts.

One of the most important self-directed acts is political talk. Political discussion with family or friends may be stimulated by information or messages encountered online in the absence of high levels of political interest. The transition from apolitical, social talk to political talk is an easy one to make in the context of people's social networks and everyday conversations. Digital media make this transition especially easy, because they blur boundaries between public and private life as well as between news and discussion (Brundidge, 2010). This is especially true with respect to social media, which provide unprecedented opportunities for opinion leaders to share political content with people who use social media for non-political reasons, and who would otherwise not seek political information on their own (Römmele & Copeland, 2013). We expect that digital media should consistently facilitate political talk among citizens with less political interest.

These considerations form our primary expectations of variation in the role of political interest as a moderator over time and across behaviors. To summarize: We expect to find that digital media use is not consistently associated with voting for either those higher or lower in political interest; for the elite-directed acts of donating money and working on campaigns, we expect to find variation in the direction in which political interest interacts with digital media use; for political talk, we expect to find the direction of the interaction to be consistently negative.

Data and Method

To test these expectations, we analyzed cross-sectional survey data from the 2001, 2005, and 2010 BES. These data contain consistent measures of Internet use for political information for all three elections, a rarity in survey data sets. We weighted all analyses in accordance with BES specifications to reflect general population parameters.

Dependent Variables

We employed measures of four political actions as dependent variables: *voting*, *working for a party or candidate*, *donating money*; and *discussing politics*. Care must be taken in interpreting and comparing these measures. In the BES, voting was measured by asking respondents a binary question about whether they had voted. This measure is therefore a simple recall question about a past action that is subject to well-known social desirability bias. We would expect this measure to overestimate actual turnout. For the other political acts, respondents were asked likelihood questions about future actions: “Using a scale from 0-10, where 0 means very unlikely and 10 means very likely, how likely is it that you will: Work for a party or candidate in an election campaign; Give money to a political party; Discuss politics with family and friends.” Likelihood questions are also subject to bias in the positive direction, and should be interpreted as measures of the respondents’ propensity to act at the moment of the survey rather than as report on past action. We are interested in comparisons across the three elections in how digital media variables predict these measures, rather than interpreting them as providing unbiased estimates of behavior. Descriptive statistics for these variables for each year are displayed in Table 1.

<Table 1 about here>

Independent and Control Variables

Our primary independent variables are the frequency of Internet use for obtaining political information, political interest, and the interaction between these two variables. The measure for Internet use was as follows: “How much did you use the Internet to get information about the recent general election?” The four-point scale ranged from *not at all* (coded 0) to *a*

great deal (coded 3). Respondents indicated their level of political interest using a five-point Likert-type scale ranging from 0 (*none at all*) to 4 (*a great deal*): “How much interest do you generally have in what is going on in politics?” Political interest has a significant bivariate relationship with each dependent variable in each year.

We also controlled for variables related to political participation and civic engagement (Verba, Schlozman & Brady, 1995). Respondents were asked to indicate their highest level of education completed; their age in years; and their annual household income.¹ Gender was a dichotomous variable (1 = male). To measure party contact, respondents were asked: “Did any of the political parties contact you on election day itself to ask if you had voted or intended to vote?”² Political efficacy was measured by asking respondents: “On a scale from 0 to 10 where 0 means no influence and 10 means a great deal of influence, how much influence do you have on politics and public affairs?” Descriptive statistics for these variables are displayed in Table 1.

Analysis

To estimate the size and effect of the relationship between digital media use and political participation over time, we estimated two regression models for each act and for each year. In the first model for each year, we included all independent variables—with the exception of the interaction between interest and use of the Internet for political information—in order to show main effects. The second set of models includes the interactions with political interest, which show any moderation effect. By including models for each year rather than consolidating all three years into a single data set with year variables, we are able to interpret how interactions vary from year to year. This procedure resulted in a total of 24 regression models.

