Sealing the deal -

Assessing the impact of an online voter advice application on user voting behaviour in the 2010 Dutch legislative elections.

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Voting advice application (VAA) websites are becoming a common feature of electoral campaigns in many established democracies. With estimates of numbers using such sites often running into the millions, it is substantively important that we try to find out whether and how VAA sites influence voting behaviour. This research presents the results of a natural experiment which allowed us to isolate the effects of the voting advice given to users of a prominent Dutch VAA site (Kieskompas.nl) on their vote choices in the 2010 Dutch legislative election. We seek to find out whether being advised to vote for a given party on Kieskompas.nl during the election campaign affected site users' likelihood of actually voting for that party on election day. To do so, we combine factual data on the advice received by users from the site's log files with their responses to pre-advice and post-advice survey items. We find that the effect of the voting advice received by users on their vote choice depends on the congruence of that advice with the site user's pre-existing party preferences. When the site identified a party that a user was seriously contemplating, the recommendation appears to lead to a crystallisation of support for that party, and users were more likely to vote for the recommended party. When the site recommended a party that the user was not seriously contemplating, the advice appears to have been relatively inconsequential for their voting behaviour.

1. Introduction

In this article, our topic is one of the more popular directly political applications of internet technology in established democracies – the Voter Advice Application (hereafter, VAA) website. The basic idea behind a VAA site is that a citizen answers several questions on political issues, and then receives personalised advice as to how they should vote in an upcoming election based on a comparison of their responses with the policy platforms of the main parties competing. In this article, we present new evidence and theory on the impact of such websites on the electoral behaviour of their users. Our focus here is on the question of whether and how VAA recommendations affect users' voting behaviour. This line of enquiry is key to understanding the role and relevance of VAA sites in modern election campaigns. As Bartels (2006) reminds us: 'the primary aim of participants in electoral campaigns is to produce politically significant changes in the attitudes and perceptions of perspective voters. The primary aim of scholarly observers of election campaigns is to measure and explain those politically significant changes' (p. 132). Walgrave et al. (2008) follow this logic explicitly in justifying their focus on the electoral effects of VAAs: 'Why are VAAs relevant for political scientists? The straightforward answer is that VAAs may influence the voting behaviour of citizens' (2008: 43).

Are VAA sites widely used, but seen simply as 'toys' by their users, with no heed paid to their advice? Or are they influential campaign actors issuing personalised voting recommendations which several users act on? If the former scenario is true, then perhaps VAAs can be considered as just another dimension of online politics, no more or less important than the hundreds of other websites devoted to politics. However if the latter scenario is borne out, then arguably political science and individual political scientists should be more closely engaged with VAA sites: scrutinizing their placement of parties (Krouwel...; Traschel and Mair), their selection of statements (see: Walgrave et al, 2008) and the algorithms that they use to compare voters and parties (Kleineinhuis and Krouwel, 2008).

We can only hope to address this question by looking at the observable relationship between the recommendation that users receive during the campaign when they visited the site, and their eventual voting behaviour. In doing so, however, we face the classic problem of distinguishing causation from correlation, with a particular twist. If VAA sites are expressly designed to tell users which parties are politically closest to them, and users vote in line with the advice received from a VAA site, how can we distinguish instances of the site exerting 'influence' from instances of the site correctly identifying users' actual voting intentions? We discuss the difficulties posed in examining the effects of a VAA in some detail below. However, we note here that, even when using longitudinal panel data to get a greater handle on the temporal ordering of decision making during a campaign (Walgrave et al., 2008), one cannot rely too heavily of user recall of VAA advice. As we demonstrate in our analysis, when asked to recall the party that they had been advised to vote for online, respondents who misremembered had a marked tendency to plump for the party that they eventually voted for, meaning that user recall-based survey research is likely to overestimate the actual effects of VAA sites.

In the analysis presented in this article, we examine the impact of Kieskompas.nl, a VAA site launched during the 2010 Dutch legislative election campaign, on the electoral choices made by a panel of its users. Our research design is as follows: each user of the Kieskompas.nl VAA website created a 'log file' which keeps a record of their visit, including the party that the site recommended to them as 'closest' to their political views. The recommendation appears in text on right-hand side of the site's advice screen (see Figure 1) where users are told which party they are closest to and furthest from in the political landscape. Prior to receiving this advice, users were asked to estimate the likelihood that they will ever vote for each of the main parties competing in the election, their estimates were constrained to natural numbers ranging from 0 to 10, where 0 meant 'not at all probable' and 10 means 'very probable' (11 parties were included in this question). Users' stated probabilities to vote (hereafter, PTVs) for each party were also recorded in their log files.

The site included a feature whereby users could register their email addresses for subsequent 'extra' surveys. Of the over 800,000 unique visits generated by the site, just over 8,000 users left emails and indicated permission to be contacted. Working in collaboration

with Synovate, a public opinion research company, the authors sent a post-election survey to these users, which included an item on how each user had voted, and an item asking respondents for their perceptions of the influence that visiting kieskompas.nl had on their eventual votes. The survey elicited a response rate of just over 52% of users contacted, giving an *N* of 4,257 respondents. We then merged users' responses to the post-election survey with the log files that recorded their visit to the site.

Figure 1. Advice screen of Kieskompas.nl 2010 Dutch legislative elections.

This approach puts us in a strong position to assess the causal impact of the personalised recommendations received by users on their eventual vote choice. We capture user PTV for each party the instant before they receive the vote advice, we capture an objective measure of the specific content of the advice received by each user, and, thanks to the post-election survey, we can analyse how these factors related to users' vote choices at the polls. In this article we are therefore able to analyse the relationship between the advice that users received, and their choice at the polls, holding constant their pre-advice likelihood to vote for each party.

