

## **Media Platforms and Political Learning: The Democratic Challenge of News Consumption on Computers and Mobile Devices**

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During the last decades, an important shift in media use is that people increasingly follow the news by using digital and portable media, while news consumption via traditional, offline media is decreasing. A key question is how this change influences the extent to which people seek out and learn about politics from the news media. Using a large two-wave panel survey ( $N = 2,828$ ) with detailed measures of political learning and consumption of the same news outlets on different media platforms, the study shows that while political interest has a positive impact on news consumption across all platforms, people mainly learn about current political affairs from using traditional, offline platforms. In contrast, there are no general learning effects from using news media on computers and mobile devices. The study thereby demonstrates how the increasing importance of newer, digital media platforms for news consumption challenges the ideal of a broadly informed citizenry.

*Keywords: news consumption, media platforms, political learning, political interest, panel data*

During the last decade, a key trend with respect to news consumption is the shift from traditional, offline media formats to digital and portable media formats. Whereas people used to follow the news by reading newspapers in print and watching TV news on a television set, increasingly, people are using traditional news media and other information sources in their digital and portable formats (Mitchell, Gottfried, Barthel, & Shearer, 2016; Molyneux, 2018). While the use of news media in their digital and portable formats might complement or displace the use of news media in their traditional formats (Dutta-Bergman, 2004; Westlund, 2015), it is clear that displacement effects have become more common (De Waal

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& Schoenbach, 2010; Mitchelstein & Boczkowski, 2010; Shehata & Strömbäck, 2018). This holds particularly true for newspapers (Mitchell et al., 2016). As a countermeasure, publishers are constantly working hard to increase the number of digital subscriptions and the use of their news apps.

A key question is how this shift to an increasingly digital and mobile media use will influence how people seek out and learn about politics and current affairs from the news. From a democratic perspective, it is essential that people are at least reasonably informed, because they will otherwise be unable to act in accordance with their political preferences (Aalberg & Curran, 2012; Dahl, 1998; Delli Carpini & Keeter, 1996). If people learn as much from using traditional news media in their digital and portable formats, such as computers and mobile phones, the shift in news media consumption might not matter much from a democratic perspective. But if people learn less from using news media in their digital and portable formats, the shift in news media use might herald declining political learning.

Thus far, our knowledge with respect to political learning effects from using news media on different platforms is, however, quite limited. A review of extant research indicates that most studies have focused on differences in learning between using print newspapers and online news sites and have examined potential differences in experimental settings (d'Haenens, Jankowski, & Heuvelman, 2004; Eveland & Dunwoody, 2001, 2002; Eveland, Seo, & Marton 2002; Kruikemeier, Lecheler, & Boyer 2018; Tewksbury & Althaus, 2000; Yang & Grabe, 2011). As of yet, only a few studies have investigated the learning effects of using news media on several different platforms (for an exception, see Ohme, 2020), and no studies have investigated the learning effects of using *the same news media* across offline and different digital platforms. This study aims to fill this gap in the literature.

When examining learning effects in contemporary high-choice media environments, it is particularly important to account for people's motivation for consuming news, often operationalized as political interest. Several studies have shown that political interest has a positive effect on news media use (Boulianne, 2011; Strömbäck & Shehata, 2010, 2019) and that the transition to high-choice media environments has increased the impact of political interest on people's news media use (Prior, 2007; Strömbäck, Djerf-Pierre, & Shehata, 2013). News media use and political learning are thus increasingly likely to be results of individual motivation. On the other hand, several studies suggest that people are often exposed to news incidentally when using digital and social media for other purposes (Boczkowski, Mitchelstein, & Matassi, 2018; Bode, 2016; Van Damme, Martens, Van Leuven, Vanden Abeele, & De Marez, 2020). Such incidental exposure suggests that individual motivations might matter less than they used to. Important to note, though, is that most of this research has focused on social media, and none of this research has focused on how individual motivations, such as political interest, influence the use of the same news media on different platforms. In either case, research suggests that it is important to take this selection mechanism into account when investigating learning effects of using different media platforms.

Against this background, the purpose of this study is to investigate (a) how political interest influences the use of news media on different platforms, and (b) the political learning effects of using news media on different platforms. The study is based on a large two-wave panel survey conducted in Sweden in 2014–2015, with detailed measures of news media use on different platforms and of political learning. A unique feature of this study is that we will investigate the use of the same news media on different platforms

in a real-world setting. By holding news media constant, we are able to investigate the impact of different platforms on political learning.

