New media, elections and the political knowledge gap in Australia

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Abstract

This article tests the hypothesis that the internet is exacerbating an existing knowledge gap in Australia. The data come from the Australian Election Study, which has measured voters' political knowledge and internet use since 2001. The results support the knowledge gap hypothesis: while internet access is expanding, consumption of political information online is narrowing among a younger, better educated and politically interested group, and is increasingly associated with higher levels of political knowledge. The internet is therefore reinforcing the advantages of the most knowledgeable while increasingly failing to draw in the most politically uninterested. Despite hopes that the internet would lead to a more informed demos, these findings suggest that it is exacerbating current participatory biases.

A rudimentary level of political knowledge is normally considered a prerequisite to the exercise of democratic citizenship (see, for example, Galston, 2001; Milner, 2002). In addition to well-designed institutions, an effective democracy works on the basis that citizens possess the appropriate political skills with which to evaluate competing leaders, parties and policies at election time (see, for example, Drew and Weaver, 2006).

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Yet studies conducted around the world have consistently found a low and uneven distribution of political knowledge among the general public (Delli Carpini and Keeter, 1993). Nor is there any evidence of a significant increase in political knowledge among the public, despite rising levels of education across almost all of the advanced societies. Indeed, if anything, the evidence points to even greater inequalities in political knowledge, and to the rise of what has been termed the 'knowledge gap' (Tichenor et al., 1970).

Those who have identified a 'knowledge gap' assume that as increasing amounts of information become available to the public, the capacity (and interest) of subgroups within the population to absorb and make use of this information will vary. In practice, the 'knowledge gap' is based on educational differences between citizens, with the better educated accessing greater amounts of political information and displaying increasing levels of political sophistication as a result. By contrast, their less educated co-citizens access decreasing amounts of political information and have less political knowledge (for a review, see Gaziano, 1997).

The rise of the internet as a major source of political information raises the question of the extent to which levels of political knowledge within the population are being shaped by the internet.[1] We argue in this article that the internet is associated with an ever-widening knowledge gap, with major implications for democratic politics. We address this question by examining the effect of following politics in the mass media, and particularly the internet, on political knowledge in Australia. The data come from the 2001, 2007 and 2010 Australian Election Study (AES) surveys, which measured both internet use and political knowledge within the electorate in the context of a national election. This provides an insight into the relationship between political knowledge and internet use in Australia over an extended period.

The internet and political knowledge

Citizens absorb political knowledge from a wide variety of sources. In many countries, governments have invested considerable resources in order to impart political skills and knowledge to the public through civic education programs in schools (see Galston, 2001; Nie et al., 1996). Another source of information is elections, which convey knowledge about policy issues and party choices to voters (see Chaffee et al., 1994). In particular, research has shown that party leaders' debates significantly improve voters' understanding of the election issues (Drew and Weaver, 1991; Holbrook, 1999; Lanoue, 1992). Most citizens also come into contact with politics through regular interaction with government officials, thereby forming at least a rudimentary understanding of how public policy is developed, and its potential impact on their lives.

While civic education, elections and day-to-day personal interactions are important sources of political information, arguably the most important channel through which citizens absorb political information is the mass media. The emergence of television as a political medium in the 1950s and 1960s had a major effect on the operation of modern politics. With its emphasis on visual images, the application of television to politics is often regarded as the main driver behind the personalization of politics, and of causing rapidly declining public trust in politics (McAllister, 2007). By contrast, other media,

such as newspapers, are viewed as a source of more detailed information, particularly regarding policy choices (Chaffee and Frank, 1996).

The widespread use of the internet is reshaping the operation of the modern political system as television did half a century earlier. The most obvious change is the transition from a low-choice media environment to a high-choice one. For most of the post-war period, there were few choices in whatever media source citizens preferred, whether it was newspapers, radio or TV. The net effect was that citizens were exposed to low but constant levels of political information, which could be ignored only by eschewing the media altogether (Prior, 2007). Over the last decade, most citizens have been exposed to a high-choice media environment. There are now multiple sources of information spread across TV (both free-to-air and cable), radio, newspapers and the internet. This unprecedented choice means that citizens have the option of avoiding any exposure to political information. Prior (2005: 578) puts it succinctly when he says that 'access to the medium no longer implies access to the news'.