For the voting models we used logistic regression because the dependent variable is dichotomous (Long, 1997; Long & Freese, 2006). For donating money and political talk, we report results from ordinary least squares (OLS) regression because the dependent variables are quasi-continuous and our test of fit with other models, including ordered logit and negative binomial models, showed the OLS results to be robust. For working for a party, we report results from negative binomial regression, which are more suitable to this variable, as we discuss below (Long, 1997; Long & Freese, 2006).

A note about direction of causation is also warranted. Endogeneity is a classic challenge in modeling digital media use and political participation. Obtaining political information online is clearly endogenous to participation. This is likely especially true for those higher in political interest. We are not primarily interested here in differentiating causation in each direction, though we are interested in implications of our findings for the reinforcement vs. stimulus question. We focus on comparing the moderating role of political interest in this association across types of behavior and in light of the possibility of changes over time, regardless of causal direction. We view this as a relatively conservative stance in light of the literature, where results are commonly interpreted as presumptively implying a causal relationship from digital media use to participation. Theoretically, we are driven by the observation that in the contemporary media environment, use of digital media is simply part of standard political practice for many people. Sorting out with confidence the relative strength of the direction from one to the other and what factors predict variation in this is a problem we leave for future research.

Results

Voting

We begin with voting, where we find no main effect for online political information in 2001 in our logistic regression. Main effects appear in the 2005 and 2010 models, as shown in Table 2.

<Table 2 about here>

Substantively, the relationship is stronger in 2010 than in 2005, as the increase in odds ratios from 1.27 to 1.75 shows. This over-time variation in the main effect of online political information for voting suggests growth over time in the connection between digital media and participation, consistent with the view that the 2010 election was different from its predecessors in the maturity of social media and its use by parties.

Our primary concern, however, is with the interaction between political interest and online political information. In 2001, there is no effect associated with online political information when interest is low, and there is no interaction effect. In 2005, by contrast, where digital media use does have a main effect, we see that the political interest remains significant as a predictor of voting when digital media use is low but that digital media use is not significant when interest is low. There is no significant interaction. In 2010, the situation is different yet again. In addition to the main effect, the moderation model shows that political interest is associated with voting when digital media use is low, that online information is associated with voting when interest is low, but that the interaction term is not significant. This means that the relationship of online political information to voting was concentrated among those lower in political interest in 2010.

Because voting is widely viewed as the central participatory act, we analyzed the 2005 and 2010 relationships further. We used the results from Table 2 to calculate predicted probabilities for the likelihood of voting as we varied levels of political interest and Internet use

for political information, with the values of all independent variables set at their means. To estimate the predicted probabilities, we used Clarify (King, Tomz, and Wittenberg, 2000). The results are displayed graphically in Figure 1.

<Figure 1 about here>

In 2005, the results show that among people who were low in political interest, using the Internet frequently to obtain information about the election increased the likelihood of voting by 14 to 16 percentage points. Among those who were high in political interest, however, using the Internet frequently for political information only increased the likelihood of voting by two to three percentage points.

A similar pattern emerged in 2010. Among people who were low in political interest, using the Internet frequently to obtain political information about the election increased the likelihood of voting by 27 to 35 percentage points. In contrast, people who expressed high levels of political interest and who used digital media frequently for political information were only 7 to 12 percentage points more likely to vote. These results suggest that the use of digital media to obtain political information in the 2005 and 2010 elections narrowed the participation gap between people who were more and less interested in politics. While frequent Internet use for political information stimulated people who were less interested in politics to vote, it also reinforced the likelihood of voting among those higher in political interest.

Donating Money

The results for donating are unlike those for voting. The OLS models, which are shown in Table 3, show a substantively comparable main effect for online political information in 2001 and 2005, but not in 2010.

<Table 3 about here>

The moderation models again fail to improve the variance explained but add to the interpretation. In 2001, the interaction is significant and negative, indicating that online political information is more strongly associated with donating for those less interested in politics. In 2005, by contrast, the interaction term is positive, indicating that use of the Internet for political information is more strongly associated with donating as political interest increases. In 2010 there is no relationship at all. The story of donating across the three elections shows all three theoretical possibilities: negative moderation, positive moderation, and no association. Political interest matters in different ways across the elections.