### **Toward Increasingly Digital and Mobile Media Environments**

Over time, media environments have been disrupted by technological changes more than once. For example, in the 1980s, cable television sparked audience fragmentation with the establishment of several new networks. In the 1990s, personal computers and the Internet accelerated the process toward increasingly digital and individualized media environments (Prior, 2007). More recently, portable digital devices, such as smartphones, have further contributed to this process by making it ever easier for people to access media content anywhere and at any time, and in a highly customized manner (Westlund, 2015).

The shift toward digital and portable media formats is reflected in market numbers. While newspaper subscriptions have declined across most Western democracies (Mitchell et al., 2016), mobile access is becoming increasingly universal. This also holds true in Sweden, the case of this study. According to *Digital News Report 2020*, 84% of the population obtains news online, 64% from TV, and 28% from printed newspapers. In terms of digital platforms, 51% access news on computers, 25% on tablets, and 71% on smartphones (Newman, Fletcher, Schulz, Andi, & Nielsen, 2020; see also Bergström, 2016; Shehata & Strömbäck, 2018).

The development toward increasingly digital and portable news media consumption raises important questions about how people seek out and learn from news depending on what platform they use, and the role of individual preferences in that process. According to one school of thought, the transition to high-choice and more digital media environments has made individual preferences more important for determining what media platforms, media outlets, and media content people make use of (Prior, 2005, 2007; Strömbäck et al., 2013; Strömbäck & Shehata, 2019; Williams & Delli Carpini, 2011). If people are interested in news, there are greater opportunities than ever to find all kinds of news, but if people are not, they can easily find all kinds of other content. According to this line of thought, the greater the media supply, the more selective people have to be, and the more selective people have to be, the more important their preferences become (Luskin, 1990; Prior, 2007).

Several studies argue that this development has increased the gap in news media use between those who have and those who do not have much motivation to follow the news, sometimes labeled “news seekers” and “news avoiders,” respectively (Aalberg, Blekesaune, & Elvestad, 2013; Ksiazek, Malthouse, & Webster, 2010; Strömbäck et al., 2013). The development has also made it easier for “news grazers” (Bennett, Rhine, & Flickinger, 2008; Hardy & Jamieson, 2011; Morris & Forgette, 2007) to change channels, websites, or outlets when they encounter news, they are not interested in. Originally developed for television, the concept of news grazers traditionally refers to those “who watch television news with the remote control in hand and switch to another channel when an uninteresting topic comes up” (Morris & Forgette, 2007, p. 91). Digital and portable media have expanded this possibility through increasing media choice and personalization of media consumption (Dunaway, 2016; Molyneux, 2018). A more technology-neutral definition of news grazers would therefore be those who check out the news but switch when an uninteresting topic comes up or something more interesting catches their attention.

According to another school of thought, digital and portable media have, in contrast, increased the likelihood that people will be incidentally exposed to news when using different digital and portable media for other purposes. It might, for example, happen through peer recommendations on social media, algorithmic recommendations, news aggregators, social media feeds, or push notifications from apps that users have installed (Boczkowski et al., 2018; Stroud, Peacock, & Curry, 2020; Van Damme et al., 2020). Hence, people might not be very interested in news per se, but the ubiquity of news online and the fact that digital and portable media have become embedded in people's everyday lives may still lead them to be exposed to news. In fact, several studies show that it is indeed the case that many—not least, young people and those less interested in news—are incidentally exposed to news (Fletcher & Nielsen, 2018; Gil de Zúñiga & Diehl, 2019; Gil de Zúñiga, Weeks, & Ardèvol-Abreu, 2017). Importantly, however, the algorithmic nature of social media is still likely to benefit especially those with an interest in news and politics (Kümpel, 2020).

While studies on incidental news exposure suggest that individual preferences matter less for news consumption on digital and portable devices than for offline media formats, important to note is that most of this research has focused on social media. None of the studies have addressed how individual preferences, such as political interest, influence the choice of platform for news consumption and the related political learning, which is the focus of this study. Based on research showing that political interest, in general, has a positive impact on news media use (Boulianne, 2011; Strömbäck et al., 2013), it can be expected to have a positive effect on news consumption across all platforms. Simply put, if people are interested in politics, they should be more likely to seek out news on all platforms. Thus, our first hypothesis is:

*H1: Political interest has a positive effect on news consumption across all media platforms.*

