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Dynamics of political information transmission: How media coverage informs public judgments about politics

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Chapter 2

The Impact of Media Coverage and Motivation on Performance-Relevant Information

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Abstract

Representative democracy requires that citizens know the facts about political performance, and if more such facts are available in the media, citizens have more opportunity to acquire them. In view of increasing media choice, such opportunity may vary from one individual media environment to another. However, it remains unclear how differences in information acquisition correspond with differences in the information available specifically in those sources that citizens choose to use on a routine basis. Drawing on data from a two-wave panel survey and media content analysis, this article examines if greater availability of performance-relevant information in the media facilitates acquisition of such information among those reliant on these media. It also examines when and how strongly this effect differs for people with different levels of learning motivation. Using a multilevel model, we find that citizens are more likely to learn facts about political performance when their preferred sources offer a greater quantity of performance-relevant information. We also find that motivation moderates the influence of availability, such that strongly motivated individuals gain comparatively the most from a greater supply of information. The implications of our findings for representative democracy are considered.

Regardless of whether one holds that keeping up with current political affairs is normatively desirable by itself, citizens necessarily need relevant factual information in order to monitor the performance of political institutions and hold political elites accountable for their actions (e.g., Delli Carpini & Keeter, 1996; Wlezien, 1995). Information about what government does, or *performance-relevant information*, enables citizens to form, re-evaluate, and articulate opinions about government action or inaction. Moreover, there is evidence to suggest that acquisition of such information alters citizen's political judgments and policy preferences in various domains of government (see *Chapter 1*; Gilens, 2001). The consequential nature of performance-relevant information, then, provides a clear rationale for studying the sources of that information as well as the conditions that facilitate, or impede, reception of it (Druckman, 2005a).

Few would disagree that the media are an indispensable source of political information for most citizens. And yet, much of the existing literature has come to the counterintuitive conclusion that the media are a surprisingly modest force in equipping citizens with higher levels of factual information about the world of politics and policy (e.g., Price & Zaller, 1993). Primarily, the media effects reported in this literature are based on citizens' propensity to attend to the news media, but as Delli Carpini and Keeter (1996) point out, "the consequences of actual use of media depend not only on the individual but on what information is available" (p. 347). Indeed, the *availability* of the information studied as outcome variable is, as Druckman (2005b) notes, a necessary but "rarely recognized" factor in media learning research: "[l]earning from a given medium requires that the medium include that information" (p. 466). And to assume, as most prior research has, that all media sources are equally efficient distributors of certain types of political information seems at least questionable, and at worst untenable.

Innovative research that combines data from surveys and media content analyses is now emerging (e.g., Barabas & Jerit, 2009; Iyengar, Hahn, Bonfadelli, & Marr, 2009). But as we discuss below, missing in most studies is a specification of the media environment – and the available information in it – at the level of the individual news consumer faced with increasing media choice (Baum, 2002; Prior, 2005). As a result, it remains unclear how closely variation in information acquisition corresponds with the amount of information available specifically in those sources that individual citizens are actually using on a routine basis. Furthermore, the impact of political information supply possibly varies according to citizens' *demand* for such information (Iyengar et al., 2010), suggesting that low intrinsic motivation may pose an obstacle to learning even when information is more easily encountered. Yet this

hypothesis has hardly been formally tested or further specified to indicate when a moderation effect of motivation is particularly likely to emerge.

Drawing on data from a two-wave panel survey and media content analysis, the present article asks if greater availability of performance-relevant information in individual media sources facilitates acquisition of such information among individuals reliant on these sources. It also asks when and how strongly this effect differs for people with different levels of learning motivation. We examine the presence of such effects in the wake of a naturally occurring major decision-making event in European politics: the EU summit in Brussels of 11 and 12 December 2008 (see also *Chapter 1*). Broadening the focus of learning research, this study presents findings from a European case, where market forces are gradually transforming a public service-oriented media system and its news supply (Hallin & Mancini, 2004).

Information Availability in Individual Media Environments

Most would agree that the media provide an important, if not the most important, opportunity to acquire information about politics. Opportunity, which is determined by the availability of information, "affects how easily a citizen can learn, given his or her ability and motivation" (Delli Carpini & Keeter, 1996, p. 179). All else equal, citizens should be more likely to encounter and, by extension, absorb a given piece of information if the media they rely on actually carry that information. Repeated encounters with information enhances recognition and recall, and thereby retention of the information (Graber, 1984). "When the media present the same or similar stories over a period of time," write Tewksbury, Weaver and Maddex (2001), "they are giving the audience a chance to mentally rehearse the information," which "allows individuals to retain the information, even in cases of passive learning" (p. 534).

