

News Media Use and the Informed Public in the Digital Age

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Perhaps one of the most enduring assumptions of political communication research concerns the perennial finding that despite tides of media distrust and revolutionary advances in communications technology, local television newscasts remain the dominant source of public affairs information for most Americans. Although the basic truth of this nearly sacred assumption remains for now, it is under greater strain than ever before, and this and other assumptions about how individuals acquire political information from the media must be continually investigated. In this article, we use data from a nationally representative online survey to provide just such a reexamination of relationships

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between news media use and political knowledge. Findings suggest significant changes in the contemporary media environment. By some measures, directed Internet searches have come to rival television news as a source for information, and newspapers no longer appear to have the strongest educative influences. In addition to providing an updated assessment of media use and political knowledge patterns, we consider the implications of our findings for contemporary theoretical discussions in the field of political communication.

Keywords: news media use, political knowledge, political entertainment, social media

Assumptions in the field of political communication about the value of an informed public are nearly universal (Delli Carpini & Keeter, 1996). To be sure, empirical patterns reinforce philosophical differences between deliberative and participatory frameworks for political communication (Mutz, 2006), and a growing body of scholarship has raised questions about the ultimate value of quizzing citizens about specific political facts (Lupia, 2016; Prior & Lupia, 2008). Nonetheless, many still agree on the value of an informed and knowledgeable public to democratic processes, typically based on the rationale that good citizens need accurate information to determine which parties to support and which to punish through voting. Given the nature of most political information, which must be delivered to us from “the world outside” (Lippman 1922), it is unsurprising, then, that questions concerning how individuals acquire such information and the effectiveness of various media in conveying it are of perennial interest. Where do people get political information? What forms of news media are most effective in conveying information about public affairs? Of particular interest are related questions concerning whether new communication forms and patterns require us to revisit these questions. In this article, we engage this ongoing line of inquiry with an analysis of nationally representative survey data, paying particular attention to key works on news media use and the informed public.

Three decades ago, John P. Robinson and Mark R. Levy (1986) set out to debunk what they perceived to be a troubling myth, prominent in American culture at the time, that television news was the most effective means of transmitting political information to the public. Their account, which was path-breaking both substantively and methodologically, drew on a wide variety of data to demonstrate convincingly that, contrary to popular beliefs about television news as “the main source” of public affairs information, other forms of media—particularly newspapers—were more effective in facilitating political information gain. Ten years later, they revisited these conclusions in light of the developments in mass communication that animated political communication research in the 1990s: fall-offs in viewership for the major network newscasts, declining newspaper readership, and now-quaint observations of increases in the variety of public affairs media content brought about by cable offerings and talk radio (Robinson & Levy, 1996). Though there were some notable surprises, the “1990s update” mainly reinforced the core conclusions of *The Main Source* (1986)—namely, that television news continued to be “a relatively weak overall predictor of long-term information gain” and that newspapers were still “America’s premier source of public affairs information” (Robinson & Levy, 1996, p. 135). As a result, assumptions about the unassailable popularity of television news as a source of political information as well as the relative superiority of newspapers for conveying such information effectively have persisted for decades.

In the time since Robinson and Levy's first revisitation of questions about television news as the main source of public affairs information, a host of new developments provide ample reasons to return again to questions about the relative popularity and efficacy of different modes of news consumption. In the present study, we do just that, examining public affairs knowledge as a function of background (demographic) factors, newspaper and television use, and new media formats. In the latter category we naturally consider online news use as well as news in social media and political entertainment programs, which further extend advances in the variety of offerings through cable services. We do not provide a replication of Robinson and Levy's earlier works. We do, however, endeavor to mirror their general approach and analytic procedures in order to facilitate comparisons of different media sources in terms of the extent to which their use is associated with political knowledge. The article is organized as follows. In the next section, we review theoretical discussions and classic reference points in the literature relevant to research questions about the relative effects of television and newspapers on public affairs information gain. In that section, we also consider some of the features of the contemporary media environment that we think are critically relevant to reexamining these questions again in the present day. From there, we move on to a description of our data and presentation of our key findings. We conclude with a careful consideration of the ways in which our findings deviate from the conventional wisdom that has grown up around Robinson and Levy's previous work (1996), followed by a discussion of the implications of our findings for future research in this and related areas.