### **Learning Effects From Using Different Media Platforms**

Turning to learning effects, the central question is whether those who choose to follow news on different platforms also learn about politics to the same extent. Although "learning" has been operationalized in different ways in previous research, a general finding is that people indeed learn from the news media, as they are exposed to new information and thereby obtain knowledge that they did not have before (Chaffee & Kanihan, 1997; Dilliplane, Goldman, & Mutz 2013; Elenbaas, Boomgaarden, Schuck, & de Vreese, 2013; Jerit, Barabas, & Bolsen 2006; Liu, Shen, Eveland, & Dylko, 2013; Strömbäck, 2017). That said, variations in learning effects have also been found across media platforms. In this line of research, studies have mainly focused on differences between news in print and on television (Chaffee & Schleuder, 1986; Robinson & Levy, 1996) and between print and online newspapers accessed on computers (Eveland & Dunwoody, 2001, 2002; Eveland et al., 2002; Tewksbury & Althaus, 2000; Yang & Grabe, 2011). In later years, a number of studies have also investigated learning effects of using different types of digital media and of using social media (Bode, 2016; Dimitrova, Shehata, Strömbäck, & Nord, 2014; Shehata & Strömbäck, 2018). A few studies have also addressed how the use of mobile devices might influence learning (Molyneux, 2015; Neijens & Voorveld, 2016; Ohme, 2020; Stroud et al., 2020).

To take a few examples, in an early study, Tewksbury and Althaus (2000) compared the print and online versions of *The New York Times*. Among their findings was that the online audience read fewer political news stories and were less likely to recognize and recall events that happened during the period. Likewise,

Eveland and Dunwoody (2001, 2002) found that people learn more from print compared with online news, although another study suggests that this may depend on the type of knowledge measured (Eveland et al., 2002). More recently, Shehata and Strömbäck (2018) found positive knowledge effects from following news in traditional news media, but not from following news through social media (see also van Erkel & Van Aelst, 2020), although Bode (2016)—focusing on the use of social media only—found positive knowledge effects.

Thus far, rather few studies have gone beyond comparing print and online news on computers. One exception is Neijens and Voorveld (2016), who found that people learn less when reading a newspaper on a tablet compared with the print version, although “digital innovators” learned equally from both platforms. Another exception is Ohme (2020), who investigated the learning effects of using television, radio, print newspapers, news websites, social media, and specific news apps, and the impact of low versus high mobile Internet use. Among other things, this study shows that people learn less from using news apps than from using offline news media and online websites, but that the level of mobile Internet use does not matter much. More directly related to mobile phone use, Stroud and colleagues (2020) investigated the learning effects of notifications from news apps; of the two news apps investigated, they found positive effects from one, but not the other.

In addition, several studies have not found any platform differences in political learning. D’Haenens and colleagues (2004), for example, found no difference in news use and recall patterns across print and online newspapers. Molyneux (2015) likewise did not find people who rely on mobiles for news to be less knowledgeable than those who rely on news from other platforms. These inconsistencies in research on the learning effects of using different platforms, and the fact that there are no studies on the learning effects of using the same news media on different platforms, illustrate that “considerable debate remains regarding the relative effectiveness of each modality and the consistency of positive effects from any one” (Eveland & Garrett, 2014, p. 3).

Although results from previous research are inconsistent, there are theoretical reasons to expect greater learning effects from using traditional, offline media formats compared with digital and portable media formats. This holds particularly true when focusing on media effects on learning *new* information about politics and current affairs, so-called surveillance knowledge, rather than more textbook-like knowledge (Delli Carpini & Keeter, 1996; Shehata & Strömbäck, 2018). Following Eveland’s (2003) “mix of attributes” approach, these reasons can be grouped as those related to (a) differences in the organization and structure of news across platforms, and (b) differences in how news is consumed across platforms. Differences in these attributes are explained next and summarized in Table 1.

**Table 1. Attributes Across Media Platforms.**

	Offline	Computers and mobiles
Organization and structure	More editorial cues	Fragmented bits of information
	More comprehensive news stories	Shorter updates
	Encourage linear consumption	Encourage nonlinear consumption
Consumption	Active consumption	Checking, scanning, and snacking
	Longer time spans	Shorter time spans
	Higher attention	Lower attention
	Fewer distractions	More distractions

With respect to differences in the *organization and structure* of news, the design of television news, print newspapers, and radio news encourages a linear consumption from the beginning to the end. In contrast, digital news consumption—whether on computers, mobiles, or tablets—is “out of order” and consumed in a “non-linear manner” (Eveland & Dunwoody, 2002, p. 35). In addition, offline media formats contain more editorial cues that indicate the prominence of news stories, such as placement on the front page or at the beginning of a news show (Tewksbury & Althaus, 2000). Digital news, in contrast, often contains smaller bits of information, frequently fragmented and connected via links. Furthermore, the presentation of online news is more fluid, changing multiple times a day, often focusing on the most recent news or developments, and favoring shorter updates rather than comprehensive news stories.