Working for a Party

We initially ran OLS models for working for a party, and these indicate that main effects exist for use of the Internet for political information in all three elections, with substantive importance rising from 2001 to 2005 and then declining in 2010. With interaction terms in the models, we again see no improvement in fit. In all three years, the term for online political information loses significance with the interaction term in the models, indicating that for those low in political interest there is no relationship between digital media use and working for a party. Only in 2005 is the interaction term significant, indicating that the relationship of political interest to working for a party increases with digital media use.

Uncertainty is cast on our OLS findings about working for a party, however, because the residuals in our models fall far from normality. This violates of an assumption for OLS and suggests that alternative models may be more appropriate. In light of the large number of zero values – many people report no likelihood at all of working for a party (see Table 1) – we used

negative binomial regression. We view the negative binomial results as the more appropriate ones and report those in Table 4, but we also observe that in different ways both regression approaches indicate variability over time in the role of political interest. In the interaction models for 2001 and 2010, the interaction terms are significant and negative while the online information term is significant and positive, which means that online information was positively associated with working for a party when interest was low, and this relationship diminished as interest increased. For 2005, there is no interaction. While the interpretation of the OLS results suggest that in 2005 online information had a stimulating effect on working for a party for those low in interest and no relationship in the other years, the interpretation of the negative binomial models suggests that online information had a stimulating effect in 2001 and 2010 but not in 2005.

<Table 4 about here>

Discussing Politics

Our last dependent measure is discussing politics with friends and family. The OLS models explain the most variance of any of the four modes of engagement, from 27% to 39% (pseudo r^2 0.27 to 0.39). The main effect models show that online political information is a significant predictor of political talk in all three years, with substantively stronger relationships in 2001 and 2010 than 2005. The interaction models clarify the relationships at work. Negative interaction effects appear in all three years, with substantive importance declining over time, as shown by the decreasing betas: -0.59, -0.26, and -0.21, respectively. The negative sign on the interaction terms indicates that the relationship of using online information to discussion is positive for those low in political interest and declines as political interest rises. Online

information use was associated with political discussion in all three years for the less politically interested. The results are displayed in Table 5.

<Table 5 about here>

Discussion

We began this investigation with questions about the role of political interest in moderating the relationship of online political information and political participation. This has been an important question in the literature for two reasons: because models that do not control for political interest tend to exaggerate the significance of the relationship between digital media use and participation (Boulianne, 2009) and because the role of interest is crucial to interpreting whether digital media tend to reinforce unequal participation among the more and less interested or whether they may overcome participation gaps (Xenos and Moy, 2007). The question of whether technology use primarily reinforces or disrupts patterns in political participation is in our view one of the most important problems in the study of digital media and politics.

We did not expect to find the role of digital media in political behavior consistent over time. Evolution of the technology and adaptation by elites should not simply contribute to a trend toward more or stronger relationships over time but toward less predictability as the meaning and implications of technology depend more on the strategies of elites, the self-directed actions of the public, and the content of communication itself.

These considerations informed our analysis of four specific political actions, where we found that political interest plays several different mediating roles. For voting, we found no relationship between digital media use and political information in 2001. The absence of a relationship in 2001 is not surprising: only about a third of the UK electorate was online, voter

turnout was low, and most parties used online tools to supplement material offline; they did not make use of any of the interactive features digital media afforded. By 2005, however, a majority of the UK electorate was online, and in 2005 and 2010, the relationships between digital media use and voting were positive and significant. Although the interaction term was not significant in either year, the predicted probabilities suggest that Internet use for political information increased the likelihood of voting among those less interested and reinforced this inclination among the more interested. This was an unexpected finding.