The specific election studied here, the 2010 Dutch legislative election was highly fragmented, resulting in the smallest 'winning' party in Dutch history (the 'winner' of the election was the Liberal Party, the VVD, won just over 20% of the votes). The Netherlands in 2010 is a particularly apposite locus for a study of VAA effects, given the long history of VAA sites achieving high user volumes in the country, the considerable volatility that has characterised recent Dutch elections (Andeweg and Irwin, 2006; Van der Brug and. Pellikaan, 2003). The growing fragmentation of the Dutch electoral system, and empirical evidence of a shift from a period of considerable stability in electoral behaviour in the 1960s to a far less structured and stable modern electorate (De Graaf, 1996; Irwin & Van Holsteyn, 2008; Need, 1997; Nieuwbeerta & De Graaf, 1999; Van der Kolk, 2000) mean that a large number of voters are now choosing among a large number of parties during Dutch electoral campaigns. In such a context, where the party system features multiple, often ideologically similar parties, simplifying information is likely to be highly useful to voters. Furthermore, given their longevity in Dutch electoral politics, VAA sites are a likely to be seen as a more legitimate source of political information in the Netherlands than in countries where they are still a novelty. In short, the 2010 Dutch elections provide optimal conditions for a VAA website to be politically influential.

We present a novel theoretical argument as to the nature of the influence of VAA sites exert on their users, which is grounded in an informational conceptualisation of the interaction that takes place when a user visits a VAA site. We argue that the influence of a VAA site's advice on a given user is not a fixed property, but rather one that varies depending on the congruence of that advice with the pre-existing preferences of the user. If the site

recommends a party that the user is already seriously considering, the user appears to see this as some sort of objective confirmation that their preferred party is the 'right' one for them.

Table 1 shows that, when we asked users to characterise the effect that kieskompas.nl had on their choice the largest group, just over 30% of users, indicated that the experience of one of preference confirmation, with only a small minority stating that the site lead them to vote for a previously unconsidered party. While the second largest group, at 29%, stated that their visit had 'no effect', the fact that 71% of users did not choose that option points to a majority of users consciously who are aware of some form of VAA effect. Table 2 and figure 2 describe users' perceptions of the *strength* of the effect exerted on their voting behaviour by the voting advice that they received on Kieskopma.nl on a 0-10 scale. We can see from Figure 2 that the distribution of responses is clearly non-normal – with '0', which was the response of 35.3% of users, being the largest category in terms of frequency. Nonetheless, a clear majority of respondents estimated that the site had influenced their vote to some extent – and among users who estimated at least some effect , 5, 6, and 7 were the most common estimates of the strength of that influence.

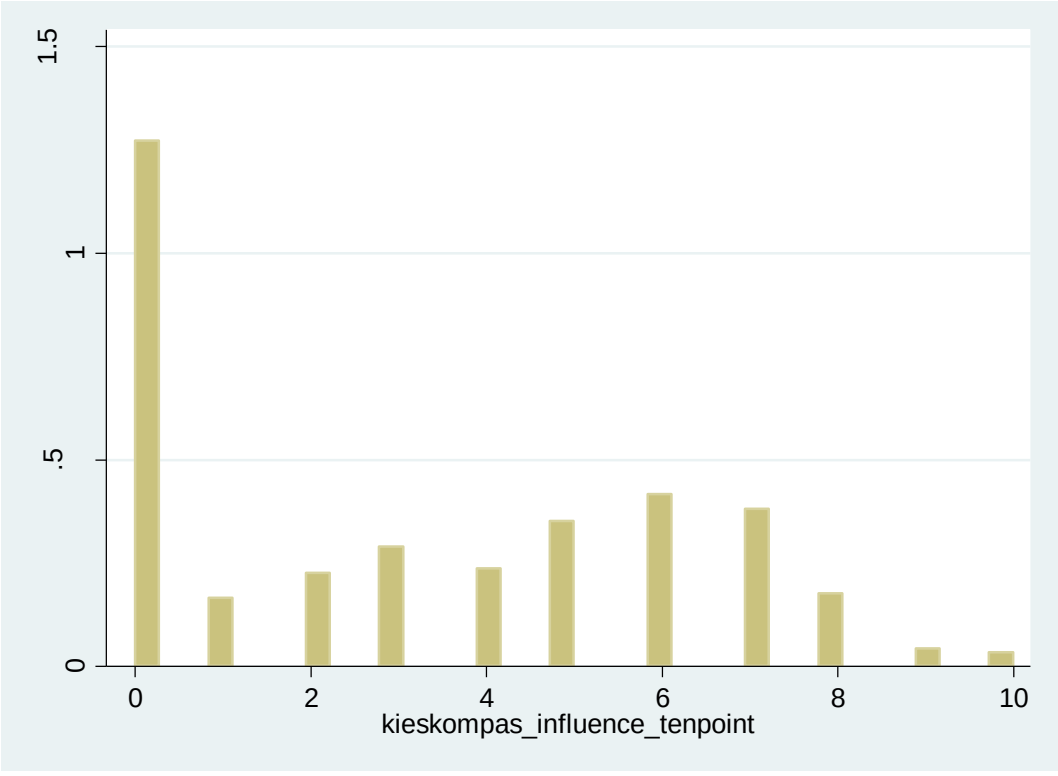
Table 1. Responses of survey group to the question: 'Which of the following best describes the influence that visiting kieskompas.nl had on your vote choice?'