These features of the news presentation are related to differences in how people *consume* news across platforms, partly referring to the attribute Eveland (2003) labels “control.” Compared with how people use news media in their traditional formats, on digital devices and—in particular—portable devices, people tend to consume news in shorter and more fragmented periods. Instead of actively reading or watching news on their digital and portable devices, people might check, scan, or snack the news (Costera Meijer & Kormelink, 2015), picking up their mobile phones or going online numerous times in the small unoccupied spaces throughout the day (Dimmick, Feaster, & Hoplamazian, 2010). This holds particularly true for people’s use of mobile phones, which are often used when people are on the go or on public transport (Ohme, 2020). Considering people’s limited processing capacity (Lang, 2000), this might result in people not paying much attention to the news they encounter when they use digital devices such as mobile phones. Often, they might just check the headlines and leads, and feel sufficiently informed by doing that (Costera Meijer & Kormelink, 2015).

Research also suggests that people usually spend less time when following the news on mobile phones (Dunaway, Searles, Sui, & Paul, 2018) and that people are more likely to selectively scan for news of interest when using digital and portable media, as compared with offline media formats (Eveland & Dunwoody, 2001, 2002; Molyneux, 2018). This is partly related to practicalities such as screen size. To the extent that it is harder to read and see news on smaller screens, digital and portable devices are less suited for actively reading or watching news stories that are longer and more demanding. In addition, regardless of what news stories people are reading on their computers or mobile devices, there are usually banners and links surrounding, and thereby distracting from, the news story. People’s attention might also be disrupted from push notifications from social media or other apps and programs (Stroud et al., 2020). All this might disturb the processing of information (Lang, 2000).

Because news consumption on digital and, in particular, mobile devices is characterized by “brevity, frequency, distraction, and low attention” (Molyneux, 2018, p. 644), it can be expected that people will learn less from using digital platforms such as computers, tablets, and mobile phones to follow the news as compared with using traditional, offline media platforms. Consistent with this proposition, research has shown that news “snacking” and “grazing” is negatively related to knowledge (Bennett et al., 2008; Hardy & Jamison, 2011; Morris & Forgette, 2007). This holds particularly true for general knowledge about politics and current affairs, although using computers and mobile devices might promote more issue-specific knowledge that aligns with people’s interests (Molyneux, 2015). In terms of general knowledge about politics and current affairs, people are thus likely to learn less when they have more control, as is the case with

digital and portable formats, and learn more when they consume news in a linear manner, as is the case with news media on traditional, offline media platforms (Eveland & Dunwoody, 2001, 2002). This should also hold true when using the same news media on different platforms. Given the notion that news consumption on mobile devices in particular is characterized by frequency, short attention spans, and frequent distractions from both the contexts in which they are used and features of the mobile devices themselves, such as push notifications, it is furthermore likely that people learn less when they use mobile devices as compared with when they use computers. Based on this, we expect that:

*H2a: (offline vs. computers) People learn more about politics and current affairs from using news media on offline platforms than from using news media on computers.*

*H2b: (offline vs. mobile) People learn more about politics and current affairs from using offline media platforms than from using news media on mobile devices.*

*H2c: (computer vs. mobile) People learn more about politics and current affairs from using news media on computers than from using news media on mobile devices.*

### **Methodology and Data**

To test the hypotheses presented earlier, we used a large two-wave panel study conducted in Sweden from 2014 to 2015, with detailed measures of news media use on different platforms and political learning about current events. In contrast to most studies examining learning effects across media platforms, which are based on experiments, this approach is unique. As of yet, no previous research has compared the effects of using the same news media across offline formats, computers, and mobile devices, and simultaneously using panel data for examining differences in learning across platforms.

The panel survey was done by the polling firm Novus. The sample was drawn using stratified probability sampling from a database of approximately 35,000 citizens from Novus' pool of Web survey participants. Those who were part of this pool were recruited continuously using random digit dialing. No self-recruitment was allowed. About 7.8% of those who were initially invited agreed to be part of the pool of respondents, and the pool is largely representative for the population in terms of sociodemographic characteristics.

For this study, a sample of 7,652 respondents aged 18–75 years was invited to take part in the first panel wave. Those who completed the first wave (51%) were invited to take part in the second wave. The first wave was conducted November 13–25, 2014, and the second wave November 12–24, 2015. In total, 2,832 respondents participated in both waves, resulting in a cooperation rate of 37% (Cooperation Rate 2, American Association for Public Opinion Research). We will focus on the respondents who participated in both waves and answered all the relevant questions ( $N = 2,828$ ). These respondents are largely representative of the Swedish population in terms of age, gender, and education.<sup>2</sup>

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<sup>2</sup> As of 2014, the mean age in the population was 41.2 years; the gender distribution was 50% male and 50% female; and 12% had finished elementary school, 46% had finished high school, and 39% had college or university education. For 2%, the educational level was unknown (Statistics Sweden, [www.scb.se](http://www.scb.se)).