For the elite-directed acts of donating money and working for a party, the relationships varied idiosyncratically across acts and over time. For donating, there were positive and significant main effects in 2001 and 2005, but not in 2010. The interaction term was also negative and significant in 2001, suggesting that digital media use increased the likelihood of donating among those less interested in politics. In 2005, however, the interaction term was positive and significant, suggesting that digital media use reinforced the likelihood of donating among those more interested in politics. Again, there was not a statistically significant effect in 2010, which is somewhat surprising given the evolution of digital media tools over time, and the ability for elites to use more sophisticated tools to solicit donations. While UK parties do solicit donations from private individuals and organizations to run their campaigns this is generally less widespread than in US. Part of the reason for the lower incentive to attract donations is due to the much lower cost of campaigning in the UK. For example, televising advertising in the US is one of the largest expenses for statewide and national campaigns. In the UK, by contrast, commercial advertising on television and radio is prohibited and instead the national parties receive 'free' air time on the public broadcaster for addressing voters in party political broadcasts. Therefore, we

might not expect the relationship between Internet use and donating money to be as strong in the UK as it is the US.

For political talk, we observed a positive relationship with online political information for those low in political interest in all three elections. People who were less interested in politics, but who used digital media for political information, were more likely to engage in political talk. Our theoretical rationale for distinguishing political talk from the other acts for purposes of analyzing political interest is supported by the findings.

One can also interpret the above results organized by election year rather than by action. In 2001, we found that the relationship between digital media use and participation was significant for donating money and political talk. In 2005, the relationship was significant for voting, donating money, working for a political party, and political talk. In 2010, the year that many expected to be “the Internet election,” we found positive and significant relationship between digital media use and voting and political discussion. Said another way, we observed the greatest number of significant relationships in 2005. In 2001 and 2010 we found just two significant relationships between digital media use and participation. The results for 2010 are surprising because all the pieces for an “Internet election” were in place: a majority of citizens were online, a variety of social media tools had matured, and parties made their first serious efforts to campaign online. In addition, there was greater uncertainty about the outcome in 2010 than had been the case in 2005 and 2001. As a result, we expected to see more relationships in 2010 than in 2005. However, this was not the case. That said, three elections are not sufficient to tease out the effects of variation over time. It will take several more election cycles to assess how the interaction between political interest and digital media use varies across different forms of

participation and over time. We expect to see variation from election to election becoming more important.

Although our results are confined to BES data and their particular measure for using the Internet for political information, they speak to the long-standing debate among observers of digital media about whether online politics reinforces behavior patterns and inequalities in participation and interest in civic affairs, or stimulates involvement that might not have occurred absent digital media tools.³ Our analysis suggests that both sides in this debate have a point. Among the four behaviors we examined, online political information appears most consistently to stimulate action in the case of political talk, while for voting, donating, and working for a party it variably reinforces, stimulates, or does nothing. Our results largely frustrate the expectation underlying some research that the role of digital media in individual-level political behavior should be consistent over time and across behaviors.

Our findings suggest that it is unhelpful to theorize *an* effect of political interest on the relationship between digital media use and behavior. This is to say that the question of whether digital media reinforces or remedies inequality in traditional political behavior is wrongly put. It does both, and the relationship varies across time. Like many scholars of participation, we view voting as a special case that should not be lumped with other actions.

Our analysis is limited to four actions in three elections and so is not sufficient for supporting a broad theory of mobilization or reinforcement. Our findings do suggest some possibilities for future exploration, however. One is that digital media tends to be mobilizing for self-directed acts, with the strength of the effect varying over time as a function of context. In our case, we studied political talk, and found a consistent effect for those lower in political interest. Other self-directed actions could also be examined, such as some forms of political

consumerism. A second speculation is that for elite-directed acts, digital media use is variably reinforcing and disruptive of traditional patterns of behavior among the more and less interested, as a function of the strategies of elites. When elites use digital tools to target less interested citizens, then the result can be mobilization, just as the opposite occurs when elites target core supporters and regular participants. We view it as important to incorporate actions of elites when theorizing about consequences of digital media for behavior where actions are elite-driven. Further pursuing this distinction between self-directed and elite-directed acts appears a promising way forward in theorizing about political behavior and digital media, as is attention to the fact that the role of digital media in behavior may not be consistent over time but highly sensitive to the changing context of public life.