Type of Influence	Frequency	Percent
Confirmed my preferences	1,249	30.1
No Effect	1,203	29.0
Showed me other options, but didn't change my mind	1,073	25.9
Helped to choose among several parties	386	9.3
Lead me to vote for a party I had not previously considered	51	1.2
Other	182	4.4
Total	4,144	100

Table 2. Responses of survey group to the question: 'How would you rate the impact of the advice received on Kieskompa.nl on your vote on a scale from 0-10, where 0 is no effect, and 10 is a very strong influence'?

Level /Strength of Influence Ascribed to Kieskompas	Frequency	Percent
0	1,473	35.37
1	192	4.61
2	262	6.29
3	336	8.07
4	274	6.58
5	407	9.77
6	483	11.6
7	441	10.59
8	205	4.92
9	51	1.22
10	40	0.96
Total	4,164	100

Figure 2. Histogram of users' evaluations of intensity of Kieskompas influence



From these graphs and tables, we can see that a majority of users estimated that their online voting advice had some effect on their vote choice, though a large portion, about 30%, estimated no effect. We can also see that, when asked, very few respondents stated that the site had lead them to vote for a party that they had not considered, while just over 30% found that the site had 'confirmed their preferences'. We argue below that this confirmation effect serves to crystallise a user's support for the recommended party, meaning that a high PTV is more likely to translate to a vote for a party when that party has been recommended to the user by a VAA. However, we also contend that when the site provides advice that is radically incongruent with the user's prior party preferences they are very unlikely to follow that advice. We provide empirical evidence to support this account in our analysis. In the next section, we provide some contextual information on the popularity of VAA sites, and outline the contours of the nascent (but growing) field of VAA research.

2. The Rise and Rise of VAA Websites

In countries where VAA sites have now featured in several elections, and have consistently generated high volumes of users, Walgrave et al. (2008) conclude that they have become 'a natural part of the campaign'(p. 43), and the Netherlands falls into this category. VAA websites were pioneered in the Netherlands[1], where an early text version appeared at the dawn of the internet age, in 1989, followed by the launch of the *Stemwizjer* (which roughly translates as, 'Vote Pointer') website in 1998. Since then, such sites have become a common feature of Dutch political campaigns (Kees and van der Kolk, 2007). While the 1998 Dutch *Stemwizjer* site generated approximately 250,000 recommendations, the 2006 version

[1] We note here that VAA sites are internationally widespread: Walgrave et al. (2008a) report that an expert survey of European political scientists revealed that such sites had featured in national elections in 18 European countries. Thus far, VAA sites have been most prominent in European elections which feature fragmented multiparty competition (Hooghe and Teepe, 2007; Walgrave et al., 2008b). There is also evidence of diffusion beyond fragmented systems, for instance the US Presidential campaign in 2008 featured an Electoral Compass VAA website, a VAA is being launched by the Canadian Broadcasting Corporation for their upcoming legislative elections, and the EU Profiler project provided a unique VAA site for all EU member states for the 2009 European election. In the Netherlands, VAA sites have also been launched in second-order and sub-national campaigns, including provincial, Senatorial, and Water Board elections.

generated 4.6 million, with a further 1.5 million recommendations generated by the *Kieskompas* (Electoral Compass) site (Walgrave et al., 2008). Ruusuvirta and Rosema's (2009) analysis of the 2006 Dutch Parliamentary Election Study (DPES)[2] reveals that these figures corresponded to massive VAA usage by the Dutch population – they report that 38% of voters in the DPES survey sample recalled visiting a VAA site during the campaign.

Political scientists have recently started to investigate how such applications function[3], what sort of advice they produce, and what sort of people visit them[4] (Hooghe and Teepe, 2007; Liebhart and Wassermair 2003; Jeitziner and Fivaz 2005; Fivaz and Schwarz 2007; Walgrave et al, 2009; Wall et al., 2009). A 'second wave' of investigations of VAAs have sought to go beyond describing the functioning of the sites and the demographic makeup of users (Fivaz et al., 2010). Instead, second wave studies have investigated VAAs by asking at the same fundamental questions of them that political scientists have asked of previous campaign innovations: how to they relate to the realisation of democracy writ large? What are their effects on voting behaviour?

[2] Precise user figures are often difficult to estimate for countries that do not include an item measuring VAA usage in their election surveys. Site log files only record the number of unique vote recommendations generated, and a single user can generate multiple advices. However, those figures that are available support the contention that VAA sites are often widely consumed by national populations. In Finland and Belgium, VAA sites have been centrepieces of popular television broadcasts which invite users at home to participate (Walgrave et al., 2008). In Germany, the Wahl-O-Mat VAA site generated over 5 million vote recommendations in the 2005 German general election (Marschall and Schmidt, 2010). In Switzerland, the *Smartvote* site generated a million recommendations for the 2007 election (Ladner et al., 2010).

[3] These investigations have cast some doubt over the accuracy of VAA sites' predictions regarding how users should vote, which tend to diverge dramatically from national electoral outcomes (Walgrave et al., 2009; Wall et al., 2009) as well as demonstrating that the aggregate recommendations issued by VAA sites are sensitive to the selection of 'issue statements' that users are compared to parties over (Walgrave et al., 2009).

[4] In terms of user demographics, analyses have consistently shown that VAA users are more male, more urban, and more educated than national populations as a whole (Hooghe and Teepe, 2007; Ruusuvirta and Rosema, 2010; Wall et al., 2009). However, there are indications that the gap between VAA users and the rest of the population is narrowing over time, as internet net use becomes more diffused in the population, and VAA use becomes part of the 'normal' campaign (Fivaz and Schwartz, 2007).