### **Measures**

Our main dependent variable is political learning, which we define as the extent to which people learn *new information* about politics and current affairs covered by the news media (Price & Zaller, 1993; Shehata, Hopmann, Nord, & Höijer, 2015; Shehata & Strömbäck, 2018). To measure political learning, respondents were asked seven questions about current political affairs in the second wave. The questions were about issues and events that had taken place in the time leading up to the second wave. Thus, if the respondents could answer the questions correctly, they had acquired new knowledge since the first wave (when the issues and events had not yet unfolded). Each question had five response options, including “don’t know.” To avoid Web searches for correct answers, a time limit of 20 seconds was employed. Correct answers were coded as 1, and incorrect and “don’t know” answers were coded as 0. The answers were combined into an additive index ( $M = 3.30$ ,  $SD = 1.53$ , Min. = 0, Max. = 7,  $KR20 = .52$ ). For details about the political learning questions, see Table A1 in Appendix.

Turning to our independent variables, to distinguish between news consumption on different platforms, in the second wave, the respondents were also asked how often during the past week they had used *the same specific news outlets* on (1) TV/radio/print, (2) the computer, or (3) their mobile or tablet. The questions included the three national television newscasts (*Aktuellt* and *Rapport* on Swedish Television, public service, and *Nyheter* on the commercial channel TV4), the main national radio newscast (*Ekonyheter* on Swedish Radio, public service), and the main national quality newspapers (*Dagens Nyheter* and *Svenska Dagbladet*). Our analyses thereby investigate the use of the same six news media outlets on three different platforms. The response categories ranged from *never* (1) to *daily* (6). To create the news media measures for each platform, we constructed additive indices for use of these six news outlets offline ( $M = 2.80$ ,  $SD = 1.04$ , Min. = 1, Max. = 6,  $\alpha = .70$ ), on computers ( $M = 1.67$ ,  $SD = .88$ , Min. = 1, Max. = 6,  $\alpha = .81$ ), and on mobile devices ( $M = 1.65$ ,  $SD = .89$ , Min. = 1, Max. = 6,  $\alpha = .81$ ). While we concentrate on reporting the selection and media effects connected to these general platform measures, we will also refer to outlet specific analyses.

Political interest was measured in the first wave by asking respondents how interested they were in politics. The response categories ranged from *not at all interested* (0) to *very interested* (3) ( $M = 1.80$ ,  $SD = .89$ , Min. = 0, Max. = 3). In addition, we controlled for gender (50% females), age ( $M = 47.30$ ,  $SD = 16.09$ , Min. = 18, Max. = 75), general political knowledge, and education—all measured in the first wave. General political knowledge was measured with five questions ( $M = 3.70$ ,  $SD = 1.27$ , Min. = 0, Max. = 5,  $KR20 = .53$ ). For details about the general political knowledge questions, see Table A1 in Appendix. Education, finally, was measured by the following categories: (1) elementary school or similar (8.20%), (2) high school or similar (43.74%), and (3) university or college education (48.06%).

### **Analytic Approach**

To take both the selection and media effects into account, we examined how political interest is related to news media use on different platforms and how this consumption in turn is related to political learning of new information. While the causality for the selection effect was captured by the time lag between the two survey waves, the causality in the media effect was captured by the measurement of political



learning, which tapped learning of *new information*. We relied on multiple mediation modeling and calculated the individual path coefficients and the indirect effects of political interest on political learning through news use on different media platforms using PROCESS (Hayes, 2013; Preacher & Hayes, 2008). When examining relationships among manifest variables, PROCESS provides the same results as structural equation modeling (Hayes, Montoya, & Rockwood, 2017).

## Results

Before turning to the multiple mediation analysis, we will examine how the main variables relate on a bivariate level. The results of these bivariate correlations are shown in Table 2. First, the results show that political interest is positively related to news media use across all platforms and political learning. In addition, political learning is also positively related to news media use across all platforms. Finally, the results also show positive relationships between different platforms regarding news media use, illustrating that people are not relying only on one media platform for news consumption. This is particularly evident with respect to news media use on computers and mobile platforms, indicating that people combine different digital media to a high extent. In sum, the results of the bivariate correlations indicate that people with a higher political interest in general seek out more information from the news media on a mix of different platforms and learn about politics as a consequence.