The Main Source? Television Versus Newspapers

The original work of Robinson and Levy in the 1980s was a reaction to the idea, colorfully articulated by Walter Cronkite in the book's opening epigraph, that the American public was "getting brainwashed into a belief that they're getting all that they need to know from television" (Robinson & Levy, 1986, p. 13). Ominous images of mind control aside, three factors strongly supported beliefs about television as "the main source." Most obviously, television engages a variety of senses and can provide attention-grabbing visuals, creating a combination that one might intuitively reason would help those who find political information daunting for any number of reasons. In addition, survey research consistently showed that television was widely considered to be the most important source or the preferred outlet for getting information about politics and public affairs in the United States and also in Great Britain (Roper Organization, 1984; Tunstall, 1983). Third, as noted by Robinson and Levy (1986), and subsequently even more powerfully illustrated by Prior's (2007) more recent research on news and political information in the broadcast era, television news had the power to facilitate incidental learning, particularly under circumstances (which were still quite prevalent in the 1980s) in which the rituals of watching television at particular times of the day coincided with difficult-to-avoid public affairs information.

In response, Robinson and Levy drew on cognitive information processing concepts and theories to argue that several features of television news work against the effective transmission of public affairs information. Among other things, Robinson and Levy argued that the simplified nature of news stories, the lack of clear points of separation between stories and story elements, and the inability of viewers to vary the pace of presentation or draw on repetition of key concepts all put television at odds with facilitating comprehension of the information presented (1986, p. 232). Related work argued that perceptions of television as a relatively undemanding medium of entertainment and escape could lead people to invest

less mental effort into processing information conveyed through televised news, which could also hamper information gains (Salomon, 1984).

At the same time, a number of related and opposing arguments have been marshaled in support of the superiority of newspapers as a positive force for public affairs information gain. In addition to the greater capacities of print for conveying more information than television (consider the familiar comparisons between the total number of words in a broadcast news story or newscast versus comparable newspaper content), the inverted pyramid format of news articles, the semantic organization of information, and the reader's ability to control the pace of the story and skip back and forth to repeat relevant information as needed all contribute to a decidedly different and arguably better fit with patterns of human information processing (Neuman, Just, & Crigler, 1992; Rumelhart & Norman, 1985). Moreover, in contrast to the "easy" nature of television, the perception of print, including newspapers, as a "tough" medium calling for concentrated mental effort was also seen by some as facilitating more effective learning processes (Salomon, 1984).

A contrary perspective concerning the relative effectiveness of television and print news in conveying public affairs information is supplied by Neuman and colleagues (1992). In their constructionist account, Neuman et al. report findings that not only dispute simple arguments against the potential of television to facilitate political knowledge acquisition but suggest that, in some circumstances, television news is actually a superior medium for conveying public affairs information. Specifically, exploring a range of issues with varying degrees of agenda salience at the time of their study, they found television to be "more successful in communicating the abstract and distant political issues, while print media, especially newspapers," were found to be "more successful with . . . more immediate and concrete subject matter" (Neuman et al., 1992, p. 86). Probing deeper into the interrelationships between different kinds of political information and variations in the social context in which it is encountered, Neuman et al. suggest that we ought not overlook the potential of television to facilitate political knowledge gain for more abstract information, particularly among those "with low initial interest, or who worry that the issue is too difficult to understand" (p. 92).

Against the backdrop of these familiar arguments concerning the potential educative efficacy of television news versus newspapers, we return to roughly the same questions posed and then re-posed by Robinson and Levy (1986, 1996). Which medium is more effective in transmitting news and public affairs information to the public? Specifically, do newspapers still enjoy a substantial advantage over television news?

New Developments in News Media

For Robinson and Levy, the task of updating the analyses from *The Main Source* was a matter of replicating their previous observations and then supplementing their investigation with an examination of the new media forms of the 1990s (e.g., talk radio and expanded cable news offerings). The task of trying to address similar questions in the contemporary media environment is more complicated. The reason for this is that we must account not only for new forms and sources of news that have appeared since the mid-1990s but also the ways in which the older forms, particularly newspapers, have changed in the new

media environment. In this section, we begin with the latter task, reviewing trends and research literature relevant to reconsidering the classic independent variables in the media and public affairs information equation. We then move on to the relatively more straightforward task of considering additional media inputs.