There is indeed strong evidence to suggest a link between learning and the mere availability of information, suggesting that citizens are better informed, irrespective of their motivation, when the supply of political information in the media environment in which they are situated is relatively high (e.g., Delli Carpini, Keeter, & Kennamer, 1994; Zukin & Snyder, 1984). For example, a study comparing the U.S. and Switzerland by Iyengar and his colleagues (2009) shows that Swiss media provide considerably more international news than U.S. media, and that Swiss respondents are also noticeably better informed about international affairs than American respondents. In another recent and well-designed study, Barabas and Jerit (2009) compare different policy-specific facts at a single point in time as well as identi-

cal facts *over* time within the U.S. national media environment, and find that respondents learn significantly more under conditions of relatively high levels of media coverage (see also Jerit, Barabas, & Bolsen, 2006).

Typically, studies focusing on the effects of information supply do not examine the possibility of variation in information availability *across* the individual media sources that constitute a given information environment. Put differently, it is often assumed that individual sources convey roughly the same information in roughly similar quantities, such that the opportunity to acquire the information does not vary much among individual citizens nested *within* a particular geographical unit. But in "post-broadcast democracies" (Prior, 2007) with strong diversification of news formats and rapid fragmentation of the news audience (Baum, 2003), this assumption is, as Prior (2009a) states, "increasingly implausible" (p. 139). Under such conditions, the probability that people encounter and absorb certain types of political information becomes, at least in part, a matter of news media *choice*. That is, relevant information salient to some individuals might go largely unseen by others, depending on the media sources that individuals choose to primarily rely on for their news.

To the extent that individual opportunities for information acquisition vary as a function of media choice, analyzing effects of political learning requires examining "individual media environments" (Prior, 2007, p. 10), which comprise the media sources that are routinely available to – and accessed by – each citizen individually. Such an examination calls for content analytical data revealing which news outlets included the relevant information as well as survey data identifying which news outlets determine an individual's structural information diet (Slater, 2004). Content analysis and specificity in measurement of source reliance are increasingly recommended in the literature (e.g., Druckman, 2005a) but so far rarely incorporated, let alone blended, in analyses of political learning.

One exception is a recent study by Barabas and Jerit (2010), who distinguish differential learning opportunities among American respondents using media sources that either did or did not include the information of interest. The researchers find that respondents whose primary consulted news source carried the information were significantly more likely to acquire that information. This finding from the American case is evidence – thus far rarely replicated – in support of the proposition that different *individual* media environments offer different opportunities to encounter political information, and that such differences can cause substantial gaps in information acquisition. The present study extends this research by examining a different case, by conceptualizing individual media environments more broadly, and by distinguishing different levels of information availability within these environments. Specifical-

ly, our expectation is that individuals are more likely to learn facts about political performance when their preferred media sources offer a greater quantity of performance-relevant information.

> *Hypothesis 1*: Acquisition of performance-relevant information increases with the availability of that information in the media sources that individuals rely on.

Does Motivation Moderate the Impact of Information Availability?

Information availability alone might not produce the most powerful learning effects. Much of what appears in the news media, of course, does not contain political substance. In the real-world media environment, political news stories continuously compete for the audience's attention with many stories *without* political substance. Many members of the audience, on their turn, have no intention of using the news media strictly to learn about politics. Indeed, people may use the news to satisfy a diverse range of individual needs, including, for example, surveillance of sports, health, weather, and entertainment news (Tewksbury, 2008). Accordingly, the learning effects of using particular media sources should not only depend on the amount of relevant information available in these sources, but are also likely to vary among individuals using those sources.

There is good reason to predict that such variation occurs as a result of individual differences in learning *motivation* among consumers of news. Because, as Luskin (1990) wrote, "we learn about the things we care about" (p. 348), it is those individuals with relatively strong feelings of curiosity and attraction towards politics who should be especially inclined to follow public affairs and acquire political information, given the opportunity to do so. Motivated individuals are more likely to notice political information when they physically encounter it (Delli Carpini & Keeter, 1996; Luskin, 1990). They are also more willing to focus cognitive resources on the information they encounter – with the result of processing it more thoroughly – than less motivated individuals (Chaiken, 1980; Petty & Cacioppo, 1986). As the level of political information available in a given media source increases, then, more motivated individuals should increasingly draw ahead of less motivated individuals in terms of political learning from that source because, at least initially, the former take greater advantage of greater access and opportunity.

Saturation-Conditional Motivation Moderation: Learning about Routine Policy Events

It is important to emphasize, however, that the nature of the interaction between information availability and motivation likely depends on the actual level of information saturation in the media environment. While our theoretical argument above suggests a positive interaction between information availability and motivation, it is actually quite likely that this interaction weakens and, eventually, fizzles out at ever increasing levels of relevant media coverage. This is because the higher the level of information saturation, the more likely that highly motivated individuals reach a learning ceiling, and the more likely that less motivated individuals have sufficient opportunity to catch up. In other words, as the availability of political information in the news becomes more abundant, information acquisition should become gradually less dependent on motivation (see Iyengar et al., 2010).