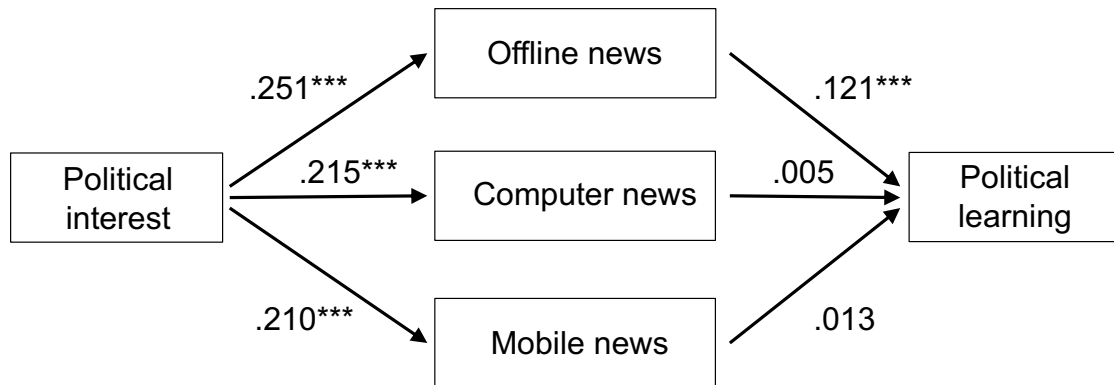
**Table 2. Bivariate Correlations Among Political Learning, News Use on Different Platforms, and Political Interest.**

	Political interest	Offline news	Computer news	Mobile news
Offline news	.26***			
Computer news	.23***	.34***		
Mobile news	.22***	.28***	.67***	
Political learning	.38***	.23***	.14***	.12***

Note. Bivariate correlations.  $N = 2,828$ .

\*\*\*  $p < .001$ .

To get a better sense of the relationship among political interest, news media use on different platforms, and political learning, we now turn to the multiple mediation analysis. In this part of the analysis, we have simultaneously modeled political interest as an antecedent of news media use across the three different media platforms, and the learning effects of using these platforms. The results are shown in Figure 1 (for the full regression models, see Table A2 in Appendix).



**Figure 1. Path model of the relationships among political interest, news use on different platforms, and political learning.**

Note. All paths include controls for general political knowledge, gender, age, and education. Paths predicting political learning also include control for political interest. For full regression models see Table A2 in Appendix. N = 2,828.

\*\*\*  $p < .001$ .

The results from the multiple mediation analysis show several interesting findings. First, the results show that political interest is a positive predictor of news media use across all platforms, confirming H1. However, the results also show that people mainly learn about politics and current affairs from using offline news media. Whereas the effect of offline news use is significant, the effects of using news on computers and mobile devices are not. The differences between learning effects from offline news and computer news ( $\chi^2 = 4.85, p = .03$ ) and from offline news and mobile news ( $\chi^2 = 4.63, p = .03$ ) are significant, but the difference between learning effects from computer news and mobile news ( $\chi^2 = .01, p = .92$ ) is not. H2a and H2b are thereby supported, but this is not the case for H2c.

If we conduct the same analysis with outlet-specific measures, the results largely replicate (results are available from the authors on request). Political interest has a positive effect on news consumption from all outlets on all media platforms, and consumption of news from *Rapport*, *Ekonyheterna*, and *Dagens Nyheter* in their traditional, offline format has a positive effect on learning. One exception is using *Dagens Nyheter* on mobile devices, which also has a positive effect on learning.

The differences across media platforms are further highlighted when estimating the indirect effects from political interest on political learning through news use on the three different media platforms. These indirect effects are calculated as the product of the two paths under consideration using a bootstrapping resampling technique to construct confidence intervals. The total indirect effect is calculated by summing all indirect effects (Hayes, 2013; Preacher & Hayes, 2008). Table 3 shows the results of these calculations.

**Table 3. Indirect Effects of Political Interest on Political Learning Through Different News Media Platforms.**

	Indirect effect	SE	95% Confidence Interval	
			LL	UL
Offline news	.030***	.008	.014	.046
Computer news	.001	.009	-.016	.018
Mobile news	.003	.009	-.014	.019
Total	.034***	.010	.016	.053

Note. Test for indirect effects with bootstrap (10,000 resamples), unstandardized regression coefficients. LL = lower level; UL = upper level.  $N = 2,828$ . See full models in Table A2 in Appendix.

\*\*\*  $p < .001$ .