Although we also consider the Internet as a new general source of news in itself, it is clear that the unprecedented malleability of the Internet (DiMaggio, Hargittai, & Neuman, 2001) requires us to first consider the ways it may change the experience of other forms of news media for which it now serves as a conduit. We argue that this is most relevant in the case of newspapers. To be sure, services that deliver television content through various Internet-connected screens and related set-top devices are changing the way that many people experience television. However, both usage statistics and a careful examination of available content on major online video platforms suggest that television news is not yet a significant part of the Internet television phenomenon (comScore, 2012). Newspaper readership, however, does appear to be moving significantly in the direction of mixed online and off-line consumption. For instance, *The New York Times* has been more often read online than in print for some time (Huffington Post, 2012). Taking a broader look, more systematic examination by researchers at the Pew Research Center for the People and the Press suggests that while print readership overall is still larger than online readership, the trend lines are moving in opposite directions (with print reading down 12 percentage points from 2006 to 2010 and online newspaper reading showing an increase of 8 percentage points during the same period); moreover, parsing the data by age further suggests a generational shift from print to online (Pew Research Center, 2010). Though lacking the over-time dimension of their 2010 report, more recent investigations by Pew researchers suggest a roughly half-and-half split among current newspaper readers between those who read online and those who *only* read newspapers in the traditional print format (Barthel, 2016; Mitchell & Holcomb, 2016).

To further guide our investigation into how the changing nature of newspaper reading may be altering broader patterns of media use and public affairs information gain, we turn to studies that directly examine the differences between print and online newspaper formats. In line with traditional assumptions about the superiority of printed news, research on the relative effectiveness of print versus online newspaper formats for facilitating acquisition of public affairs information generally suggests that the physical newspaper holds a modest advantage over increasingly popular online versions (Eveland & Dunwoody, 2002; Eveland, Seo, & Marton, 2002; Tewksbury & Althaus, 2000; Tremayne, 2008). Various explanations for these patterns have emerged, but perhaps the clearest is offered by Tewksbury and Althaus (2000), who argue that online newspapers differ crucially from their print counterparts in two principal ways. Specifically, the cues that print newspapers offer readers concerning story importance and the relationships between different kinds of topics (such as story placement, headline and subheadline size and placement, and story length) are typically "reduced and re-organized" in the online version or otherwise obscured from readers (Tewksbury & Althaus, 2000, p. 462). Eveland and Dunwoody (2002) probed further into the unique effects of online news, exploring the extent to which online news users engaged in cognitive elaboration and selective scanning, and the effects of each of these distinct modes of information processing on information gain. Results showed that online news increased cognitive elaboration, which contributes to learning, but that its effects on selective scanning, which detracts from learning, were greater, ultimately suggesting that "the net total effect of the web is actually to reduce

learning compared to print presentations" (Eveland & Dunwoody, 2002, p. 47). Combined with the available evidence on the extent to which reading the newspaper is increasingly associated more with mouse clicks and pixels than ink smudges and paper cuts, the findings of these studies suggest that it may be reasonable to expect a slight erosion in the power of newspapers as a positive influence on political knowledge if we consider newspapers as a single source with multiple distribution options.

With respect to wholly new sources of public affairs information, three new developments stand out. Naturally the first is general Internet use for public affairs information, which captures potential sources of public affairs information other than online newspapers. Considering the Internet in general, the vast increases in capacity and variety of information provide a straightforward rationale for positive expectations for knowledge effects, as do the potential benefits of interactive media for cognitive engagement (Benkler, 2006; Kalyanaraman & Sundar, 2006; Tremayne & Dunwoody, 2001). Unsurprisingly, various studies suggest that the Internet is a significant contributor to public affairs information gain and is thus a natural source to consider on its own in this analysis (Mossberger, Tolbert, & McNeal, 2008; Shah, Cho, Eveland, & Kwak, 2005; Shah et al., 2007). Although there are numerous mechanisms to consider here, one obvious path likely runs through the ways that digital media simplify and render more accessible many opportunities for discussion and elaboration that are central to learning from news content (Eveland, 2001). Though much of the literature on Internet use and knowledge gain suggests that the extremely high choice environment of digital media naturally leads to patterns of differential effects based on users' motivations and levels of interest, at least some of this work also points to medium-level or main-effects patterns similar to those assumed in the classic Robinson and Levy paradigm (Bimber, 2003; Prior, 2007; Xenos & Moy, 2007).

Second, recent studies suggest that social media such as Facebook and Twitter are also emerging as potential sources of news and public affairs information (de Zuniga, Jung, & Valenzuela, 2012; Glynn, Huge, & Hoffman, 2012; Lee & Ma, 2012). Though research on the potential effects of social media formats on the acquisition of relevant public affairs information is sparse, some have begun to argue that platforms such as Facebook and Twitter may be capable of spurring by-product learning as those with relatively low levels of interest in politics encounter news and information posted by those in their networks who are more actively engaged with politics and public affairs (Chadwick, 2009, 2012; Messing & Westwood, 2011). As shown by Prior's (2007) work on news and political engagement in the broadcast era, processes of incidental exposure can be important factors in overall patterns of political information acquisition and therefore also deserve specific attention in revisiting questions about where the public gets political information. Though contemporary concerns about "filter bubbles" and partisan sorting in social media raise questions about the extent to which such potentials for incidental learning are realized, as noted, the literature provides only a small and mixed pool of empirical findings on such questions.