The fragmentation of the mass media and its ability to appeal to small subgroups within the population has introduced a new level of selectivity in media choice. Those who are interested in particular areas – entertainment, news or sport, for example – can access that information in multiple ways, almost to the exclusion of everything else. In practice, those who use this ability to select their preferred media choice can reduce chance encounters with any information which falls outside their interests (Prior, 2005, 2007; Sunstein, 2001). By contrast, when media choice was limited, the ability to choose content was restricted and those using the media would have some minimal exposure to news and other forms of political information, whether this was their preference or not.

The rapid expansion of high-speed internet has had a major impact on the availability of political information, and in turn how citizens choose to use that information (see Hallin and Mancini, 2004). The ability to access large quantities of political information on the web, available on demand 24 hours a day, seven days a week at home or at work, has introduced selectivity into the media environment. Research has examined how exposure to the web affects mass political behaviour and attitudes (Krueger, 2002; Mossberger et al., 2007; Pasek et al., 2009; Quintelier and Vissers, 2008; de Zuniga et al., 2009). The conclusion is broadly positive about the relationship, although the impact of internet use on engagement is considered to be small (Boulianne, 2009). A key insight in detecting effects has been the parsing of internet activities into various types, with political information-seeking online activity emerging as the most significant driver of increased civic and political interest, efficacy and involvement (Boulianne, 2011).

In principle, one might expect internet use to enhance political knowledge in that the web substantially reduces the costs of accessing general and specialist political information, thus giving voters more direct and immediate access to sources. In practice, the picture is less clear cut. Empirical surveys have shown that citizens use government websites in order to gather background information on policy issues or, in the context of an election, to collect information about candidates and parties to assist them in making a more informed voting choice (Gibson et al., 2010; Larsen and Rainie, 2002) and that this exposure is increasing levels of political knowledge.[2]

Closer analysis of these effects within sub-sectors of voters, however, indicates that the increases are unequally distributed, with the more highly educated and already

informed experiencing a more significant gain in knowledge compared with the less educated. In line with these more pessimistic scenarios, it appears that the internet, although increasing the capacity of the electorate to follow politics, is not increasing political knowledge uniformly, but rather exacerbating an existing knowledge gap (Anduiza et al., 2009; Kim, 2008; Prior, 2007). This is attributed to the self-selectivity involved in accessing internet content, since voters must actively seek information rather than be passively exposed to it via radio or television.

A major potential source of information is online news, particularly as newspapers are now migrating much of their content to a web forum, increasingly located behind a pay wall. Until recently, it was generally thought that readers of online news scanned for stories quickly, gleaning little real information. Recent research suggests otherwise, and that those who frequently access online news are as likely to read the content methodically as to scan it superficially (Poynter Institute, 2008). Moreover, like newspapers and television, online news tends to be nation-centered (Curran et al., 2013). Accessing newspapers online would therefore appear to be similar to reading newspapers in hard copy, in that they are used most often by those seeking detailed political information on specific issues (Chaffee and Frank, 1996; Fraile, 2011). Moreover, a website containing contemporary and archived news content has arguably even greater potential to enhance political knowledge compared with a print version and for the user to develop more sophisticated conceptual understanding as a result (Lowrey, 2004; Lowrey and Kim, 2009).

Data and measurement

We extend the research on the relationship between internet use and political knowledge by providing the first longitudinal analysis of web use during election campaigns. This enables us to trace and compare the groups that use the internet in order to seek out political information; more specifically, we can test whether such consumption is associated with an increasing knowledge gap within the electorate. The data come from the AES which is a national survey of voters conducted continuously at each general election since 1987.[3] The 2001, 2007 and 2010 surveys contain a battery of questions measuring political knowledge and internet use. These data present a unique opportunity to test the relationship between internet use and the knowledge gap over a nine-year period, covering the early period of internet use through to its use as a mass medium.