Theoretically, a moderation effect of motivation would thus most likely emerge in media environments where the actual level of information availability is fairly modest. Indeed, as Druckman (2005b) notes, "a focus on broadly available and discussed information – such as a major national or international event – makes finding an effect unlikely. (…) Avoiding a bias toward a null finding requires *studying information that is available in the given medium, but not too widely available*" (p. 466, emphasis in original). While Druckman focuses his discussion and analysis on the partial effect of motivation in terms of individual demand for news (see Delli Carpini & Keeter, 1996, p. 347), his argument essentially stipulates that information supply and news demand positively interact to produce a learning effect, but mainly under conditions of limited information saturation.

Such conditions apply especially well to routine policy and political decision-making events. Notwithstanding public discussions about exceptionally high-profile issues, routine policy events typically do not reach the level of media attention that extraordinary news events do (see Barabas & Jerit, 2010). In American politics, for example, many ordinary policy events receiving a modest amount of media coverage include "[m]ost congressional actions, Supreme Court decisions, and presidential directives, even those that make the front pages of newspapers and arouse some controversy" (Zaller, 1992, p. 152). If the overall scope of information saturation on routine policy events typically remains restricted to relatively modest levels of media attention, then within that scope, greater availability of information about such events in a given media source should be particularly beneficial to individuals motivated to tune in to relevant coverage. Translated to the context of the present study, we put forward the following expectation:

Hypothesis 2: Motivation moderates the effect of information availability, such that individuals with higher levels of motivation are more likely to acquire performance-relevant information as the availability of that information increases in the media sources they rely on.

Data and Measurement

The specific setting of this study is the EU summit of December 11 and 12, 2008 in Brussels (see *Chapter 1* for details about the summit), and we use data from the TNS-NIPO panel survey collected in the Netherlands about two weeks before (t_1) and directly after (t_2) the summit (see Appendix A for data collection details). Our sample of panel respondents (n = 1,127) includes 588 women (52 percent) and 539 men between the ages of 18 and 83 (M = 49.50, SD = 16.10), and is by and large representative of the Dutch adult population in terms of key sociodemographics. Based on an analysis of census data from 2008 on age, gender, and education from Statistics Netherlands (the Dutch national statistical institute), our sample deviates from the Dutch adult population by −4.5, +3.3, and +1.2 percentage points for people individuals aged 18 to 39, 40 to 64, and 65 or above, respectively. The average absolute deviation on age is 3.0 percentage points. On gender, the deviation is +1.6 percentage points for women. On education, the deviations are +6.8, −2.8, and −4.1 percentage points for individuals with low (primary school and lower vocational or high school low variant), medium (medium vocational or high school high variant), and high (BA/ higher vocational or MA/ post-graduate) levels of education attained, respectively. The average absolute deviation on education is 4.5 percentage points (cf. Chang & Krosnick, 2009).

Performance-Relevant Information Acquisition

Our dependent variable is acquisition of performance-relevant information. We measure this using our unique battery of six questions from the post-summit survey (t_2) about several of the most significant facts about EU performance that came forward in media coverage about the summit, including questions about the energy and climate change package, the European economic recovery plan, and the Lisbon Treaty ratification process (see *Chapter 1*). Crucially, they refer to expressions of EU performance that emerged in the period between the two panel waves. In other words, these questions tap information that was not available – and therefore could not have been acquired – until *after* respondents completed the first-wave questionnaire (see also *Chapter 1*, fn. 12). An essential quality of our battery of information

questions, therefore, is their "timely nature" (Barabas & Jerit, 2009, p. 76): for respondents to know the correct answers, they almost certainly needed to have encountered media coverage about the summit in the time period between the two interviews. And so, unlike tapping static information that respondents may have learned long before the (first) interview – still a common trait of much survey-based political learning research –, we measure what we intend to measure: actual *acquisition* of political information from the media (see also Price & Zaller, 1993, pp. 159-160; Zaller, 1992, p. 43).

All questions were put to respondents in a multiple-choice format including four response categories with random order rotation, plus a don't know option (for a full overview, see Appendix B). Incorrect and don't know answers score 0 and correct answers score 1.

Information Availability

Information availability, our key independent variable, reflects the level of performance-relevant information carried in the media sources an individual relies on. An individual "relies on" a given media source when he or she routinely refers to that source for news about current events of any nature. In order to determine individual source reliance, we adopt an approach that approximates that of Barabas and Jerit (2010), who asked their respondents to report which media source they were using "most of the time" (pp. 232, 235). In our survey, we let our respondents indicate which sources they are using most days in a typical week. We thus consider a respondent to be reliant on a source if the respondent consults the source on at least four days in a typical seven-day time period. Respondents were able to choose from a list of national television sources, including hard news, current affairs, soft news and infotainment programs, and from a subsequent list of nationally available paid and free (commuter) newspapers.[1] The total sample of outlets comprises the country's most consulted mass sources of political information. Both lists of television and newspaper sources were presented to respondents in randomized order to avoid question order effects.[2]