A third new potential source of political information is political comedy and satire programs such as *The Daily Show* and similar political entertainment offerings. Such programs have risen dramatically in prominence since the 1990s, and they provide a unique mix of entertainment and public affairs programming that some have even deemed a new form of journalism (Baym, 2005, 2010). Regardless of whether they are formally classified as news or journalism, research suggests that by providing an added incentive to pay attention to public affairs information (the prospect of a good laugh), such programs may

positively impact at least some forms of political knowledge (Baum, 2003; Feldman & Young, 2008; Xenos & Becker, 2009). Moreover, it is worth noting that some of the signature elements of political entertainment (or soft news)—such as its tendency to simplify sometimes complex political events in order to map them onto a humorous presentation and its generally more inviting tone—can in many ways be seen as direct exemplars of the very positive features Neuman et al. (1992) cited in arguing for television's educative potential. Based on these considerations, we consider political entertainment programs as a natural addition to any analysis seeking to produce a comprehensive portrait of the relative efficacy of key media sources for conveying political information.

Data, Measures, and Methods

To explore our general research questions and probe for potential shifts in the relative educative functions of various sources of public affairs information, we draw on data from a national sample of U.S. adults. Specifically, our data were collected by Knowledge Networks via an online survey sample of 2,806 U.S. adults. Households that participate in the KnowledgePanel are chosen by random digit dialing and address-based sampling methodologies—a process that generally produces higher quality data than nonprobability online panels (Baker et al., 2010). Data were collected between December 2011 and January 2012. Participants were sampled from the KnowledgePanel with a completion rate of 49% (equivalent to AAPOR RR6, but limited to those panel members sampled for the survey).

Political Knowledge

Our prime outcome variable, political knowledge, comes from five factual knowledge questions included in the survey, which were adapted from the widely used five-item knowledge scale developed by Delli Carpini and Keeter (1996). Specifically, respondents were asked to identify what job or political office is held by John Boehner (60.8% correct), to name the current vice president of the United States (89.2% correct), who has the final responsibility to determine whether a law is constitutional (72.2% correct), the size of majority required in the Senate and House to override a presidential veto (61.1% correct), and which of the two major parties is more conservative than the other at the national level (72.5% correct). Various factor-analytic procedures confirmed that these items may be considered to tap a single dimension. Correct answers to these items were summed to create an overall index of political knowledge ($M = 3.56$, $SD = 1.47$), which displays an acceptable level of reliability ($\alpha = .69$). As reflected in the mean score of 3.56, many respondents were able to answer most or all of these items correctly. For example, only about a quarter of respondents (23.8%) were assigned a score of 2 or lower, while about four in 10 (40.6%) scored between 3 and 4, and over a third of respondents (35.6%) provided correct responses to all five items. Overall, the distribution of correct answers to individual items hews closely to the patterns observed by Delli Carpini and Keeter (1993) in their earlier development of this measurement strategy.

Background Factors

Following the same general modeling approach used by Robinson and Levy (1986, 1996), our analysis also considers and controls for demographic characteristics of respondents, which have consistently shown significant relationships to overall levels of political knowledge. Along these lines, our

analysis includes measures of gender, age, education, and household income. In the case of gender, age, and education, we separated respondents into categorical breakdowns similar to those used by Robinson and Levy (1996). For household income, we adapted our original measure to create an inflation-adjusted match of the income brackets used in their earlier research (e.g., our lowest category includes individuals making less than \$15,000 per year, compared to \$10,000 in 1996, and the upper category includes individuals making \$75,000 or more, compared to \$50,000 or more in 1996). Basic descriptive information about these variables is shown in the first column of Table 1.