The 2001, 2007 and 2010 Australian Election Studies were post-election, self-completion, mail-out/mail-back surveys with a sample drawn randomly by the Australian Electoral Commission from the computerized electoral register. Each of the surveys involved an initial mail-out, and then two follow-up mailings. The response rates were 55.4% in 2001, 40.2% in 2007 and 41.9% in 2010.

The items used in the analyses are as follows. Political knowledge is measured by the question: 'Finally, a quick quiz on Australian government. For each of the following statements, please say whether it is true or false. If you don't know the answer, just circle "3" and try the next one.' The respondents were then presented with a series of six statements regarding the operation of Australia's political institutions. The six statements that were asked consistently in the 2001, 2007 and 2010 AES surveys (three or which are true and three of which are false) are listed in Table 1.

Table 1. Variables, scoring, means.

Variable	Codes	Means		
		2001	2007	2010
Political knowledge	0 to 6	2.22	2.39	2.41
Followed election news:				
Television	1 = none, 2 = not much, 3 = some, 4 = good deal	2.86	3.07	3.07
Newspapers	1 = none, 2 = not much, 3 = some, 4 = good deal	2.54	2.70	2.72
Radio	1 = none, 2 = not much, 3 = some, 4 = good deal	2.32	2.46	2.42
Internet	0 = no access, 1 = did not use, 2 = once or twice, 3 = several occasions, 4 = many times	0.74	1.36	1.51
When started internet use	0 = no access, 1 = last 6 months, 2 = a year ago, 3 = 2–3 years ago, 4 = more than 3 years ago	1.85	2.65	3.12
Frequency of using the internet	0 = no access, 1 = less often, 2 = every few weeks, 3 = 1–2 days per week, 4 = 3–5 days per week, 5 = once a day, 6 = several times a day	3.33	4.75	5.28
Interest in politics	1 = none, 2 = not much, 3 = some, 4 = good deal	3.03	3.19	3.10
Gender	1 = male, 0 = female	.47	.47	.49
Age	Years	48.23	52.00	48.13
Non-English-speaking born	1 = yes, 0 = no	.14	.14	.13
University education	1 = yes, 0 = no	.24	.26	.28
Income	Deciles, $000s per year	3.00	2.99	3.25
(N)		(2010)	(1873)	(2061)

Source: Australian Election Studies 2001, 2007 and 2010.

The question about using the internet for election news was: 'Did you make use of the internet at all to get news or information about the federal election?' The other media questions were: 'How much attention did you pay to reports about the election campaign in the newspapers – a good deal, some, not much or none at all? Did you follow the election campaign news on television? And did you follow the election campaign news on the radio?'

Table 1 shows the means for the various items in the 2001, 2007 and 2010 surveys.

The study has two limitations which should be borne in mind when interpreting the findings. First, we rely on rolling cross-sectional surveys, which means that we cannot determine any direct causality between the various effects being examined. Our prediction is that increased internet use enhances an individual's level of political knowledge

but disproportionately so in that those who are already interested and informed will become more knowledgeable due to the higher selectivity requirements of the medium. An equally plausible and simpler scenario is that more knowledgeable citizens are increasingly using the internet for political information. In the absence of panel data, we cannot definitively distinguish between these two possibilities. However, one way of discriminating between the two arguments is to add a variable to the analysis identifying when individuals first starting using the internet. If increases in political knowledge among internet users are accounted for by an increasing take-up of the medium, then when a person started using the internet should not be significant in predicting greater knowledge. Conversely, finding a positive impact of early adoption on knowledge levels makes it more difficult to discount that such a pathway may exist.