In order to determine the level of information specific to EU performance in each individual media source, we content analyzed all television programs and newspapers listed in our survey questionnaire. For each of the six performance-relevant information questions, we

[1] The list of national television sources includes five hard news and current affairs programs (*EenVandaag*, *RTL Nieuws*, *NOS Journaal*, *Netwerk*, *NOVA*) and five soft news and infotainment programs (*EditieNL*, *RTL Boulevard*, *De Wereld Draait Door*, *Hart van Nederland*, *Pauw & Witteman*). The list of national newspapers includes five paid newspapers (*de Volkskrant*, *NRC Handelsblad*, *Trouw*, *Algemeen Dagblad*, *De Telegraaf*), and three free dailies (*Spits*, *Metro*, *De Pers*).

[2] Following Prior (2009b), we provided respondents with a "reference point" to help them estimate their media use more precisely. Before respondents were asked to indicate their preferred media sources, they were informed about the actual population estimates for television and newspaper use (see Appendix B for details).

tallied the number of stories that mentioned the correct answer available in a given source.[3] In our content analysis, broadsheet-sized newspapers were coded from page 1 to 5; tabloid-sized newspapers from page 1 to 9. The period of content analysis corresponds with the time period between the two waves of the panel survey. With the media content data collected, we scored respondents on information availability according to source reliance. If respondents were using more than one source, we summed the story counts pertaining to these sources. As a result, we have six variables of information availability for every respondent – one for each piece of performance-relevant information – reflecting the total number of stories with relevant information appearing only in those media sources the respondent relies on.

In the multivariate analysis below, we pool these observations to determine, per respondent, the level of information availability for a given fact about performance. Because the vast majority of scores vary between 0 and 3 stories with a relevant reference, we recode this variable to distinguish four levels of information availability ranging from 1 to 4 (M = 2.33, SD = 1.16), corresponding with individual scores falling in the first (*low*), second (*medium-low*), third (*medium-high*), and fourth (*high*) quartile of the original information availability scale and comprising 32, 26, 18, and 24 percent of the sample observations, respectively.

Motivation

Our measure of information availability represents the supply side of political information; individual demand for such information boils down to motivation. Although the motivation to learn about political events may reflect both internally and externally driven attributes of the individual citizen (Delli Carpini & Keeter, 1996), it is internal motivation that pulls the individual most strongly and most consistently into media coverage of politics. We follow Luskin (1990, p. 335) and others in this domain of scholarship (Delli Carpini & Keeter, 1996; Iyengar et al., 2010; Prior, 2010) by equaling internal motivation to *political interest*.[4] Interest in politics is measured at t_1 by a single question (see Appendix B) with a response scale from 1, denoting "very little interest," to 7, denoting "very high interest" (M = 4.01, SD = 1.53).

[3] Four trained coders who conducted the content analysis additionally coded a random sample of twenty news stories as part of an intercoder-reliability test. We use Krippendorff's alpha as a measure of intercoder reliability (Krippendorff, 2004; Hayes & Krippendorff, 2007), and find reliable levels of agreement for identifying relevant news stories (all alphas > 0.70).

[4] Because, as we noted earlier, much of the news does not contain political information, political interest is a more precise measure of intrinsic motivation than a more generic demand for "news."

Analysis and Results

We begin our analysis by characterizing the media's coverage of the December 2008 summit. How much opportunity did citizens have to acquire information about EU performance in the context of the summit, and to what extent was such opportunity determined by individual media choice? Even though the two-day summit addressed several of the EU's major policy challenges (climate change, the financial crisis, and institutional reform), the decision-making event generated a moderate amount of media coverage in comparison to several other stories on the media's agenda. In the national media environment overall, a total of 34 summit-related stories appeared during the period of content analysis.[5] This is not a trivial amount of coverage, but it also did not reach the level of headline news dominating the national media for many days, such as coverage of the worldwide financial crisis and its consequences in which no role was assigned to the EU.

However, information diffusion at the level of the national media environment might conceal important variation in information availability across *individual* media environments, and in fact, coverage of the EU summit appeared exclusively in about 27 percent of all sources that were examined (cf. Barabas & Jerit, 2010). For some of the performance-relevant facts we measured, availability was confined to even fewer sources because not all sources covering the summit reported all the facts. We also found variation in the volume of references to facts about EU performance, such that sources covering the summit differed in terms of which aspects of performance they saw as more or less newsworthy.

In summary, many respondents plausibly encountered very little performance-relevant information at all because they were using media sources that simply were not covering the summit and its outcomes. Others found themselves in a media environment that was, at least in relative terms, rich in information. But even for these respondents, some facts were more easily acquirable than other facts, and by far most individual environments were confined to less than a handful of stories for each piece of information. Evidently, the opportunity to acquire performance-relevant information surrounding this key EU decision-making event was overall quite limited and, to a large degree, a matter of media choice.