Several studies investigating the effects of VAAs on their users have employed post-election surveys of users of VAAs (sometimes as part of larger surveys which also include non-users), where VAA users provided their own subjective evaluations of whether their choice was influenced (Carlson and Strandburg, 2005; Kees and van der Kolk, 2007; Ladner *et* al., 2010; Marschall, 2005; Marschall and Schmidt, 2010; Walgrave et al., 2008). These surveys have varied dramatically in their estimates of the importance attributed by users to VAA sites. Estimates of percentages of users who feel that their eventual decision was influenced by their visit to a VAA vary from a low of 6% (Marschall, 2005) to a high of 67% (Lander et al, 2010). A lack of standardisation in the field to date means that specific questions used to elicit estimates of site influence vary across studies, which may help to explain some of the disparity of findings.

However, post-election surveys, either of representative samples of the population or of non-representative samples of site users, provide little leverage over the impact of a single campaign event on voting patterns, which is why specific designs, such as survey panels and rolling cross-sections (Bartels, 2006; Brady and Johnston, 2006) have been employed by researchers interested in campaign dynamics. More generally, subjective evaluations of the extent to which an event or recommendation was influential after the fact, while informative, are regrettably not totally reliable sources of information as to the actual influence that the event actually had[5].

Several researchers have sought to elide these problems by using panel surveys to compare the behaviour of users to non-users of VAAs in terms of 'switching' their first preference vote choice during the campaign (Ladner et al., 2010; Ruusuvirta and Rosema; 2010; Walgrave et al., 2008). These studies have generated mixed findings. Walgrave et al.'s (2008) study found little support for the contention that VAA users were any more likely to switch vote intentions than non-users during the campaign, while Ladner et al. (2010) and Ruusuvirta and Rosema (2009) both point to VAA users being significantly more likely to

[5] The agenda-setting, priming and framing literatures in communication studies, for instance, focus on methods of influencing political behaviour that rarely register in the consciousness of message recipients (Scheufle and Tweksbury, 2008).

switch than non-users. Ruusuvirta and Rosema's analysis is particularly insightful, they find that the content of the advice (confirming or discomfirming existing preferences) has to be considered in investigating VAA affects, and they found that those who reported receiving preference-discomfirming advice when they used a VAA were nearly 3 times more likely to switch vote intention during the campaign than those who received preference-confirming advice.

However, researchers seeking to extrapolate an estimate of the effects of VAA sites on voting behaviour using such data face several difficulties. The first is a problem of causal endogeneity. By their very nature, VAA sites tend to attract high numbers of unaligned or wavering voters looking for voting advice (Ladner et al., 2010). Analyses of whether users of VAA sites exhibit higher volatility than non-users may therefore tell us more about the type of audiences that VAAs attract than about the effects that VAAs may be said to exert *per se*. Similarly, if a user receives disconfirming advice this may be because changes in either the user's opinions or the party's position mean that there are objective reasons why that user may decide to switch parties. Again, it is difficult to distinguish instances of a VAA site exerting an influence from those where the site identifies a change in preferences that has already taken place (Ruusuvirta and Rosema, 2009).

Furthermore, a VAA site is not a mass mediated 'campaign event' in the typical sense of the phrase, where the output is identical across consumers; rather it is personalised to the user. According to the site's design, the informational output of the site (*i.e.*, the 'vote advice') differs for each user; indeed the promise of a unique, tailored output that takes users' opinions into account is key to the site's appeal. As such, even when researchers incorporate panel designs into their studies of VAA users, the dichotomous variable: 'used/didn't use a VAA' is a rather clumsy proxy for each user's unique experience.

This is not a problem that can be resolved by building a more individualised survey item asking users to recall the specifics of the advice that they received (as is done in the 2006 and 2010 Dutch Parliamentary elections studies). Our approach allowed us to compare

user's recall of the vote advice that they received with objective data from their log files. We found that 53.8%[6] of users recalled receiving advice that was different from the advice recorded in their logfiles. Respondents who did not recall the advice recorded in their logfiles were more likely to 'guess' a party that they voted for than any other party. Of the incorrect recalls, 34.5% of users stated that they had been advised to vote for the party that they had voted for in the election. We cannot say whether this is due to a sub-conscious effort to reduce cognitive dissonance, some sort of desirability bias, or some other process. However, this observed tendency means that using respondent recall to measure VAA advice risks inflating estimates of the extent to which VAA users 'followed' the advice that they received. Consequently, such an approach may lead to significant overstatements of the causal importance attributed to VAA site advice.

VAA researchers thus face significant problems in estimating the electoral effects of VAA use. We argue that the approach that we develop here overcomes several of the problems of causal attribution that previous research has struggled with. The external validity of our study is open to discussion, and we cannot reliably extrapolate from our findings to estimate the importance of VAA sites over a population – a problem that we return to in our conclusions. Nonetheless, we would argue that the approach advanced here represents a significant step forward in the study of the electoral effects of VAA sites, providing greater insight than previous studies into the casual process that connects the act of receiving 'virtual' voting advice online to actual voting behaviour. In the next section, we discuss the theoretical arguments that underlie the contention that visiting a VAA site, as a unique 'campaign event', one where the user receives campaign information in the form of a personalised voting recommendation, may affect users' voting behaviour.

[6] It is possible, of course that the users visited the site before or after the visit where they left their email address (i.e. the visit for which their log file was recorded). This may mean that our user 'error' figures are slightly inflated. Nonetheless, absent any other evidence, the proclivity of users to 'recall' their advice being the party for whom they voted when their visit records indicate that this was not the case, poses a significant methodological problem for user recall-based VAA studies.