Media Sources

As part of our principal goal of assessing the relative power of different sources for public affairs information, our survey included items that asked how much attention respondents pay to news stories about the national government and politics in various outlets. Following changes in standard research practice in the time since Robinson and Levy's 1990s update, however, we depart from their original measures by focusing on the more reliable indicator of attention rather than mere exposure to the various news outlets (Chaffee & Schleuder, 1986). Specifically, we included measures of attention to news about the national government and politics in newspapers (print or online), on television news, or when going online for news or information. We also asked respondents how much attention they paid to late-night comedy programs that routinely cover news and political topics, such as *The Daily Show* and *The Colbert Report*. For social media, we asked respondents about how often they read news stories or headlines on Facebook and Twitter. Descriptive information on the responses to these items is shown in the first column of Table 2. To provide a distinct entry point into dramatic increases in media choice that have arisen since the 1990s, we also included an item asking respondents where they would go first for information on a specific national news issue or topic.

Analytic Strategy

Our analytic strategy follows the general approach taken by Robinson and Levy (1996), which provides a particularly useful framework for addressing questions about the relative popularity and efficacy of different sources for public affairs information. As those familiar with this classic piece know, this involved using the somewhat uncommon approach (in contemporary communication research) of multiple correspondence analysis, or MCA. This approach combines multiple regression and analysis of variance techniques in a way that allows the researcher to combine nominal and ordinal data without violating linearity assumptions (Andrews, Morgan, Sonquist, & Klem, 1974; Robinson & Levy, 1996). One additional helpful feature of MCA is that the output includes concrete estimates of the expected value of the dependent variable at different levels of each independent variable while controlling for the effects of the other independent variables. Though often provided by other means in more contemporary analyses, this information about expected values significantly aids statistical and substantive interpretation (King, Tomz, & Wittenberg, 2000). This is known as the MCA adjustment. Another relevant feature of MCA output is the η statistic, which is essentially a multiple correlation statistic and can also be squared to produce an estimate of the proportion of variance explained by a given factor. Although more sophisticated approaches are available, we have opted for this strategy to maximize the extent to which we can make comparisons to prior findings in this area.

Results

Before turning to our central research questions concerning the relationships between different kinds of news media use and political knowledge, we begin with a brief consideration of the more fundamental issue of where people access information about politics and public affairs in the first place. Recall that Robinson and Levy's (1986) original analyses were prompted in part by the overwhelming popularity (at least in terms of relative consumption) of television newscasts compared to newspaper reading and other forms of following political information. Pew data suggest that while television news clearly retains the mantle of the most commonly used source, with an estimated 57% of Americans tuning into a televised newscast on a given day, online news consumption is clearly on the rise, with 38% of Americans estimated to seek news through the Internet on any given day (Mitchell & Holcomb, 2016). As noted earlier, our survey included an item asking respondents where they would turn first for information about a specific national news issue or topic they were interested in. By this measure, the continued dominance of television is slightly less clear. While it is still technically the most popular source for news, with 35.3% of respondents selecting this option, its lead over Internet search engines (chosen by 33.3% of respondents) is marginal. In fact, among Internet users, search engines actually surpass television by a healthy margin as the preferred first source for information about a specific issue (38.2% versus 29.4%). In either analysis, print and online newspapers were selected much less often (between 8.2% and 10.4% of respondents). Thus, before turning to our analysis of relationships between attention to, or use of, different news sources and political knowledge, it is worth noting this specific example of how the overall news media environment has undergone significant changes since the 1990s. Graphic representations of these data, which include information on other potential first-choice sources for news among the full sample and those with Internet access, are provided in Figures 1 and 2.

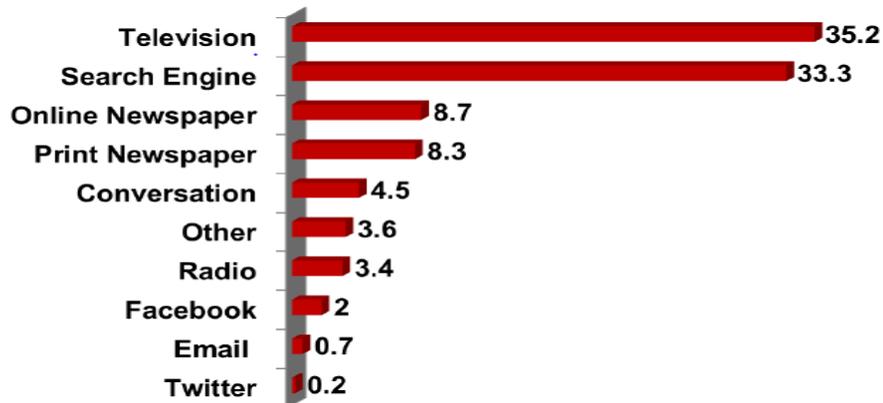


Figure 1. First source for a specific national news issue or topic (percent of total population), N = 2,784.

