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Voting Advice Applications

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INTRODUCTION

In the context of elections the Internet opens up new and promising possibilities for parties and candidates wanting to present themselves and their political programme, to organise the election campaign, to gather funds, to mobilise support and to enter into a direct dialogue with the electorate. Of particular importance are the so-called Voting Advice Applications (VAAs) that have proliferated all over the world. VAAs are web applications that offer help in deciding how to vote in elections by comparing the preferences of parties or candidates with respect to different political issues with the preferences of the specific voters and indicate those parties or candidates who are politically close. Nowadays, one or several VAAs are on offer at practically all national elections in Europe and they are used by millions of voters. VAAs are found to not only affect the way people vote but also influences people in their decision to go to the polls. As such, these online applications and their widespread use are highly relevant since they exert an impact on election outcomes. Once viewed as simple tools, they have meanwhile become respected campaign features. With these developments, VAAs are increasingly scrutinized, facing challenges both in terms of their design and their management. In this contribution we present both the establishment and the functioning of VAAs and discuss their advantages and disadvantages in a domain of life where the infiltration of modern information technologies is highly debated.

BACKGROUND

What are Voting Advice Applications?

Voting Advice Applications (VAAs) are web-based applications which provide information about parties or candidates running in elections. They help voters to find out which party or candidate they should vote for. In order to do so they match the voters' political preferences to those of parties and candidates running in elections. The matching procedure is generally based on the logic of proximity voting (Downs, 1957), which views the voting act as a selection of those representatives that are closest to one's own political standpoints. Political issue positions are thus at the core of every VAA. The notion of policy congruence usually builds the foundation of representative democracies, where public interests are represented through a body of elected officials towards a common good (Powell, 2000). Hence, a close connection between the policy positions of voters and those of representatives is seen as a detrimental attribute for representative democracies to function properly (Powell, 2004). VAAs aim at converting this democratic ideal into a real-world application that helps voters to figure out which parties or candidates share their political preferences in a cognitively easy and accessible way.

VAAs have so far mostly been designed by political scientists and are open-access tools for the public at large. Anyone who is interested in matching one's political issue position with those of the electoral offer can use a VAA and receives a voting recommendation from it, presented in a ranking-list of best-matching parties and/or candidates.

How Do They Function?

The issue-matching module is common to all VAAs that are operating nowadays in election campaigns worldwide (Garzia & Marschall, 2012; Ladner & Fivaz, 2012). The matching function and the specific designs of VAAs, however, differ substantially among different providers (Ladner & Fivaz, 2012). Before elaborating on the peculiarities of different VAAs across Europe, we first outline the commonalities of all VAAs.

A voter interested in using a VAA prior to casting her vote can go to the specific VAA website, choose an election of interest and fill in the questionnaire or catalogue of issues that has been created by the designers of the application for that particular election context. The questionnaires consist of statements or questions related to the current political discourse or political values in general to which the user can indicate her preferences, usually on a set of up to five answer options. The amount of questions or statements usually ranges from 30 to about 75, and the user can generally choose how many of these she wants to answer. The same set of questions is answered from the side of the electoral offer. Either parties or politicians themselves fill in the identical questionnaire on the website or experts place parties on the various positions based on party manifestos or media content. These questionnaires and their respective answers then serve as the baseline for the matching procedure. Based on a specified algorithm, the computer calculates the overlap of issue positions between the voter and the electoral offer on the questionnaire, identifying the most suitable vote options for a specific user in terms of policy congruence. The result is then presented in a ranking-list to the user, with the best matching party or candidate on top of the list, followed by a decreasing order of available matches. Besides the ranking order of most VAA outputs, further visualization options are usually available. Users can view their own political position vis-à-vis the electoral offer in a one- or multi-dimensional space, often marked by the political left-right or the liberal-conservative distinction. Furthermore, so called spider web graphs are often available that present various political positions along several pre-defined policy fields and allow for comparing one's own political profile with that of selected parties or candidates. All of these features have

the same purpose in common: to visualize an abstract political landscape in a simple-to-understand manner, to reveal those political options that best match one's own values and interests and to allow for systematic comparisons between vote alternatives. Such concise access to political information in election campaigns is unprecedented and offers up new opportunities to voters to learn about their choices (Lau & Redlawsk, 2006).