Bio sketches

Bruce Bimber is Professor of Political Science at the University of California, Santa Barbara. He can be reached at Bimber@polsci.ucsb.edu.

Lauren Copeland is Research Associate at the Institute for Social, Behavioral, and Economic Research, University of California, Santa Barbara. She can be reached at Lauren.Copeland@gmail.com.

Marta Cantijoch Cunill is Research Associate at the Institute for Social Change, University of Manchester. She can be reached at marta.cantijoch@manchester.ac.uk.

Rachel Gibson is Professor of Political Science at the University of Manchester. She can be reached at Rachel.Gibson@manchester.ac.uk.

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Endnotes

¹ Education was measured on a five-point Likert-type scale ranging from 1 to 5. Income was measured on a 15-point Likert-type scale ranging from 1 to 15.

² In 2001, the question wording was slightly different: “Were you telephoned by a Canvasser?” For each year, though, respondents were asked to indicate “yes” or “no.”

³ Not only do we believe the BES data fall short of an ideal empirical portrait of people’s use of digital media, we believe that this measurement problem is increasingly intractable for surveys, due to the deepening saturation of the human environment by various technologies of communication and information. Accurate portrayals of how digital media are changing the context of daily lives may already be beyond what can be captured reliably by studies that focus on recall in surveys about individual-level variation in technology use, rather than by studies of the content of political communication or that employ digital trace data that capture actual behavior of populations.

Table 1. Descriptive Statistics for Dependent, Independent, and Control Variables

	2001				2005				2010			
	Mean	SD	Min	Max	Mean	SD	Min	Max	Mean	SD	Min	Max
Education	2.93	1.60	1	5	2.79	1.59	1	5	3.12	1.57	1	5
Age	44	18.33	18	95	47	18	18	97	47	18	18	97
Income	4.99	3.36	1	12	6.04	3.45	1	13	6.92	4.03	1	15
Male	0.50	0.50	0	1	0.48	0.50	0	1	0.47	0.50	0	1
Party contact	0.08	0.27	0	1	0.06	0.23	0	1	0.53	0.50	0	1
Political efficacy	1.84	2.19	0	10	2.71	2.28	0	10	1.84	2.22	0	10
Political interest	1.89	1.07	0	4	2.07	0.98	0	4	2.16	1.07	0	4
Internet information	0.17	0.48	0	3	0.23	0.64	0	3	0.54	0.85	0	3
Vote	0.69	0.46	0	1	0.72	0.45	0	1	0.77	0.42	0	1
Work for party	1.25	2.33	0	10	1.24	2.09	0	10	1.28	2.21	0	10
Donate money	1.19	2.39	0	10	1.34	2.21	0	10	1.05	2.07	0	10
Discuss politics	5.07	3.55	0	10	5.42	3.36	0	10	5.62	3.36	0	10

Table 2. Logistic Regression Models Predicting Voting in 2001, 2005, and 2010

	Main Effect			Interaction		
	2001	2005	2010	2001	2005	2010
Education	1.105* (0.056)	1.178*** (0.039)	1.041 (0.046)	1.100 (0.055)	1.178*** (0.039)	1.041 (0.046)
Age	1.043*** (0.005)	1.054*** (0.003)	1.041*** (0.004)	1.043*** (0.005)	1.054*** (0.003)	1.041*** (0.004)
Income	1.076*** (0.024)	1.074*** (0.015)	1.107*** (0.019)	1.072** (0.024)	1.075*** (0.015)	1.107*** (0.019)
Male	0.716* (0.097)	0.746*** (0.065)	0.635*** (0.074)	0.723* (0.098)	0.746*** (0.065)	0.634*** (0.074)
Party contact	1.485 (0.450)	2.316*** (0.543)	1.518*** (0.172)	1.482 (0.449)	2.314*** (0.542)	1.531*** (0.174)
Political efficacy	1.135*** (0.039)	1.164*** (0.025)	1.124*** (0.033)	1.145*** (0.041)	1.164*** (0.025)	1.123*** (0.033)
Political interest	1.649*** (0.121)	1.615*** (0.083)	1.866*** (0.118)	1.576*** (0.123)	1.604*** (0.085)	1.917*** (0.132)
Internet info	1.154 (0.166)	1.274** (0.105)	1.754*** (0.153)	0.757 (0.228)	1.151 (0.254)	2.107*** (0.422)
Interaction				1.234 (0.164)	1.043 (0.090)	0.917 (0.076)
Constant	0.086*** (0.027)	0.030*** (0.007)	0.046*** (0.013)	0.095*** (0.031)	0.030*** (0.007)	0.044*** (0.013)
Observations	1,463	3,594	2,357	1,463	3,594	2,357
LR $\chi^2(9)$	234.70***	746.40***	503.33***	237.39***	746.65***	504.39***
Pseudo R ²	0.14	0.18	0.202	0.142	0.181	0.203