[5] We found the media's coverage of the summit to peak very clearly in the final three days of the period of content analysis, i.e. during the two-day event and on the day after the event.

Effects of Information Availability

If opportunities to relevant exposure vary as a function of source reliance, then information acquisition should, too – indeed, as we expect it does following *Hypothesis 1*. We test this proposition in a hierarchical linear model with a stacked data file. Stacking our data gives us, for every individual respondent, six observations on both *availability* and *acquisition* of political information, totaling 6,750 observations.[6] This approach allows us to connect the dependent and main independent variable as closely as possible, because we fully assimilate the variation in availability of information that exists both between and within individual media sources. As a result, we estimate a model in which a respondent's answer to a given question about some performance-relevant fact is linked directly to the respondent's opportunity to be exposed to the correct answer to that question. To account for variation in respondents' overall level of information acquisition, we estimate a random-intercept model with a logit link function in which the intercept is allowed to vary across respondents. We further assumed all other coefficients to be fixed (for a similar application of this approach, see Iyengar et al., 2009).[7]

While the naturalistic setting of our study has clear advantages over more artificial settings such as the laboratory (Barabas & Jerit, 2010; Kinder, 2007), one potential problem for our measure of information availability is that the treatment condition – the *level* of information availability – is self-selected rather than randomly assigned. To the extent that media choice is predicted by factors that also have an independent influence on information acquisition, and to the extent that media sources with high levels of information attract audiences that score relatively high on those factors, the effect of information availability might in part be an artifact of self-selection effects.

Sociodemographics, of course, are bound to confound the relationship between source reliance and learning; hence, we control for age, gender, education, and income.[8] But the "most important" confounding factor, according to Delli Carpini and Keeter (1996, p. 186) and Druckman (2005b, p. 473), is an individual's pre-existing level of general political infor-

[6] Following Malhotra (2008), we exclude respondents (n = 2) whose completion times on performance-relevant information were above an instantly recognizable breakpoint representing the main discontinuity in the (logged) distribution of completion times. Our final sample thus consists of 1,125 respondents.

[7] Consistent with this assumption, a series of random-coefficient models (in which each of the parameters is treated as a random variable) with a specified unstructured covariance option does not produce a better fit than the random-intercept models we estimated.

[8] Age was measured in years (M = 49.52, SD = 16.10). Education was measured with six categories representing (1) primary school; (2) high school, lower variant; (3) lower vocational education; (4) high school, higher variant; (5) BA or higher vocational education; and (6) MA or post-graduate education (M = 3.13, SD = 1.64). Income was measured as the gross annual household income on a scale from 1, denoting less than €4,000, to 27, denoting more than €272,500 (M = 14.90, SD = 2.55).

mation. Indeed, well-informed individuals, Price and Zaller (1993) showed, have a persistently strong tendency to remain well-informed (see also Eveland, Hayes, Shah, & Kwak, 2005; Prior, 2005). Controlling for general political information reduces problems of selection bias, because the effect of information availability would then not be attributable to prior differences in information. We measured general political information at t_1 with eight questions about national and EU-level political actors and offices (KR-20 = 0.70).[9] In our study, general political information was thus both acquirable and measured well before performance-relevant information, and this argues against the possibility of reverse causation. Controlling for these factors – including political interest, our measure of motivation – minimizes inferential concerns related to media selection and endogeneity.[10]

Finally, we control for two additional factors. First, in view of emerging research suggesting a relationship between completion time and satisficing in web surveys (Malhotra, 2008), our model accounts for differences in the amount of time that respondents took to complete all six survey items tapping performance-relevant information.[11] Specifically, we include dichotomous variables for low and high response duration, coded 1 for completion times below 1 and above 3 minutes (or below 10 and above 30 seconds per question) respectively, and 0 otherwise (see also Iyengar et al., 2009, p. 355, fn. 4). Second, since the inherent complexity of a given political information question varies across questions and affects information acquisition accordingly, our model also controls for item difficulty. Following Jerit et al. (2006), we take the sample's mean score on some information question to indicate the objective percentage chance of correctly answering that question, and then subtract this score from 100 to let higher scores designate a more difficult question.

We first analyze the partial effect of information availability on information acquisition (Model 1), and then extend the model to include a linear by linear interaction component designed to assess the first-order interaction between information availability and motivation (Model 2). Table 2.1 presents the results from these two models as estimated by random-

[9] The eight general political information questions were asked in a multiple-choice format with five randomly rotating response categories and a don't know option, as specified in Appendix B. Scores from these questions (1 for correct responses; 0 for incorrect or don't know responses) were added to form a scale ($M = 4.91$, $SD = 1.99$).