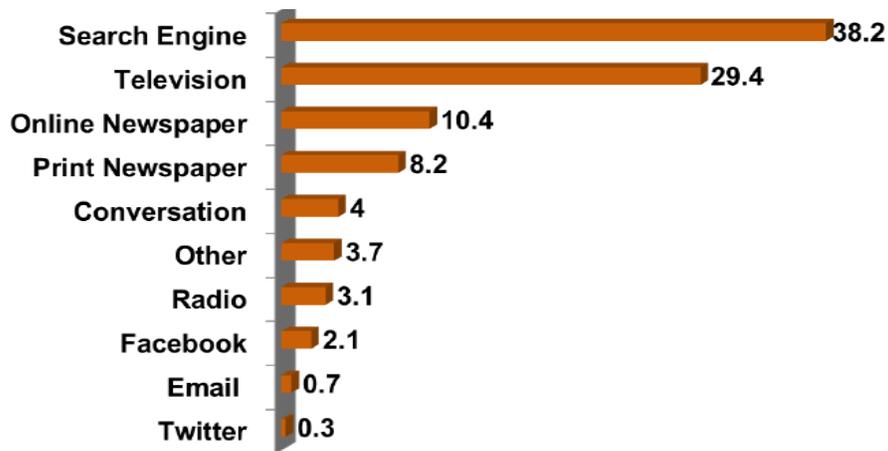


Figure 2. First source for a specific national news issue or topic (percent of those with Internet), N = 2,080.

To explore our more central research questions, we conducted two sets of MCA analysis. The first examined political knowledge as a function of background factors, and the second brought media attention and use into the analysis, enabling us to parse the relationships between each media factor and political knowledge while controlling for all other media factors as well as background factors. The results of these analyses are presented in Tables 1 and 2.

Table 1. Mean Information Score by Background Factors (N = 2,806).

	Before MCA adjustment	After MCA adjustment
Gender		
Male (50.4)	3.9	3.8
Female (49.6)	3.2	3.3
	$\eta = .22$	$\eta = .17$
Age		
18–24 (7.4)	3.1	3.3
25–34 (14.1)	3.0	3.0
35–44 (16.6)	3.3	3.2
45–54 (21.4)	3.6	3.6
55–64 (21.7)	3.8	3.8
65+ (19.0)	4.0	4.1
	$\eta = .24$	$\eta = .25$
Education		
Some high school (12.3)	2.7	2.9
High school graduate (31.6)	3.2	3.3
Some college (29.0)	3.7	3.7
College graduate (17.2)	4.2	4.1

Graduate school (9.9)	4.3 $\eta = .34$	4.1 $\eta = .26$
Household Income	2.7	3.0
Less than \$14,999 (16.0)	2.9	3.1
\$15,000–\$24,999 (10.1)	3.4	3.5
\$25,000–\$29,999 (6.5)	3.6	3.6
\$30,000–\$49,999 (21.2)	3.8	3.8
\$50,000–\$74,999 (18.8)	4.1	3.9
\$75,000 or more (27.4)	$\eta = .35$	$\eta = .24$

Note. MCA = multiple correspondence analysis. Numbers in parentheses refer to the percentage of respondents in each category.

Table 2. Mean Information Score by Media Attention, Controlling for Background Factors (N = 2,778).

	Before MCA adjustment	After MCA adjustment
Newspaper attention		
Never (18.0)	2.6	3.2
Very little (15.1)	3.1	3.7
Some (35.7)	3.6	3.6
Quite a bit (23.7)	4.3	3.7
A lot (7.5)	4.5	3.7
	$\eta = .42$	$\eta = .12$
Television news attention		
Never (10.4)	2.4	3.0
Very little (15.4)	2.8	3.1
Some (34.2)	3.5	3.5
Quite a bit (28.5)	4.2	3.9
A lot (11.6)	4.4	4.0
	$\eta = .44$	$\eta = .24$
Television comedy attention		
Never (39.5)	3.4	3.5
Very little (34.7)	3.6	3.6
Some (18.4)	3.6	3.5
Quite a bit (5.7)	4.0	3.8
A lot (1.8)	3.9	3.6
	$\eta = .12$	$\eta = .04$
Online news attention		
Never (30.1)	3.1	3.5
Very little (22.4)	3.4	3.5
Some (27.0)	3.8	3.6
Quite a bit (15.1)	4.2	3.6
A lot (5.4)	4.4	3.6

	$\eta = .30$	$\eta = .05$
Facebook use		
Never (40.9)	3.7	3.6
A little (24.3)	3.6	3.6
A few (20.2)	3.4	3.5
A lot (14.6)	3.3	3.6
	$\eta = .10$	$\eta = .04$
Twitter use		
Never (92.9)	3.6	3.6
A little (5.0)	3.4	3.5
A few (1.4)	3.7	3.8
A lot (0.6)	3.9	3.8
	$\eta = .04$	$\eta = .02$

Note. MCA = multiple correspondence analysis. Numbers in parentheses refer to the percentage of respondents in each category.