Notes: Cell entries are odds ratios with standard errors in parentheses. Data are weighted to reflect general population parameters. *** p < 0.001, ** p < 0.01, * p < 0.05

Table 3. OLS Regression Models Predicting Donating in 2001, 2005, and 2010

	Main Effects			Interactions		
	2001	2005	2010	2001	2005	2010
Education	0.146*** (0.045)	0.039 (0.027)	-0.006 (0.032)	0.147*** (0.046)	0.042 (0.027)	-0.004 (0.032)
Age	0.013** (0.004)	0.011*** (0.002)	0.008** (0.003)	0.013** (0.004)	0.011*** (0.002)	0.008** (0.003)
Income	0.019 (0.020)	0.006 (0.011)	0.018 (0.011)	0.032 (0.020)	0.006 (0.011)	0.018 (0.011)
Male	-0.031 (0.126)	0.121 (0.072)	-0.013 (0.086)	-0.062 (0.126)	0.120 (0.071)	-0.015 (0.086)
Party contact	0.653** (0.235)	0.365* (0.150)	0.177* (0.085)	0.672** (0.234)	0.360* (0.150)	0.173* (0.085)
Political efficacy	0.196*** (0.029)	0.223*** (0.017)	0.238*** (0.020)	0.181*** (0.029)	0.222*** (0.016)	0.238*** (0.020)
Political interest	0.409*** (0.066)	0.290*** (0.041)	0.236*** (0.046)	0.512*** (0.070)	0.264*** (0.042)	0.214*** (0.051)
Internet info	0.310* (0.124)	0.287*** (0.059)	0.073 (0.199)	1.427*** (0.288)	-0.109 (0.176)	-0.050 (0.137)
Interaction				-0.460*** (0.107)	0.144* (0.060)	0.048 (0.203)
Constant	-1.121*** (0.289)	-0.693*** (0.165)	-0.492* (0.199)	-1.370*** (0.293)	-0.645*** (0.166)	-0.450* (0.203)
Observations	1,478	3,514	2,308	1,478	3,514	2,308
R ²	0.118	0.121	0.105	0.129	0.123	0.105
Adjusted R ²	0.113	0.119	0.102	0.124	0.12	0.102

Notes: Cell entries are coefficients with standard errors in parentheses. Data are weighted to reflect general population parameters. *** p < 0.001, ** p < 0.01, * p < 0.05

Table 4. Negative Binomial Regression Models for Working for a Party in 2001, 2005, and 2010