A second limitation is that our data come from using a survey immediately following a national election, which is a particular event with specific peculiarities in terms of citizen behaviour, and that our sample is one of the national electorate, not the adult population. Our dependent variable is general political knowledge which is unrelated to the election in question,[4] so we would expect election-specific factors to be small. In addition, since voters represent around 85% of the adult population, we consider it reasonable to extrapolate from our sample of voters to the general population.

Measuring political knowledge

Studies of political knowledge in the mass electorate have distinguished between 'factual' political knowledge – information about events, institutions or personalities – and 'background' political knowledge, which allows citizens to interpret political affairs (Denver and Hands, 1988; Garramone and Atkin, 1986). There are three main problems in measuring basic factual political knowledge in the context of a survey instrument. First, asking a large number of factual questions may reveal the respondent's ignorance and result in a terminated interview (Lambert et al., 1988: 360; Neuman, 1986: 198). This difficulty is partly mitigated by using a self-completion survey, as is the case here.[5] Second, there is the possibility that the respondents might use the internet or smart phones to identify the correct answers. To test for this possibility, we examined the responses of younger respondents over time (who would be more likely to use the internet and smart phones in the later surveys), but found no significant change in the proportions of correct answers for this group comparing 2001 with 2007 and 2010. We therefore conclude that the use of aids to correctly answer the question is minimal.

A third problem associated with any discrete measure of political knowledge based on a series of dichotomies is that 'don't know' and incorrect responses do not necessarily represent an absence of knowledge. As Mondak (1999, 2001) has argued, there may be systematic personality effects in how respondents answer a question about factual knowledge, and treating knowledge as a discrete property can blur the differences between partially informed and uninformed citizens, particularly where guesswork may be involved to providing a response. There is no way of excluding this possibility given the nature of the survey questions. However, the bias introduced into the analyses by this possibility has been minimized by including a direction to the respondent to answer

Table 2. Political knowledge among citizens, 2001–10 (%).

	% answering correctly		
	2001	2007	2010
1. Australia became a Federation in 1901	79	78	76
2. The Senate election is based on proportional representation	41	47	45
3. The Constitution can only be changed by the High Court	36	37	33
4. No-one may stand for Federal Parliament unless they pay a deposit	30	28	21
5. The longest time allowed between Federal elections for the House of Representatives is four years	25	28	30
6. There are 75 members of the House of Representatives	25	33	42
Mean	2.22	2.39	2.41
Standard deviation	1.69	1.71	1.72

See text for exact question wording. Statements 1, 2 and 4 are correct; 3, 5 and 6 are incorrect.
Source: Australian Election Studies, 2001, 2007 and 2010.

'don't know' if they did not know the answer. We also experimented with other coding methods but found the simple cumulative scale used here was the most effective.[6]

Table 2 shows the public's political knowledge in the 2001, 2007 and 2010 AES surveys. The results show the proportion of the respondents who could answer each of the three questions correctly; the mean number of correct answers in each survey is given at the bottom of the table.[7] The results show consistently low levels of political knowledge within the electorate. While the respondents were reasonably knowledgeable about basic political history – a large majority in each of the four surveys knew that Australia became a federation in 1901, for example – many fewer were familiar with the operation of the political and electoral system. Only between one in four and one in three knew that the House of Representatives does not have 75 members (it actually has 150), that a deposit is required to stand for federal parliament or that federal parliaments are not elected every four years (they are elected every three years).[8] Although these results suggest a significant degree of political ignorance, they are broadly in line with international findings (see, for example, Gronlund and Milner, 2006; Kohut et al., 2007).

Media and the internet in Australia

Along with the other advanced democracies, the Australian media environment has become highly fragmented in recent years, with cable (or pay) television and the internet competing for users with free-to-air television. Cable TV has been much less popular in Australia than the internet. In 2011, only 29% of Australian households had access to cable TV, compared to 89% of households in the United States and 58% in the UK.[9] The lower uptake of cable TV in Australia reflects a combination of government over-regulation, limited offerings by cable TV companies and the ready availability of free-to-air TV. In contrast to cable TV, internet penetration in 2008–9 stood at 72% of households, up from 16% in 1998 (ABS, 2009). More significantly, around two-thirds of households

Table 3. The growth in the use of the internet for election news, 2001–10 (%).