For background factors, our analysis yielded relatively unsurprising results. First, and most important, our results confirm that background factors continue to explain a significant amount of the variation in political knowledge. In the case of gender, for example, the MCA adjusted η value is .17, with men expected to have knowledge scores about .5 higher than women, after controlling for other factors. Age also emerges as a key factor in explaining respondents' levels of political knowledge, with an MCA adjusted η of .25 and a swing in expected knowledge scores of nearly one full point moving from the youngest to oldest age group. With education, the difference between a less-than-high school education and having attended graduate school is just over 1 correct answer on the knowledge scale, corresponding to an MCA adjusted η of .26. For household income, the estimated difference between the amount of political knowledge among those in the bottom income group and those in the top is .9, and the MCA adjusted η is .24.

Turning to media factors, however, our results reveal general patterns that are quite unexpected from the perspective of conventional wisdom associated with the earlier work of Robinson and Levy (1996). These patterns concern the relative influences of newspapers and television. For newspapers, the results suggest that, on average, those who pay the most attention to political information in the newspaper have political knowledge scores about .5 points higher than those who never attend to such news. This relationship is summarized by an MCA adjusted η of .12. For television, however, the results render a significantly different picture. After controlling for both background factors and other media factors, those who report paying a lot of attention to political information on television are estimated to score a full point higher on the political knowledge scale than those who never attend to televised news. The resulting MCA adjusted η is .24. In other words, our data suggest that the correlation between attending to television news and political knowledge is twice as strong as that between attending to public affairs in the newspaper. This relative difference between the apparent efficacy of these two media represents a stark reversal of the pattern of findings reported in Robinson and Levy's classic 1996 analysis.

Somewhat surprisingly, our results concerning the newer forms of public affairs information do not reveal any of these as significant media factors in informing the public about political affairs. At the lowest end in terms of estimated effects, reading news stories and headlines on Facebook does not appear to have any effect on political knowledge, all else equal. Televised political satire, online news, and reading news stories on Twitter are all estimated to be only marginally related to political knowledge scores, again after taking other media use and background factors into account.

Discussion and Conclusion

This study revisits the central questions addressed by Robinson and Levy's (1986, 1996) influential 1990s update of their path-breaking analysis from *The Main Source*. We are well aware that many studies have explored similar themes in the two decades since the 1990s analysis was published. We are also aware that what we provide here is not a replication of their earlier analysis. However, a valuable feature of the present project stems from the extent to which we have made a unique effort to provide a focused analysis of the relative popularity and efficacy of major sources for public affairs information, just as was done by Robinson and Levy (1986, 1996). By addressing the same central research questions, using many similar measures, and adopting the same analytic approach, the present study enables us to make important contributions to the specific line of scholarly conversation that has emerged from their work.

When considered in light of the key findings we associate with Robinson and Levy's earlier work—that television is by far the most popular medium for news, while newspapers are most associated with actual knowledge acquisition—our results suggest that recent changes in the political information environment have indeed been accompanied by fundamental shifts in where people turn to get information about national politics and public affairs as well as which sources are most associated with higher levels of political knowledge, controlling for other relevant factors. Naturally, there are at least two possible explanations for this: significant differences in the designs of the two studies and changes in the fundamental dynamics of media use and an informed citizenry. In this concluding discussion, we carefully consider the first explanation before discussing areas where we believe the results presented here hold more substantial implications for future research.

Despite our best efforts to model this study on Robinson and Levy's earlier work, a few key differences between the two studies could threaten our argument that there have been significant differences in how media factors relate to levels of political information among members of the public over recent decades. One difference is our decision to adhere to more contemporary research practices for measuring independent variables in media effects research. As noted above, our measures of newspaper and television media use are framed in terms of attention rather than exposure. Indeed, we did not even attempt to revisit Robinson and Levy's additional analysis of knowledge based on time (in minutes) individuals spent with various kinds of media. In addition, whereas (for reasons we cannot determine) Robinson and Levy tapped newspaper use using a binary measure of regular versus nonregular newspaper readership, our measure used a 5-point scale comparable to the other measures used in the analysis. To be sure, these and other changes in the independent variables we used present a clear departure from their practices and thus prevent us from treating the present study as a replication of their earlier work.