3. Theorising on the effects of VAA sites

Schmitt-Beck and Farrell (2009) argue that VAA sites are instances of a broader trend in the postmodern campaigning environment: the growing presence of non-party actors, who participate in and often shape electoral campaigns, without themselves running for office. VAA 'campaigns', however, are radically different from many others in that they produce voting advice that varies from individual to individual, rather than consistently supporting any one party, and they claim that each advice is specifically tailored to the individual's policy preferences. As such, VAA sites are represent a uniquely personalised and directed source of political *information* during the campaign. Walgrave et *al.* (2008) argue that the potential for VAAs to influence people's electoral behaviour lies precisely in their informative effect. They argue that a major function of VAAs is to substantially reduce the cognitive cost needed for a voter to engage in informed issue voting, in terms of time spent gathering and considering information on parties' policy positions and comparing these to their own preferences. This is particularly the case in highly fragmented, multidimensional party systems such as the Netherlands. Walgrave et al. conclude that 'the fact that VAAs seem to be popular, especially in countries with a large and fragmented, and thus complicated, party system, indicates that information is key' (p.43).

There is an extensive literature exploring the broad question of whether political campaigns can be said to 'matter' in the sense of changing the vote intentions of large numbers of citizens (see Farrell and Schmidt-Beck, 2002 for a comprehensive discussion) and the role of political information plays a large part in that debate. Since political campaigns are periods of intense interaction between political elites and citizens over matters of public policy (Manin, 1997; Jerit, 2004; Kriesi, 2008), they provide voters with a significant opportunity to gather information about parties and candidates, and provide parties and candidates with incentives to make such information available. Several studies have concluded that campaigns to serve some informative purpose, with citizens typically better-informed about candidates and their policy stances after the campaign than they were before (Alvarez, 1998; Conover and Feldman, 1989; Dalager, 1996; Franklin, 1991; Holbrook, 1999; Marcus, 1982; Jacobson and Fournier, 2006). A growing list of studies demonstrates that media

consumption can affect turnout, party support, candidate choice, and political attitudes toward issues during a campaign (Norris, 2000; De Vreese and Semetko, 2002, 2004; Peter, 2004; De Vreese and Boomgarden, 2006a, 2006b; Maier and Rittberger, 2008; Gerber, Karlan and Bergan, 2009).

However, the classic counter-argument to the contention that campaign information can change voters' preferences is that people do not simply uncritically absorb political information in an undifferentiated manner. Rather, a rich tradition in public opinion going back to the work of Berelson, Lazarfield, and McFee (1954) and Campbell, Converse, Miller, and Stokes (1960) has argued that political information is filtered according to each individual's partisan predispositions, and that individuals tend to receive and absorb information that is congruent with their predispositions more frequently and readily than they absorb incongruent information (see also: Zaller, 1992). Bartels (1993) argues that exposure to information in the media only occasionally produces strong and unidirectional opinion changes. Accordingly, 'the apparent effects of the media exposure will often be modest in magnitude, not because the media cannot be persuasive but because opinions at the beginning of a typical campaign are already strongly held and because media messages during the course of a campaign are, in any case, only occasionally inconsistent with those pre-existing opinions' (p.275). Lupia and McCubbins (1997: 40) similarly note that voters face a choice among many competing cues when making political decisions. When such cues provide conflicting advice, it is the voter herself who must decide which information to accept.

A large body of work in social psychology conceptualises persuasion attempts as instances that create what's known as an 'approach avoidance conflict' for the target of the persuasive information (see Forgas and Williams, 2001, for a comprehensive review). Individuals who receive a persuasive message must decide how to react, and are subject to both approach forces (the persuasive claims underlying the information received) as well as avoidance forces. Avoidance forces arise when individuals feel that the persuasive message restricts their freedom in some way – particularly when they feel that they are being persuaded to make a choice that they would not have freely chosen. Lewin (1951) argued that behaviour

under persuasive influence can be thought of in terms of a 'quasi-stationary equilibrium' where the relative balance of approach and avoidance forces experienced by that individual can explain their decision to accept or reject a persuasive message. Knowles, Butler and Linn (2001) contend that one of the most effective strategies for improving the persuasive power of a message is to simply directly reduce the resistance-generating content of the information – messages that are close to prior beliefs are more easy to sell than messages that challenge the prior beliefs of their targets.

Certainly, we would be surprised if VAA users uncritically accepted the advice given to them online by an automated algorithm, if that advice runs radically contrary to their political predispositions. Zaller's (1992) Resistance Axiom, the insights of social psychology, and, indeed, common sense would lead us to anticipate that users will resist integrating highly incongruent information into their political considerations far more than they will resist information that chimes with their existing preferences. As such, we consider it unlikely that users will vote for a party that they had previously completely ruled out just because of the advice of a VAA site. But what about those who 'follow' the online advice of a VAA when it is congruent with their prior preferences? Can we really say that the site influenced their decision when it appears to have simply confirmed what they themselves stated that they were already thinking?

In order to investigate influence in this sense, we have to move away from a universal effects conceptualisation of VAA sites' political influence and instead adopt a conditional effects approach. We demonstrate empirically that user's with high PTVs for a given party during the campaign were more likely to go on to vote for that party when it had been recommended to them by Kieskompas.nl. Or, from another point of view, it seems that the effect of getting a recommendation from a VAA is to firm up one's inclination to vote for the recommended party, *when one is already seriously contemplating voting for that party*. Borrowing from D'Alessio's (1997) discussion of candidate website effects, we designate this impact as one of 'crystallisation' rather than alteration of existing preferences. As such, we argue that the impact of the information received by users on VAA sites is largely confirmatory, rather than persuasive. Nonetheless, this confirmatory effect is important, as

a recommendation does lead to a appreciable boost in the likelihood that a VAA user will vote for the recommended party, provided that party is a credible option of the user.