Used internet for election information	2001	2007	2010	2001–10 change
Yes, many times	1	5	10	+9
Yes, several occasions	3	6	12	+9
Yes, once or twice	5	9	14	+9
Access but did not use for election information	50	55	47	−3
Don't have internet access	41	25	17	−24
Total	100	100	100	
(N)	(1763)	(1834)	(2034)	

See text for exact question wording. Non-responses and don't knows are excluded.
Source: Australian Election Studies, 2001, 2007 and 2010.

reported a broadband internet connection, representing 86% of all households with internet access.

Voters themselves reported considerably more use of the internet to access election news in 2010 than in any previous election. The AES figures reported in Table 3 show that in 2001, just 1% of the electorate used the internet to access election news on any regular basis and 41% had no internet access at all. By 2010, that situation had changed dramatically: more than 8 in every 10 voters had internet access; more than 1 in 3 used the new medium to get news or information about the election; and 1 in 10 used it on a regular basis. In little under a decade, then, the use of the internet for election news has increased significantly in Australia, a dramatic and profound change in the nature of political communications.

Australia presents a particularly good case study to test the impact of the internet on the political knowledge gap. Not only is internet penetration and use among the highest in the world but also competing sources of information, such as cable TV, have much lower levels of use than is found in comparable countries. We can therefore more reliably attribute variations in political knowledge to specific media sources, with suitable controls for human capital and other background factors. Australia is also a good case study for another reason: compulsory voting. Voting has been compulsory for federal elections since 1923.[10] This means that around 95% of the enrolled electorate consistently turn out to vote in general elections, and most therefore take some interest in the election campaign. If evidence about the association between internet use and a knowledge gap is to be found anywhere, then we would expect to find it in Australia.

The internet and the knowledge gap

The existence of a political knowledge gap is based on the assumption that as media choice increases, citizens will select the media that best fit their preferences. As a consequence, political information (and therefore political knowledge) will become more unevenly distributed across the population. Some groups, for example those possessing tertiary education and exhibiting high political interest, will be able to locate

Table 4. Political knowledge and internet use, 2001–10 (OLS estimates).

	2001		2007		2010	
	Partial	Standard	Partial	Standard	Partial	Standard
Followed election news						
Television	−.07	−.04	−.02	−.01	−.08	−.04
Newspapers	.02	.01	.06	.03	.09	.05
Radio	.10	.05	.03	.02	.12	.07
Internet	.19	.09	.19	.11	.23	.16
Control variables						
When started internet use	.07	.06	.15	.16	.13	.12
Frequency of internet use	.00	.00	−.03	−.03	−.01	−.01
Interest in politics	.51	.26	.44	.20	.43	.20
Gender	.37	.11	.47	.14	.16	.05
Age	.18	.17	.26	.25	.28	.29
Non-English speaking	−.37	−.08	−.46	−.09	−.34	−.07
University education	.48	.12	.56	.14	.51	.13
Income	.15	.12	.07	.06	.07	.06
Constant	−1.22		−1.50		−1.68	
Adj. R-squared	.24		.22		.23	
(N)	(2010)		(1873)		(2061)	

Statistically significant at *p*<.01, *p*<.05.
Ordinary least squares (OLS) regression equation predicting political knowledge, which is scored from a low of zero to a high of six. See text for details of variables and scoring.
Source: Australian Election Studies 2001, 2007 and 2010.

detailed sources of political information and, as a consequence, will possess extensive political knowledge. By contrast, those with less education and no political interest can avoid political information altogether and their political knowledge will be negligible. Our hypothesis is that the availability of political information on the internet is furthering this trend by increasing the levels of knowledge among the more sophisticated citizens. To test this hypothesis, the analysis proceeds in two stages. First, we conduct a multivariate analysis to compare the effect of internet use on political knowledge across our three elections, taking into account television, radio and newspapers as competing sources of election news and a series of control variables. Second, we estimate the size of the political knowledge gap that is attributable to the internet by measuring the differences between high and low internet users over time.