We do not, however, believe these methodological differences threaten our fundamental conclusions that Internet searches now rival local television newscasts in popularity, or that there has been a significant shift in the *relative* educative functions of television news versus newspapers. First, though attention provides more accurate and reliable measurements than media exposure, there is no reason to believe these differences affect our ability to assess the relative impact of different sources. In other words, since this change was made to both the television news and newspaper measures, as well as all others, comparisons between these two sources in the same data are still informative. One could argue that the shift to an attention measure disproportionately advantages television in our analysis, since less attentive exposure is likely more common for television than it is for newspapers. However, given the dramatic reversal in the relative effects for these sources, we would contend that such an advantage does not explain all the disparity between our findings and those from the 1996 update. Second, with respect to the different number of response categories in the newspaper measurement, it is reasonable to assume that this increase in variation captured on the independent variable would only increase the correlation between newspaper use and political knowledge. In this instance, the implications of our change in measurement strategy run counter to, rather than biasing our findings toward, our ultimate argument. For these reasons, we believe our use of attention-based measures and the addition of response categories to the newspaper use item do not pose significant threats to our overall conclusions.

Our decision to incorporate both print and online readership into our measurement of attention to national politics and public affairs content in newspapers presents another key difference between the two studies. Based on the research discussed earlier concerning the superiority of print to online newspaper reading in terms of learning, it is reasonable to expect that this difference is related to our finding that newspapers are now less effective than television news in conveying public affairs information. However, on conceptual grounds, we would contend that it is a natural reflection of the contemporary media environment to measure newspaper readership in this way. How people read the newspaper is certainly changing, and the best available data suggest that newspapers are read in both print and online formats, with online reading on the rise (Barthel, 2016; Mitchell & Holcomb, 2016). Indeed, as in our survey, in the studies conducted by Pew researchers, respondents are asked whether they read a newspaper, with a clear indication that this can be done online or in print. Thus, in many ways the extent to which the newspaper itself remains an identifiable media factor still overshadows changes in its various delivery systems. Consider an alternate print format: books. Despite dramatic increases in the popularity of e-readers, and even widespread speculation about the differences between e-reading and traditional reading, we do not consider the tablet book as distinct from the physical book. For these reasons, we acknowledge that our choice to consider online and print newspaper use jointly is likely closely related to shifts in our findings relative to Robinson and Levy's (1996) earlier work, but we do not consider this a reason to discount those changes in our results.

Overall, the present study suggests that classic assumptions about television and newspapers as sources of political information should be reexamined; since the 1990s, there have clearly been important changes in the ways individuals encounter and learn (to a greater or lesser extent) relevant information about politics and public affairs. Several implications flow from the findings we present here. First, as evidenced by the results concerning where individuals turn first to learn about specific topics or issues, as well as the extent to which it is likely that a shift to online reading is threatening the newspaper's hold on

the mantle of “premier source of public affairs information” (Robinson & Levy, 1996, p. 135), our findings reinforce the idea that digital media are ushering in tectonic shifts in the political information environment. However, considering these developments alongside the relatively underwhelming findings from our analysis with respect to social media and general informational Internet use helps underscore the more complicated idea that the effects of digital media may not be as straightforward as originally thought. Not only are they apparently less likely to be seen in simple main effect fashion (Bimber, 2003; Xenos & Moy, 2007), but it is also important to consider the ways in which they may complicate relationships with older media such as newspapers, especially in a world where news diets are increasingly “omnivorous” and users are likely to cluster media use across multiple channels (Flanagin & Metzger, 2001; Massanari & Howard, 2011).

A second implication is found in our results concerning television news. These results suggest that the contemporary environment includes notable new ways of acquiring political information and also may be characterized by changes in the ways that familiar sources impart public affairs information. Not only do our findings amount to a full-blown turnabout in the relative educative efficacy of television news and newspaper use compared to Robinson and Levy’s earlier results, they further suggest that television news is now arguably the most effective single medium for helping individuals acquire political information. Controlling for other factors, in our analysis the association between attention to television news and political knowledge is not only greater than all other media factors; it is also on par with those for core elements of socioeconomic status (age, education, and household income). These findings in particular, along with the others reported here, offer an important reminder to us as researchers not to lose sight of how the roles played by older media forms may continue to shift and remain relevant as we further explore perennial questions in light of new media developments.

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