[10] It is worth noting that a recent study comparing information acquisition in survey and natural experiments on identical topics finds that learning among people exposed to relevant information in the natural world mirrors the treatment effects observed among participants in experiments who were randomly assigned to treatment (Barabas & Jerit, 2010). This finding further alleviates some of the concern about endogeneity in political learning research in real-world settings.

[11] It is important to note that, as Malhotra (2008, p. 917) points out, "the cause of faster completion times may vary for different groups of respondents. Indeed, the relationship between completion time and data quality is complicated, and fast responses are not necessarily a perfect measure of low attention to the questionnaire." Therefore, we control for completion time rather than use it as a filter criterion, much as Malhotra suggests (p. 929).

intercept logistic regression.[12] Estimating Model 1, shown in the left column of the table, we find that the included predictors perform very similar to their counterparts in recent American-based research of domain-specific political learning (Jerit et al., 2006). Acquisition of performance-relevant information is associated with higher age, being male, higher income, higher education, higher levels of general political information, and stronger interest in politics. It is negatively associated, furthermore, with the inherent difficulty of the information question and fast responding.

But more importantly, after controlling for all these factors, we find information availability to have a positive, strong, and statistically significant influence on information acquisition. That is, even after accounting for individual characteristics such as ability and motivation, an increase in information supply stimulates learning.[13] The coefficients presented in Table 2.1 are estimated log odds, but it is instructive to transform them into odds ratios – the exponentiated regression coefficients – to get some perspective on the magnitude of these effects. The odds ratio of information availability is 1.17. With all other factors in Model 1 held constant, each one unit increase in information availability thus increases the odds of acquiring performance-relevant information by 17 percentage points. (By comparison: a one unit increase in general political information increases the odds of learning by 25 percentages points; a one unit increase in political interest by 19 percentage points; and a one unit increase in education by 7 percentage points, all else equal.) A three-level increase from *low* to *high* information availability is associated with an odds ratio of 1.60; an increase in odds of 60 percentage points. Clearly, the greater the supply of performance-relevant information in an individual's favored media sources, the greater an individual's opportunity to acquire it, the higher the likelihood that she actually does so. In other words, we find strong support for *Hypothesis 1*.

While the results from Model 1 confirm that information supply and demand both make important unique contributions to political learning, our theoretical argument above additionally stipulates a positive interaction between these two variables, especially under conditions of limited information saturation. Turning to Model 2, shown in the right column of Table 2.1, we do indeed see a positive and statistically significant interaction effect between information availability and political interest on acquisition of performance-relevant information. This finding suggests that, at least when the information is available from the

[12] The estimates shown in Table 2.1 are generated using xtmelogit in Stata (Rabe-Hesketh & Skrondal, 2008).
[13] We reject the null hypothesis that the between-cluster variance is zero ($\chi^2 = 371.5$, $p < 0.01$), which suggests that a multilevel model is required.

Table 2.1 The effects of information availability and motivation on acquisition of performance-relevant information

	Model 1	Model 2
Intercept	−0.428** (0.083)	−0.436** (0.083)
Item difficulty	−0.068** (0.003)	−0.068** (0.003)
Low response duration	−1.874** (0.131)	−1.880** (0.131)
High response duration	0.276# (0.161)	0.272# (0.162)
Age	0.019** (0.004)	0.019** (0.004)
Male	0.274** (0.103)	0.266** (0.103)
Income	0.080** (0.022)	0.080** (0.021)
Education	0.070* (0.036)	0.066# (0.036)
General political information (t_1)	0.223** (0.032)	0.226** (0.033)
Political interest	0.171** (0.039)	0.163** (0.039)
Information availability	0.161** (0.039)	0.149** (0.040)
Information availability × Political interest	—	0.070** (0.025)
Log likelihood	−3336	−3332
N	1125	1125

Note: Cell entries are fixed effects estimates from a hierarchical linear model with standard errors in parentheses. The dependent variable, measured at t_2, is dichotomous and scored 1 if the respondent correctly answered a performance-relevant information question and 0 if otherwise. # $p < 0.10$; * $p < 0.05$; ** $p < 0.01$ (two-tailed).

media but not too widely so (Druckman, 2005b), the impact of availability increases linearly with motivation. Put differently, better motivated individuals are more likely to learn as the availability of information increases in the media sources they rely on, and this evidence is

consistent with *Hypothesis 2*. A likelihood ratio test indicates that adding the interaction term in Model 2 produces a significant improvement in model fit (χ^2 [1] = 8.0, $p < 0.01$).

Figure 2.1 illustrates that highly motivated individuals gain the most from a greater availability of information.[14] Among weakly motivated persons, the predicted probability of acquiring information increases from 0.24 to 0.33 if one switches from a low-availability environment to a high-availability environment; a difference in learning likelihood of 9 percentage points. By contrast, for a highly motivated person in an individual environment low in information and an otherwise identical highly motivated person situated in an environment offering a high level of information, the predicted learning probability varies between 0.38 and 0.60; a difference of 22 percentage points. Even if one compares the increase for both groups of individuals from low to high availability relative to the starting point of each group, the highly motivated gain more (58 percentage points) than the weakly motivated (38 percentage points). But perhaps most importantly, in the high-availability environment, the learning gap between individuals high and low in motivation virtually doubles (14 versus 27 percentage points).