For the multivariate analysis we apply controls for political interest as well as gender, age, birthplace, education and income, all of which are known to influence political knowledge (Lambert et al., 1988).[11] Based on the reasoning outlined earlier, we also include the person's length of experience in using the internet as well as a measure of the frequency with which they reported using the internet. The models are estimated separately for the 2001, 2007 and 2010 election surveys.[12]

In line with our hypothesis that the internet is related to an increasing political knowledge gap, the results in Table 4 show a positive relationship between using the internet to follow

Table 5. Political knowledge attributable to the internet, 2001–10 (means).

	Questions correctly answered (means, 0–6)			
	High internet	Mean	Low internet	High–low
2001	2.97	2.22	1.96	1.01
2007	3.14	2.39	1.78	1.36
2010	3.10	2.41	1.64	1.46

Difference between high and low internet use statistically significant at $p<.01$. See text for details of estimation.
Source: Australian Election Studies 2001, 2007 and 2010.

the election and levels of political knowledge. By contrast, there are no statistically significant effects for television or – perhaps surprisingly – newspapers, once a variety of other factors have been taken into account.[13] Indeed, the internet is the only media source that is important in all three elections in predicting knowledge; there is a modest effect for radio in 2001 and 2010, but its impact is about half that of the internet, measured by the standardized coefficients. The impact of the internet on political knowledge was stable between 2001 and 2007 and then increased – albeit modestly – between 2007 and 2010.[14] To put the effect in context, the partial coefficient of 0.23 in 2010 implies that someone who followed the election on the internet frequently could correctly answer about one additional question out of the total of six questions, compared to someone who did not follow the election on the internet at all, other things being equal.[15] This is a significant and consistently important finding, although it cannot conclusively prove internet use is causing the knowledge gain since we rely on repeated cross-sectional surveys rather than on panel data.

Regarding the measures of internet use – experience and intensity of use over time – we find that there is consistently a significant effect of the former across all three elections. A longer experience of being online (measured by the number of years since the person started to use the internet) is linked to increased levels of political knowledge, net of other things. Moreover, this effect has increased over time, almost doubling between 2001 and 2010. While such findings do not definitively show that internet use has been responsible for these individuals increasing their political knowledge, the findings challenge the idea that increasing levels of political knowledge among internet users are accounted for simply by the adoption of the medium by more politically knowledgeable citizens. While further panel data analysis would be required fully to disentangle the causality at work, our results suggest that there may be a basis for viewing internet use as one means of political learning, whereby being online for some time increases a person's skill and expertise in locating information.

The second stage in the analysis is to calculate the size of the political knowledge gap which is attributable to the increasing use of the internet for election news. These estimates can be made by re-estimating the regression equations in Table 4 and substituting the means for high and low internet use.[16] The difference between these two figures provides an estimate of the political knowledge gap that is attributable to the internet, and comparing the estimates over time reveals the trend in the gap. These estimates are shown in Table 5, which presents the mean level of political knowledge among those

who accessed the internet frequently for election news, and those who did not access the internet at all for election news

The figures in Table 5 support the hypothesis that the use of the internet is strongly associated with an ever-widening political knowledge gap. In 2001, a person who accessed the internet frequently for election news could expect to answer three out of six questions correctly, while someone who never used the internet for election news could answer two of the six questions correctly. The knowledge gap in 2001 that was associated with internet usage was therefore around one question out a total of six, net of a wide range of other factors. In 2007 the gap had expanded by around one-third of one question, and by 2010 it had increased yet again, to one half of a question. In each case, the gaps are statistically significant at the 1% level or better. These results provide strong support for the hypothesis that greater media choice, reflected particularly in the availability of political information through the internet, is fostering a growing gap in political knowledge across the electorate.