Political interest has a positive indirect effect on political learning through news use on offline platforms, but this is not the case for news use on computers and mobile devices. Although the differences between these indirect effects are not statistically significant, as seen from the overlapping confidence intervals, they illustrate an important point: In general, political interest only translates into political learning through news use on offline media platforms, whereas it does not do so on computers and mobile devices.

Again, these results largely replicate if we conduct the analysis with outlet-specific measures (results are available from the authors on request). There is a positive indirect effect of political interest on learning through consumption of news from *Rapport*, *Ekonyheterna*, and *Dagens Nyheter* in their traditional, offline format. Again, the exception is consumption of news from *Dagens Nyheter* on mobile devices, where we also find a positive indirect effect.

### Discussion and Conclusion

Over the last decades, digital media platforms have come to play an increasingly important role for people's news consumption, as we have moved from low-choice to high-choice media environments. This transition is one of the most transformative changes affecting political information environments and how democracies work worldwide (Van Aelst et al., 2017). Never before has the supply of media platforms and media content been so abundant, and never before have people had such great freedom to choose when, where, and how to follow the news.

On the one hand, this development suggests a strengthening of democracy by increasing access to news and political information that can help people form opinions about political and societal matters. On the other hand, some have warned that this development might represent a challenge to democracy. One reason is that increasing media supply forces people to be more selective. Consequently, people's preferences become more important, which might lead to increasing differences in news media use between those with low interest in politics and those with high interest (Prior, 2007; Strömbäck et al., 2013; Van Aelst et al., 2017). A second reason is that different media platforms are not necessarily equal in terms of facilitating learning about politics and current affairs (Eveland & Garrett, 2014; Molyneux, 2018). As people are increasingly following the news on computers and mobile devices at the expense of offline news

consumption, it is relevant to examine how people seek out news and learn about politics across different media platforms.

Based on a large two-wave panel survey from Sweden tapping consumption of the same news outlets across different media platforms, this study has examined how political interest influences the use of news media on different platforms and how this consumption affects political learning. By doing so, the study contributes to extant research by using real-world panel data and moving beyond experimental settings to investigate potential differences in political learning from using different platforms, by comprehensively investigating the use of the same media on different platforms, and by including not only print, but also broadcast media, such as TV and radio news, on different platforms.

With respect to selection effects, an important albeit perhaps not surprising finding is that political interest has a positive effect on the use of news media on all platforms. Taking this selection effect into account, the results also show that the media platform plays a role in the extent to which people learn about politics. Specifically, we found positive learning effects from using news media on their offline platforms, but—with the exception of *Dagens Nyheter* on mobile devices—not from using them on computers or mobile devices.<sup>3</sup> These results suggest that people *mainly* seem to learn about politics and current affairs by using traditional, offline media (i.e., print newspapers, television, and radio), but not by using digital (i.e., computers) and portable (i.e., smartphones or tablets) media. In other words, media platform matters for political learning.

In terms of theoretical contribution, the study supports previous findings that traditional, offline media platforms are better at facilitating political learning than other media platforms. Five theoretically anchored explanations for these platform differences appear likely. First, offline formats encourage a linear consumption from the beginning to the end, while news on computers and mobile devices is consumed in a nonlinear manner (Eveland & Dunwoody, 2002). Second, offline formats contain more editorial cues than does news on computers and mobile devices (Tewksbury & Althaus, 2000). Third, with offline formats, people are exposed to the full stories, whereas on computers and, in particular, mobile devices, people are exposed to headlines and shorter information pieces. Fourth, there are usually more distractions when consuming news on computers and, in particular, mobile devices, coming from both what other information is available on the platforms and the context in which people use the different media platforms. Fifth, research shows that people consume news in shorter and more fragmented periods on computers and, in particular, mobile devices (Dunaway et al., 2018; Molyneux, 2018). Such news snacking and grazing is not likely to promote learning (Bennett et al., 2008; Hardy & Jamieson, 2011). It might promote a sense of being informed—but feeling informed and being informed are not the same. Our study contributes to extant theory by highlighting how these characteristics of organization and structure of news and news consumption on digital media platforms are likely to hinder political learning from the news.

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<sup>3</sup> Why *Dagens Nyheter* is an exception cannot be answered with the data at hand, but based on our theorizing, one reason might be that this newspaper provides more editorial cues and comprehensive news stories in its digital formats.