Surely, even people without motivation have a stronger propensity to learn when given more opportunity, as previous work on "passive learning" suggests (e.g., Zukin & Snyder, 1984). But even so, more motivated individuals draw ahead of less motivated individuals using the same sources once those sources offer more information.[15]

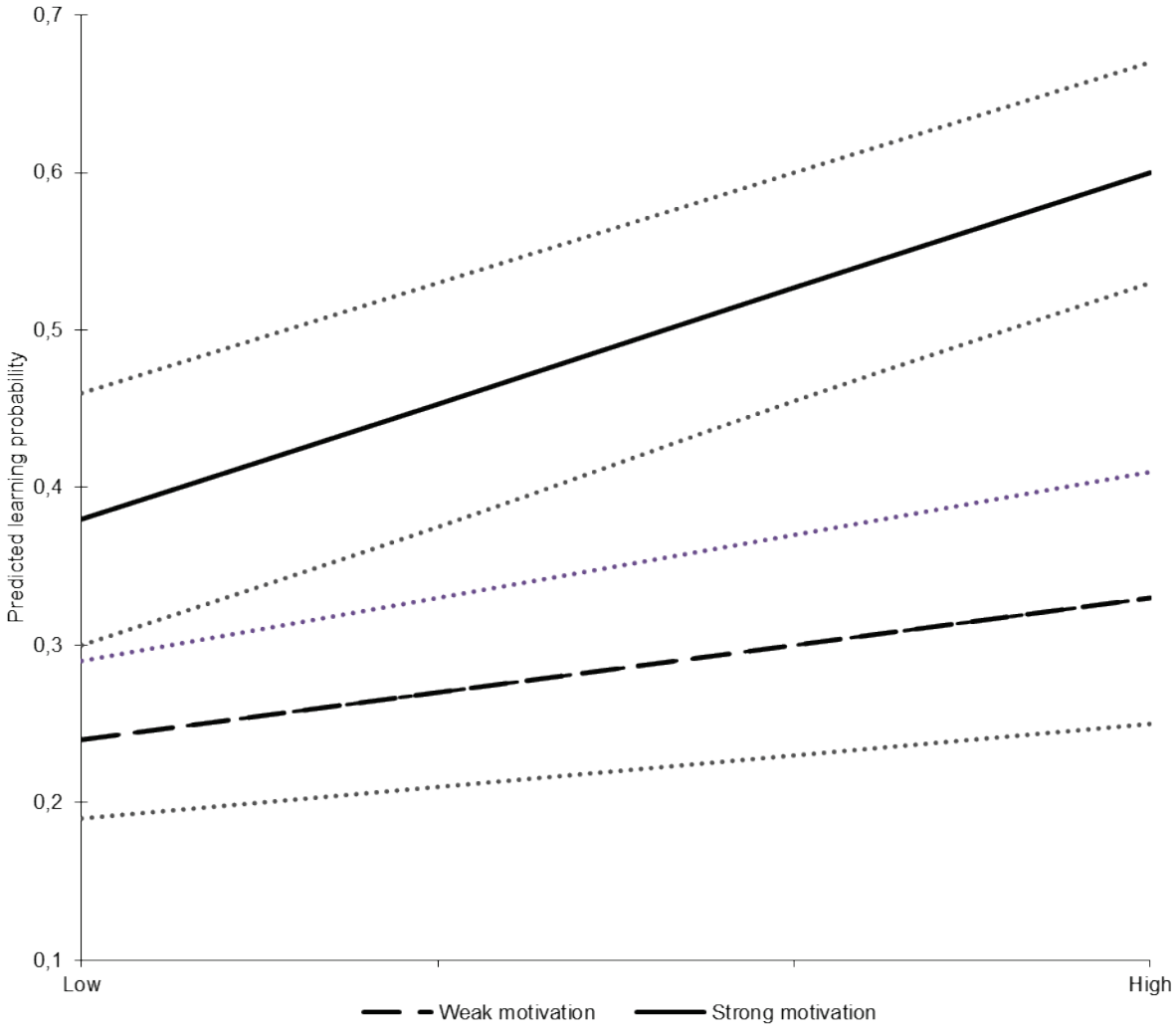
Discussion and Conclusion

In order to acquire political information, citizens need to have the opportunity to do so. If more of that information is available from the media environment, this opportunity increases, with the result that citizens learn more easily. Combining content analyses and survey data, a gradually growing body of research has tested and confirmed this plausible hypothesis, thereby improving upon prior political learning research, most of which has not accounted for actual learning opportunity in political communication. In view of increasing media choice in modern media markets, the present study further advances this research by specifying the me-

[14] Predicted probabilities are computed for a hypothetical female with mean scores on the remaining background variables answering an information question of average difficulty with normal response speed.