The findings also reinforce the conclusion that the relationship between internet use and political knowledge is complex. The mean level of knowledge of those most actively consuming political information online rose marginally (0.13 on the 0–6 scale) between 2001 and 2010. Among those with low to no consumption of such information, however, the average level of political knowledge actually declined in absolute terms from a mean of 1.96 questions to 1.64, a difference of 0.32.[17] Thus, a higher rate of internet use is not increasing political knowledge in absolute terms but relatively. Those who make little to no effort to source information online are increasingly falling behind in the information acquisition stakes. Those who 'know more' are continuing to accumulate and increase their store of knowledge. The internet, while not necessarily causing the gap, is significantly contributing to it by discriminating ever more strongly between uninformed and informed voters in their choice of online content.

Discussion

From the perspective of civic education, elections are important because they provide an occasion for citizens to learn more about politics and to acquire skills and knowledge that will enable them to make more informed choices on polling day (Arceneaux, 2005). The main method through which political information is conveyed to voters is via the mass media. Until the mid-20th century, newspapers and radio dominated election communication, with television gradually eclipsing them from the 1970s onwards. The rise of the internet (and, to a lesser degree, cable television) has enabled citizens to become ever more specialized in their media choices. The proliferation of media sources is now so large, self-selection is a crucial component in media choice (Prior, 2005). In practice, the wide choice that exists means that voters with little or no interest in politics can totally avoid any political exposure, while those with high interest can immerse themselves in politics with great intensity. The internet requires the media consumer to make a conscious effort to seek out political news; politics does not emerge in the background to an entertainment program as is the case in free-to-air television.

In this article, we have examined the consequences of following an election campaign on the internet for general political knowledge. Our hypothesis was that the proliferation

of media sources would increase the knowledge gap that was first identified more than 40 years ago. Our Australian case study is ideally suited to test such a hypothesis since it combines high internet penetration with low cable TV uptake and a compulsory voting system. By measuring the knowledge gap over three elections, from 2001 to 2010, we have produced strong evidence to support the hypothesis. While overall usage of the net is becoming more socially dispersed, use of the internet to follow election news is becoming more socially concentrated and contributes to a wide and growing knowledge gap. This is an important feature of internet use in society and has far-reaching implications for the equity of democratic participation.

Several qualifications have to be made to these findings. First, they relate only to an election context, which is a specific event with particular peculiarities and the results relate to voters using the media to obtain information about the parties and leaders. Second, we rely on factual political knowledge within the electorate and our methodology for collecting this information introduces several potential errors although, as we discussed above, we believe these to be minimal. Third, because we are using repeated cross-sections rather than panel data, we cannot definitively attribute causality to the findings. Nevertheless, since our results are broadly in line with those of other studies, we would argue that our findings are robust. They support those of Prior (2005, 2007) and others (for example, Fraile, 2011; Lupia and Philpot, 2005) who have shown that the fragmentation of the electronic media is exacerbating information disparities within mass electorates.

The results have several implications for the conduct and quality of democracy. Advocates of the democratizing potential of the internet often argue that making the digital media more widely available will increase civic education and political knowledge. However, this argument ignores the fact that 'greater media choice leads to greater voluntary segmentation of the electorate' (Prior, 2005: 578). In other words, citizens have more choices, but that does not mean that they will increase their exposure to political information; citizens may equally well use that exposure to access information on other topics about which they have a prior interest. Others argue that while there may be a 'lost generation' of citizens with no internet skills, the internet has significant potential for civic education (Coleman and Blumler, 2009; Weller, 2007). They point particularly to Web 2.0, and to the digital media's ability to host user-to-user interaction, and for users to shape website content. However, what makes websites attractive to the young – diversity of content, free entertainment, extensive links – make sites dedicated to civic learning less attractive (Bennett et al., 2009a: 116, 2009b).