4. Analysis

In this section, we investigate whether the advice received by users when visiting Kieskompas.nl exerted an influence on their eventual voting behaviour in the 2010 Dutch legislative elections. A logical starting point is to look at how many respondents voted for the party that Kieskomps.nl recommended to them. In the discussion that follows, for the sake of simplicity, we adopt a reductive nomenclature. Those respondents who reported voting for the party that Kieskompas.nl recommended to them are described as 'followers' . The term 'non followers' designates respondents who voted for any party other than the one recommended to them. Among all survey respondents, 26.3% were followers. The obvious implication is that 73.7% were non followers, and so advice 'following' was not a majority phenomenon among the users surveyed.

Of course, raw numbers of followers versus non followers in the group tell us little about whether the site exercised any discernible influence of user vote choice. After all, the site is designed to show users how closely their policy preferences align with those of the parties competing in the election, and a huge volume of work in political science generally (spanning back to Downs, 1957) tells us that policy closeness is a major driver of vote choice. We therefore cannot say that 26.3% of the respondents 'followed' the advice that they received online. Taken in isolation, these figures could simply mean that the site correctly identified the vote intentions of 26.3% of its users on the basis of their policy positions.

The crucial element for understanding the nature of the influence exerted by the Kieskompas.nl VAA site on its users lies the interplay between users' pre-existing preferences and the advice that the site generated. A simple cross tabulation, provided in Table 3, tells much of the story that we develop in more detail in this analysis. In table 3, we

give the percentages of 'followers' and 'non-followers' of kieskompas advice in two groups. The columns divide respondents according to the relationship between the advice given and each user's pre-advice political preferences, separating those who received 'congruent' voting advice (i.e. advice to vote for a party to whom they a given a PTV of 8,9, or 10) from those who did not.

Table 3 shows that people were far more likely to 'follow' the advice issued to them when the recommended party was one that they were strongly considering voting for anyway. When we compared respondents' reported voting behaviour to the vote advice recorded in their Kieskompas.nl log file, only 6% followed the site's advice when they had estimated their likelihood of ever voting for that party (PTV) at 7 or lower on a 0-10 scale. However, among those users who received advice that was congruent with their pre-existing preferences, 59.4% 'followed' that advice, and 40.6% did not. These figures tell us quite emphatically that the advice issued by the site did not persuade many users to vote for parties that they had not considered prior to their visit. Thus, we can say that the Kieskompas.nl did not radically alter the partisan preferences of a significant number or its users.

Table 3. Was VAA advice 'followed'? Congruent versus non-congruent advice.

Did the respondent vote for the party recommended by kieskompas.nl?	**Did the respondent rate their likelihood to vote for the advised party at 8, 9 or 10?**		
	No	Yes	Total
No	94% (2,479)	40.6% (657)	73.7% (3,136)
Yes	6% (159)	59.4% (962)	26.3% (1,121)
Total	100% (2,638)	100% (1,619)	100% (4,257)

In order to further probe the effects of Kieskompas.nl on users' voting behaviour we investigate the relationships between three variables: 'Vote', 'PTV', and 'Advice' for all 4,153 users who provide data on these variables over the 11 parties considered (users who did not vote are thus dropped from this analysis). The structure of our data[7] in this analysis means that we represent these variables as 45,683 observations, where each observation is a user-party relationships (i.e., 4,153 respondents multiplied by 11 evaluated parties). 'Vote' is the dependent variable, it is dichotomous and is coded '1' when a respondent reporting voting for a party, and '0' when they did not. 'PTV' is the respondent's self-reported likelihood to vote for each party, as indicated during their visit to the Kieskompas.nl site (we note again here that site users indicated their PTVs *before* the site issued its vote advice). 'Advice' is a dichotomous variable that is coded '1' when kieskompas.nl recommended a vote for a party and '0' when it did not.

The empirical implication of our conditional effects argument is that a high PTV for a given party should be more likely to translate into a vote for that part when Kieskmpoas.nl recommends that party to the user. And this is precisely what we see in the data.

In table 4, we describe the relationship between PTV and Vote for all users. For each PTV value given by a user to a party during the campaign, table 4 describes how often that party was then voted for by the respondent. We can therefore measure the proportion of respondents who went on to vote for the evaluated party at each value of PTV. We call this proportion the 'conversion rate'. We can see in table 4 that very few respondents gave their votes to parties to whom they had given a PTV of 0-5 when visiting Kieskompas.nl during the campaign. Indeed, rather than indicating a 50% likelihood of voting for a party, a PTV of 5 corresponds to just a 3.5% observed likelihood of voting for that party. The relationship between PTV and observed voting likelihood jumps steeply after the '5' mark, and on average, 71.8% of those who gave a party a '10'[8] when visiting Kieskompas.nl went on to vote for that party.

[7] For this part of our analysis, the dataset has been 'stacked' on these three variables. This means that we restructure the dataset so that each user-party relationship of interest is considered as an observation in its own right, occupying a row in the data structure. With 11 parties being considered, each individual respondent is therefore represented as 11 'observations' in the data. The advantage of this approach is that it allows us to consider the relationships between variables such as 'advice', 'PTV' and 'vote' across all parties in a single analysis, rather than having to analyse each relationship over all 11 parties. In the conventional 'wide' dataset structure, which we used to produce tables 1 and 2, structure, each respondent is considered as a single observation, denoted by their occupation of a single row in the dataset with separate columns capturing the relationship between that respondent and each party.