In terms of real-world consequences, it is important to note that even though our results could give the impression that individuals are not learning anything from following the news on computers or mobile devices, this is, of course, not the case. If the only option is to get news on computers or mobile devices, it is, of course, better than not getting news at all. But in comparison with offline platforms, computers and mobile devices seem to be less optimal in securing informed citizens. Although many people use multiple media platforms for news consumption, this finding raises concerns because offline media are becoming an increasingly marginal platform for news consumption. In this regard, our findings highlight a challenge for contemporary democracies. As people are moving their news consumption to new platforms, such as computers and mobile devices, it might become increasingly difficult to secure a broadly informed citizenry. The study thereby also highlights the need for news media to reconsider how they can construct and distribute news in a digital media environment that can foster the same beneficial political learning effects as traditional, offline media. Otherwise, it might not be possible to secure the ideal of a broadly informed citizenry, which is normatively seen as beneficial for democracy.

Our study comes with some limitations. Most important, although the panel survey design enabled us to examine a question, otherwise mostly studied using experiments, in a real-world setting, as a consequence, we were not able to specifically isolate what characteristics about news consumption on computers and mobile platforms hinder political learning. More research is thus needed for a better understanding of the news experience itself and the mechanisms promoting or countervailing learning through the use of news media on different platforms. Further, we did not differentiate between smartphones and tablets, categorizing both as mobile devices. However, smartphones and tablets differ in important ways. Whereas smartphones are often carried around in pockets and used while people are moving from place to place, tablets are often used at home, functioning more like a laptop. Future research should study these differences and their consequences in more detail.

It is also important to take into account that people do not use only one platform for news consumption (Molyneux, 2019; Shehata & Strömbäck, 2018). Instead, people might, for example, receive a notification from their news app on their mobile phone and turn on the television to follow up. It is beyond the scope of this article to examine such intramedia mediation effects (Holbert, 2005); future researchers are urged to examine such mixed news consumption patterns and consequences for political learning. As a final limitation, research has shown that people have a tendency to overreport their news consumption in surveys (Prior, 2009). However, if this is the case for the survey used in this study, the consequence would be that our effect estimates are conservative rather than overstated. Therefore, this limitation is not the biggest concern of this study.

In conclusion, our study has shown that although political interest influences news consumption positively across all media platforms, people mainly learn about politics and current affairs from offline media platforms. This finding is particularly important as news media use continues to shift from traditional, offline formats to digital media platforms, such as computers and mobile devices. To the extent that people learn less by using news media on computers and mobile devices, there is a risk that this will lead to declining political learning, increasing knowledge gaps, and, by extension, a weakening of democracy.

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### Appendix

**Table A1. Political Knowledge and Learning Questions.**

General political knowledge (Wave 1)	
1.	What is required to make a change in the Swedish constitution? (Two parliamentary decisions with intermediate elections)
2.	Which organ has the legislative power in Sweden? (The Swedish Parliament [Riksdagen])
3.	What political level has the main responsibility for healthcare? (County councils [Landstingen])
4.	What political level has the main responsibility for the schools? (Municipalities)
5.	Approximately how high is Swedish unemployment? (Approximately 7%).
Political learning (Wave 2)	
1.	Which country opened an embassy in the United States this year? (Cuba)
2.	Which party leads the government in Denmark? (Venstre)
3.	In which of the following countries were parliamentary elections held last autumn? (Burma)
4.	Who was elected as the new party leader for the British Labour party in the fall? (Jeremy Corbyn)
5.	What is the name of Sweden's military commander? (Micael Bydén)
6.	From which country did most people apply for asylum in Sweden in 2015? (Syria)
7.	What party first broke the so-called December agreement (decemberöverenskommelsen)? (Kristdemokraterna)

*Note.* All questions had four answer options and a "don't know" category. Correct answers are in parentheses.

**Table A2. Full Regression Models.**

	Offline news	Computer news	Mobile news	Political learning
Offline news				.121*** (.030)
Computer news				.005 (.038)
Mobile news				.013 (.037)
Political interest	.251*** (.020)	.215*** (.020)	.210*** (.020)	.367*** (.031)
General political knowledge	-.024 (.014)	-.042** (.014)	-.015 (.014)	.303*** (.021)
Female	.046 (.033)	-.165*** (.033)	-.056 (.034)	-.590*** (.051)
Age	.032*** (.001)	.004*** (.001)	-.001 (.001)	.008*** (.002)
High school	.028 (.063)	-.096 (.062)	-.036 (.063)	.124 (.094)
University	.048 (.063)	.031 (.062)	.106 (.063)	.376*** (.094)
Constant	.854*** (.093)	1.372*** (.091)	1.361*** (.093)	.821*** (.146)
$R^2$	.309	.070	.053	.289

*Note.* Estimates are unstandardized path coefficients. Standard errors in parentheses.  $N = 2,828$ .

\*\*  $p < .01$ . \*\*\*  $p < .001$ .