Our results, based on a unique data resource collected over an extended period of time and using similar methods and questions, suggest a more pessimistic conclusion. At least for the short to medium term, the internet will may well widen the knowledge gap as the internet is increasingly relied on for political news and information by the most active and politically interested citizens. Those who are active online but have low levels of interest and education, by contrast, will be exposed to less and less political news and so levels of knowledge and awareness may drop even further. In the longer term, our results do point to more positive conclusions in that it is young people who are among the most likely to seek out online election information. In addition, longer-term use and cumulative experience in using the internet is positively linked with increases in citizens'

acquisition of political knowledge. Thus, as the current younger cohort grows older and the overall pool of internet skills in the population grows over time, we may see a rise in levels of political knowledge.

Notes

1. The collective knowledge of the population is, of course, being influenced by a multitude of electronic sources.
2. There is a large literature on this. See, for example: Althaus and Tewksbury (2002), Eveland et al. (2004), Kenski and Stroud (2006), Dalrymple and Scheufele (2007), Beaudoin (2008) and Kim (2009).
3. See McAllister and Pietsch (2011: Appendix B) for details of the 2001, 2007 and 2010 surveys. The N of respondents for each of the surveys was 2101, 1873 and 2214, respectively. The 2010 survey was weighted to represent the characteristics of the national electorate, with the weighted N being adjusted to the true N in order to leave statistical tests unaffected. The 2001 and 2007 surveys are unweighted. The data are publicly available from http://assda.anu.edu.au.
4. Although it should be borne in mind that four of the six questions listed in Table 2 do relate to the conduct of an election, rather than to general political knowledge.
5. The disadvantage of the self-completion survey is that it risks the possibility that the answers reflect the collective knowledge of the household, rather the knowledge of the individual. This difficulty, which studies have shown affects only a small proportion of the responses, applies to other questions in a self-completion survey; it is unlikely that the political knowledge questions would be affected to a greater extent than other parts of the survey (McAllister, 1998).
6. Two variations were used: coding each response 1 = correct, 0.5 = don't know and 0 = incorrect; and 1 = correct, 0.5 = incorrect and 0 = don't know. Based on the six questions in the battery, the correlations with the independent variables listed in Table 1 were all substantially similar, and we therefore opted for the simplest format, which was the cumulative scale of the correct mentions.
7. Each of the surveys also had several other questions which were not asked consistently and have therefore been excluded.
8. These results are similar to those found in a 1993 survey conducted by the Civic Experts' Group (1994).
9. See: http://www.dbcde.gov.au/television/pay_tv (accessed 3 July 2011).
10. Starting in Queensland in 1915 and ending with South Australia in 1941, compulsory voting was also applied to state elections. See McAllister (2011: 20ff).

11. Preliminary analyses also included urban–rural residence, as well as more detailed measures of education and birthplace, but they yielded little additional explanation and for that reason we use the more parsimonious model shown in Table 3.

12. We also conducted a pooled analysis, using interaction terms for the survey years, but decided to present single-year equations for three reasons. First, we wanted to ensure that the total pool of interactions between all of the independent variables were not biasing our results (especially important for internet-related variables which Table 1 shows have very different means over the 2001–10 period). Second, the estimates in Table 5 can only be calculated with single-year models. Third, the conclusions from the pooled analysis were substantially similar to those from the single-year models in Table 4.

13. The correlation between newspapers and political knowledge is 0.24 ($p = <.00$), but becomes statistically insignificant when the controls are added to the equation.

14. This is based on a comparison of the partial regression coefficients for internet use in Table 4.

15. The variable 'following the election on the internet' has four categories, from low to high (no access and access but did not use are combined), so the coefficient of 0.24 multiplied by four is 0.96, or just short of one full question in the battery of six questions.

16. In order to preserve the sample size we code 'low internet use' as combining 'access but did not use for election information' and 'don't have internet access'. Preliminary analyses which included these two codes as discrete variables produced similar categories, indicating that they were substantially similar in their effects. 'High use' is 'yes, many times'.

17. The difference is statistically significant at $p<.01$ or better. The gap in knowledge among high internet users between 2001 and 2010 is not statistically significant.

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