[15] Although this study is not concerned with *ability*-based gaps in information acquisition (see, e.g., Jerit et al., 2006), we did additionally examine the interactive effect of information availability and general political information, and that of information availability and education. Neither the former ($b = 0.000$, $p \leq 1.00$) nor the latter interaction ($b = 0.001$, $p \leq 0.95$) was found to produce an impact (see also Prior, 2007, p. 257).

Figure 2.1 The effect of availability (x-axis) on acquisition (y-axis) of performance-relevant information at low and high levels of motivation.



Note. The dotted lines in gray shading indicate 95-percent confidence intervals around the simulated effects.

dia environment at the level of the individual, by distinguishing differential levels of information levels of information availability across these individual environments, and by examining the effects of differential opportunity in a European news market.

As expected, our findings show that the specific sources of news that citizens habitually select for consumption can greatly affect their individual odds of (re-)encountering and, by extension, acquiring information about particular events in politics. We recognize, of course, that not all political events are equally subjective to selective media attention or negligence. We do suspect, however, that heterogeneity in media coverage is especially likely to emerge in cases concerning routine policymaking and performance in specific domains of politics

such as the EU summit examined in the present study (for two recent cases in U.S. politics, see Barabas and Jerit, 2010). To a large extent, such heterogeneity stems from the expansion of modern media markets, the competitive pressures of which stimulate diversification in news offerings, also in countries with a strong public service broadcasting tradition. While this development does not necessarily imply a reduction in the media's overall supply of news about political elites' policy actions, news of that sort may now more likely be concentrated among a smaller share of available media, and therefore encountered – and thus acquired – by a more select group of citizens based on individual media use patterns.

Disparities in the distribution of performance-relevant information across different segments of the news audience, such as the one observed in our study, are particularly troublesome in the light of the democratic significance of such information. After all, policy actions and other key expressions of elite performance are among the primary targets to be monitored by citizens if they want to hold their leaders accountable for their actions (Delli Carpini & Keeter, 1996; Kuklinski et al., 2000). And crucially, since information of this type directly informs citizens' judgments in specific domains of government, its (corrective) influence on these judgments is likely to be substantial; more substantial, for example, than the influence of being well-informed about politics more generally (see *Chapter 1*; Gilens, 2001; see also Levendusky, 2011). To be sure, citizens have limited time and attention to routinely monitor the performance of public officeholders (Graber, 2003; Schudson, 1998; Zaller, 2003), and they might well differ on the meaning they attribute to specific instances of political (in)action (Gaines, Kuklinski, & Quirk, 2007). But given those constraints, citizens can fulfill their monitorial obligation only if they have an actual opportunity to encounter performance-relevant information. And with a news space that is increasingly fragmented, so is, in many cases, exposure opportunity.

Variation in information supply across individual media environments thus has, in and of itself, potentially important ramifications for the quality of representative democracy. Yet even under conditions of equal learning opportunity, some individuals are more inclined to take advantage of the available information than others because they are intrinsically more motivated to do so. Indeed, the second major insight emerging from our study is that learning motivation moderates the impact of information availability, such that at higher levels of information availability, individuals more motivated to follow political affairs increase their information lead over those who are less motivated. In other words, a greater supply of political information in a given news source does not help to reduce, but rather widens, the information gap that results from pre-existing differences in motivation among users of that

source. Greater information supply, then, mostly serves those who are strongly motivated to monitor their political world to begin with: assuming that more strongly motivated individuals have stronger relative preferences for news with political substance, a media environment more dense in political information is a more *efficient* media environment, for this makes it easier for them to find their preferred content (see Prior, 2007).

It is important to reiterate that even those with the weakest motivation – that is, those most inclined to avoid exposure to political information – are more likely to learn as they otherwise would when more information is available to them. However, greater availability of relevant information as such plausibly does not even begin to reduce the gap between more and less motivated citizens (see also Iyengar et al., 2009, p. 353), unless the level of availability in the news becomes sufficiently pervasive. It is not before a political story "breaks through the fog of disjointed news [to] penetrate every corner of public space" that it catches the attention of citizens across the board (Zaller, 2003, pp. 121-122). Indeed, if we follow Iyengar et al.'s (2010) argument that "public awareness of highly newsworthy issues is likely to diffuse across levels of interest" (p. 303), then the positive interaction between information availability and motivation should wane as media coverage reaches a level of abundance. Yet such policy events are extraordinary (Barabas & Jerit, 2010; Zaller, 1992). Future research with strong variation in information availability should conduct an all-encompassing test of the saturation-conditional motivation moderation hypothesis, but meanwhile, we posit that learning about most policy events requires not only opportunity, but also motivation.

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