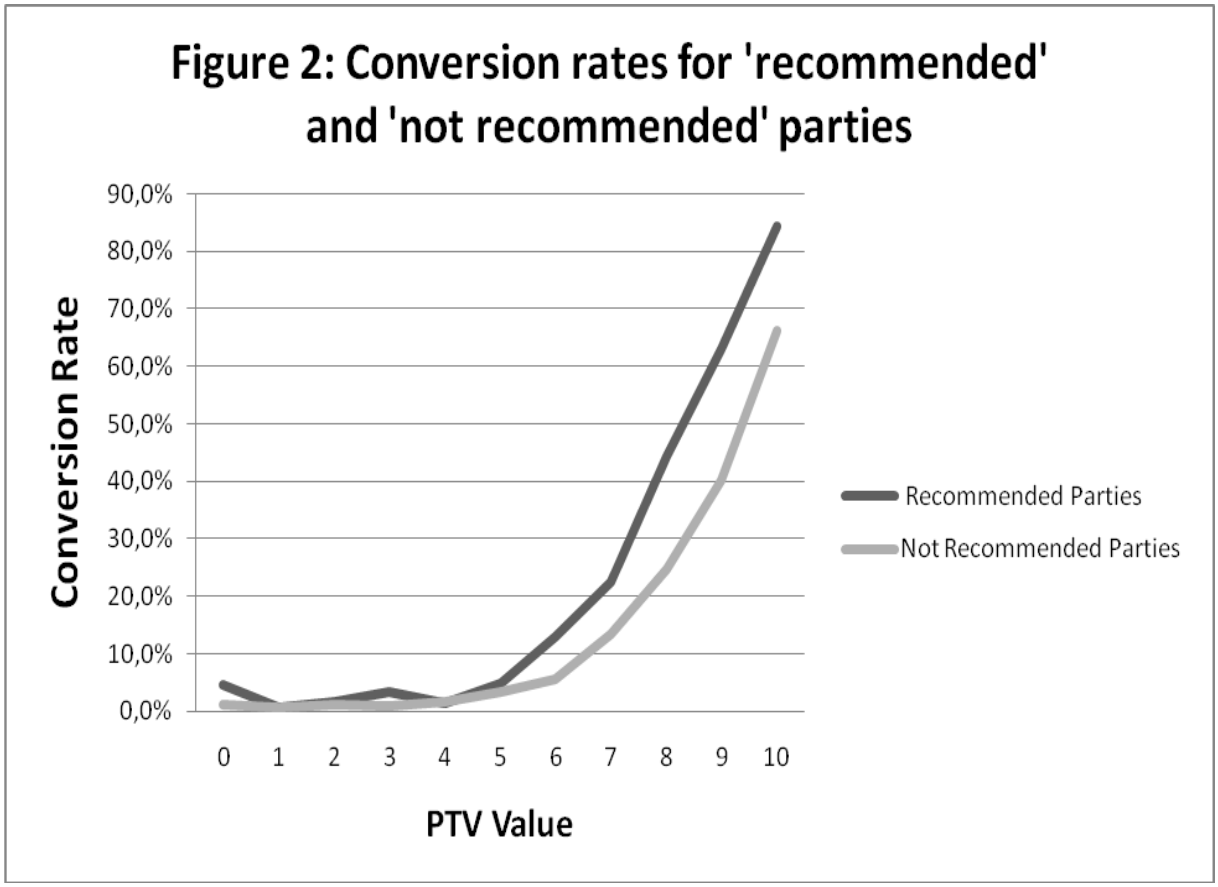
[8] Note that multiple 10s for the same user are is not logically impossible, as the question seeks to probe one's likelihood of *ever* voting for each party. Also, quite a large number, 231, voted for parties that they rated as '0'.

Table 5 displays the conversion rates when we divide the dataset into two groups. The first group comprises only those user-party combinations where the party has been recommended to the user by Kieskompas.nl. The second group comprises all user-party combinations where parties were not recommended. As each respondent received only one recommendation, for every user there was one user-party combination where the party was recommended and 10 where the party was not recommended. Therefore, we compare the 4,153 'recommended' user-party combinations to the 41,530 'non recommended' combinations. The rows labelled '*N*' under each set of conversion rates provide the number of user-party combinations that fell into each category.

Figure 2 maps out the results presented in table 5 and illustrates the nature of the effect exercised by a VAA recommendation on the relationship between electoral predisposition and electoral behaviour. We can see that a high PTV for a given party was considerably more likely to translate into a vote for that party when it was recommended by Kieskompas.nl to the user than when it was not. When a party was recommended, 84.3% of users (463 out of 549 voter-party combinations) who gave that party a PTV of '10' went on to vote for that party, this figure drops to 66.1% (814 out of 1,231 combinations) when the party was not recommended. This pattern continues for PTVs of 9,8,7, and 6. However, we can see that with or without a recommendation, respondents were very unlikely to vote for a party that received a PTV of 5 or lower. This finding that accords with our 'conditional effects' characterisation of the effects of a VAA on user vote behaviour. We can see that VAA users are rarely 'converted' by getting a recommendation online, but it appears that a congruent recommendation can help to 'seal the deal'.

TABLES 4 AND 5 ABOUT HERE

However, when viewed as a portion of the total number of user-party combinations where the PTV was 0, this is very much a minority grouping: less than 2% some of which may be attributable to user error when filling out the pre or post advice survey.



An alternative analytical approach involves employing a logistic regression model (using robust standard errors) to estimate that likelihood that a user will vote for a party, given certain values of 'PTV' and 'Advice'. A logistic regression of 'PTV' and 'Advice' on 'Vote' in the stacked dataset results in the output presented in Table 6. This simple model does not purport to predict all voting behaviour of respondents, however it does allow us to investigate that impact of the 'Advice' variable while holding pre-advice PTV constant. Using the CLARIFY software package developed by Gary King (cit) we can use this regression output to extrapolate meaningful shifts in likelihood to vote for a given party at specified values of PTV and Advice. Table 6 shows that the independent effect of 'Advice' is positive at statistically significant when PTV is controlled for, and the CLARIFY output shows that the scale of the difference is of a similar magnitude to the estimates that we derived by tabulating the data. We can see from the confidence intervals that there these differences are statistically significant at all levels of PTV, but that they are much greater for high levels of PTV. It appears that when Kieskompas.nl recommended a party to which a user gave a PTV of 6 or over, they were 15-20% more likely to vote for that party than they would have been without the recommendation. Overall, all of the empirical evidence that we have gathered and analysed indicates that getting a vote advice online for a party did make our survey respondents more likely to vote for the recommended party – provided that they had been giving it serious consideration as a voting option before the advice.