	Main Effects			Interactions		
	2001	2005	2010	2001	2005	2010
Education	0.111** (0.039)	0.022 (0.021)	0.117*** (0.028)	0.107** (0.039)	0.021 (0.021)	0.115*** (0.028)
Age	-0.006 (0.004)	-0.000 (0.002)	0.001 (0.003)	-0.006 (0.004)	-0.000 (0.002)	0.001 (0.003)
Income	-0.040* (0.016)	-0.009 (0.009)	-0.011 (0.010)	-0.033* (0.017)	-0.009 (0.009)	-0.013 (0.010)
Male	-0.073 (0.111)	-0.110 (0.058)	0.130 (0.075)	-0.082 (0.112)	-0.109 (0.058)	0.131 (0.075)
Party contact	0.009 (0.207)	0.060 (0.117)	-0.020 (0.074)	0.055 (0.208)	0.061 (0.117)	0.002 (0.075)
Political efficacy	0.133*** (0.025)	0.161*** (0.013)	0.213*** (0.017)	0.127*** (0.025)	0.161*** (0.013)	0.210*** (0.017)
Political interest	0.415*** (0.060)	0.360*** (0.033)	0.329*** (0.041)	0.460*** (0.064)	0.365*** (0.034)	0.385*** (0.047)
Internet info	0.118 (0.108)	0.201*** (0.044)	0.084 (0.046)	0.622* (0.292)	0.262 (0.139)	0.328** (0.116)
Interaction				-0.202 (0.106)	-0.022 (0.047)	-0.092* (0.040)
Constant	-0.903*** (0.257)	-1.145*** (0.137)	- (0.178)	-1.028*** (0.264)	-1.155*** (0.138)	-1.691*** (0.185)
Alpha	3.1	1.78	1.97	3.08	1.78	1.96
Observations	1462	3595	2354	1462	3595	2354
Nagelkerke R ²	0.08	0.12	0.14	0.08	0.12	0.15
Chi ²	1583.71	2290.62	1658.46	1568.03	2282.04	1645.7

Notes: Cell entries are coefficients with standard errors in parentheses. Data are weighted to reflect general population parameters. *** p < 0.001, ** p < 0.01, * p < 0.05

Table 5. OLS Regression Models Predicting Discussing Politics in 2001, 2005, and 2010

	Main Effects			Interactions		
	2001	2005	2010	2001	2005	2010
Education	0.234*** (0.059)	0.227*** (0.034)	0.192*** (0.042)	0.235*** (0.059)	0.222*** (0.034)	0.187*** (0.042)
Age	-0.008 (0.005)	- 0.014*** (0.003)	- 0.015*** (0.004)	-0.008 (0.005)	- 0.015*** (0.003)	- 0.015*** (0.004)
Income	0.065* (0.026)	0.102*** (0.014)	0.083*** (0.015)	0.082** (0.026)	0.102*** (0.014)	0.084*** (0.015)
Male	-0.232 (0.163)	0.025 (0.092)	0.121 (0.112)	-0.271 (0.162)	0.027 (0.091)	0.131 (0.112)
Party contact	-0.142 (0.303)	0.405* (0.192)	0.354*** (0.111)	-0.117 (0.302)	0.414* (0.192)	0.375*** (0.111)
Political efficacy	0.210*** (0.038)	0.201*** (0.021)	0.139*** (0.025)	0.190*** (0.038)	0.202*** (0.021)	0.137*** (0.025)
Political interest	1.334*** (0.085)	1.550*** (0.053)	1.414*** (0.060)	1.467*** (0.090)	1.597*** (0.054)	1.508*** (0.067)
Internet info	0.573*** (0.161)	0.291*** (0.076)	0.468*** (0.072)	2.007*** (0.371)	1.009*** (0.225)	1.010*** (0.178)
Interaction				- 0.590*** (0.138)	- 0.260*** (0.077)	- 0.209*** (0.063)
Constant	1.652*** (0.373)	1.071*** (0.211)	1.337*** (0.259)	1.332*** (0.379)	0.984*** (0.212)	1.153*** (0.264)
Observations	1,479	3,514	2,313	1,479	3,514	2,313
R ²	0.274	0.369	0.387	0.283	0.371	0.390
Adjusted R ²	0.270	0.368	0.385	0.2788	0.370	0.388

Notes: Cell entries are coefficients with standard errors in parentheses. Data are weighted to reflect general population parameters. *** $p < 0.001$, ** $p < 0.01$, * $p < 0.05$

Figure 1. Predicted Probabilities of Voting by Level of Political Interest