Table 6. Logistic Regression of PTV and Advice on Vote – Point estimates and confidence intervals at all values of PTV and Advice derived using CLARIFY

Dependent variable: 'Vote'	
Variable	**Coefficient**
PTV	.598*
	(.011)
Advice	.899*
	(.046)
Pseudo-R^2	.36
N	45,683
*p <.01	

Point estimates and 95% confidence intervals for 'Vote' likelihoods derived from this regression using CLARIFY

PTV	**Recommended**	**Not Recommended**
0	.007	.002
	(.006-.008)	(.002 - .003)
1	.013	.005
	(.011 – .015)	(.004 - .006)
2	.023	.009
	(.020 - .026)	(.008 - .011)
3	.041	.017
	(.036 -.046)	(.015 - .019)
4	.072	.030
	(.064 - .080)	(.028-.032)
5	.123	.054
	(.112 - .135)	(.051 - .057)
6	.203	.093
	(.188-.219)	(.089 - .098)
7	.317	.159
	(.298-.334)	(.153-.164)
8	.457	.255
	(.437-477)	(.246 - .264)
9	.605	.384
	(.583-.624)	(.371 – 397)
10	.736	.531
	(.716-.753)	(.514 - .548)

5. Conclusions

An important theme in studies of online media and politics is the acceleration of the rate of technological change that has occurred in the 20th and early 21st century, relative to previous eras (Norris, 2001). This can be difficult to countenance for political science academics, as we typically require relatively long periods of stability and repetition in political life in order to build up orderly models explaining political outcomes and behaviour. However, with the advent of online technologies facilitating the rapid publication and dissemination of user-created-content and sub-technologies, constancy is rapidly disappearing. As mobile internet access levels grow, individuals are in near-constant contact with the online world, and many spend more time from day-to-day dealing with people through the internet than face-to-face. The political implications of these changes have been slow to emerge. A commonsensical position would dictate that the internet is a communications tool – and its affects will depend on the uses to which it is put. In this article, we have looked at the effects of a very specific and compelling aspect of online politics: VAA websites.

It is worth bearing in mind that the type of human-computer interaction that VAA websites provide was, literally, the stuff of science fiction only decades ago. In *The Franchise* (1955), Isaac Asimov imagined how American elections might proceed in 2008. The story centres on the interaction that takes place between Norman Muller and the computer 'Multivac'. Muller is a US citizen, while Mulitvac is an enormous, self-adjusting, self-generating super computer with hardware sprawling for miles and miles under the earth's surface. Muller must shoulder the heavy burden of being the single citizen who is deemed by Multivac to be 'representative' of the American population. Based solely on the opinions that it elicits from Muller, Multivac will project the results of the national election – which then stand in their entirety. Wracked with nervousness in the face of this enormous responsibility, Muller is taken to an interface with Multivac in a hospital ward, where he is quizzed for three hours on various issues, including the price of eggs, while his verbal responses (as well as unconscious signs of emotion indicated by voice analysis) are recorded and analysed by Multivac. The story ends with Norman feeling tired and rather confused, but nonetheless

proud of his participation in the democratic process, as he and his family wait at home for Multivac to announce the election results.

While the most apparent theme of *The Franchise* is the *reductio ad absurdum* scenario of an entire election being based on projections derived from a single 'representative' voter, it also interesting to note that Multivac never directly asks Muller for his opinion on the candidates or parties running. The computer imputes logical political preferences from Muller's opinions on various, often mundane, issues. Thus a deeper theme of the story is the extent to which humans may someday be prepared to abdicate political authority to computers. Amazingly, we are currently living in a world where this theme is relevant, and, indeed, researchable.

It is worth inserting a few caveats about our findings at this point. Firstly, and most obviously, the survey analysed in this article does not benefit from the statistical and analytical advantages of being based on a randomised selection of site users. In order to maximize the number of participants, the option of signing up for future surveys and leaving an email address was made open to all users. In the event, 8,125 site users left viable emails and gave permission to be contacted post election, and just over 50% if these users completed our questionnaire. The site log file generated over 800,000 unique visits, so we estimate that this self-selecting sample represents between 0.5% and 1% of the population of site users. The limitations of our data make it impossible to extrapolate from our findings to the Dutch electorate as a whole with confidence, and we will therefore not attempt to do so here.

We hope, however, that this research has clarified that there is evidence for a causal effect of VAA sites on their users, by controlling for users' pre-advice self-estimated likelihood to vote for each party in our analysis. Secondly, and more impotently, we have described the *nature* of the effects that this particular VAA ad on this particular sample of its users. Ultimately, the findings are relatively straightforward – it appears that people do listen to

the advice that they receive online, but that they do not blindly follow the recommendations of VAA sites. Rather, being advised by a VAA to vote for a party which one was already seriously considering appears to crystallise that pre-existing preference, making it considerably more likely that the site user will go on to 'seal the deal' and vote for the recommended party. Incongruent advice appears to be, for the most part, disregarded by site users. So, while citizens are taking note of the advice that they receive online, they do not follow it blindly. We may be much closer to the age of Multivac now than when Asimov penned *The Franchise*, but we have not yet arrived at a point where citizens let the computers make their decisions.

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