Although the core of most VAAs is the same, variations in the design of the application exist (cf. Ladner & Fivaz, 2012). A first distinct feature is the scaling of the answer options in the questionnaire. Some VAAs simply allow for "Yes" or "No" answers, others expand this by allowing for neutral answers ("no answer" or "don't know"), while others allow for a more fine grained scaling that includes "agree," "somehow agree," "neutral," "somehow disagree" and "disagree." Moreover, some VAAs allow for weighing certain questions in order to indicate their importance to the voter. Such distinctions are relevant for the matching procedure since more answer options also allow for more complex matching procedures. As already outlined before, VAAs also differ in how the position of parties or candidates is identified. Either parties or candidates position themselves on the various issues or an expert team does so through analyzing respective election programs of parties. The methods used for calculating the policy congruence also differ substantially between VAAs. While some use Euclidian distance to find the closest match, others use the City Block model. These two distinct mathematical formulas for calculating distances between objects of interest (see Louwerse & Rosema, 2011) as it has been shown, affect the results of the matching procedure and therefore the voting recommendation of the VAA. VAA designs are currently under intense scientific scrutiny, especially in terms of the matching algorithms they employ (Gemenis, 2012). Last but not least, the presentation of results varies between VAAs, with various different procedures for how to visualize several issue positions in a reduced form. VAAs are increasingly used in election campaigns worldwide, thus their design and methodology deserve closer attention, especially because the outputs they produce seem to affect those who use them.

Where are They Used and Who Uses Them?

The first VAA that has ever been used was the Dutch Stemwijzer, developed in printing form in 1989. By 1994, a first computer version was available, and several thousand disks were sold. A first online version was introduced in the forefront of the 1998 Dutch parliamentary elections and used 6'500 times. By 2006, the web application produced 4.8 million voting recommendations during the elections (de Graaf, 2010). The Dutch Parliamentary Election Studies (2006-2012) estimates that as of today about 40 per cent of the Dutch electorate consults the VAA Stemwijzer before casting a vote. Around the same time, a VAA had also been produced in Finland, with several more to come in the years following up to the 2007 Finish elections. The most popular one attracted over a million users in that particular election (Ruusuvirta, 2010, pp. 47–49). Most operating VAAs today haven been established after 2000, with over 40 online applications available throughout Europe today. Garzia and Marschall (2012, p. 205) found that with the exception of two EU countries (Malta and Slovenia), every member state has at least one VAA that can be used during elections. One of the major VAAs in Europe in terms of user size is the German 'Wahl-O-Mat', launched in 2002 and with 6.7 million visits at the Bundestag elections in 2009, resulting in approximately 12 per cent of eligible voters using the VAA prior to casting their vote (Marschall & Schmidt, 2010). In Belgium, VAAs are not only on the Internet but also on television. The so called 'Do the Vote Test' application was introduced in 2003 and produced more than a million voting recommendations in the elections in 2007, reaching almost one out of four Flemish voters (Nuytemans, Walgrave, & Deschouwer, 2010). In Switzerland, the application smartvote emerged in the political landscape in the forefront of the elections in 2003, producing 255'000 voting recommendations in its first year, with 1.2 million voting recommendations in the last elections in 2011 (Ladner & Fivaz, 2012).

Although numbers and figures differ between countries, the popularity of VAAs has continuously been on the rise. Subsequently, researchers have started to wonder what kind of people use VAAs and whether they differ systematically from those who do not use them. Most findings from survey research point in the same direction: the typical VAA user is male, young, well-educated and politically interested (Alvarez, Levin, Trechsel, & Vassil, 2012; Fivaz & Nadig, 2010; Ladner, Felder, & Fivaz, 2010; Marschall & Schmidt, 2010; Vassil, 2012). With their increasing popularity, however, there are signs that they attract a more balanced public.

EMPIRICAL FINDINGS ON THEIR EFFECTS

With VAA users ranging in the millions nowadays, scientific research on their impacts on voters has started to accumulate over the last decade. Of central interest was and is whether these applications might get people to be more interested in politics, might attract them to go to the polls and if it might change their voting behavior. Surveys conducted over consecutive elections among VAA users in various countries have generally revealed that a large share of study participants view VAAs as an important source of information (Ladner et al., 2010; Ruusuvirta & Rosema, 2009), stimulating a large share of them to further discuss politics or policy issues among friends and family (Ladner & Pianzola, 2010; Marschall & Schmidt, 2010). Generally, most participants state that the VAA has strengthened their political interest and even improved their political knowledge (Garzia, 2010). Besides the information value of VAAs, a substantial part of users also report that the application has motivated them to participate in the elections. In Germany, every tenth Wahl-O-Mat survey participant declared that they cast a vote in the election because of the VAA (Marschall, 2005; Marschall & Schmidt, 2010). In Switzerland, almost 40% of survey participants said that the application made them participate in the election (Ladner & Pianzola, 2010). Fivaz and Nadig (2010) calculate a 5% increase in voter turnout for the Swiss elections while Ruusuvirta and Rosema (2009) find an approximately 3% increase in voter turnout in the Dutch 2006 election due to VAAs. A VAA operating on the supranational level, the EU-Profiler, seems to have increased participation rates for the European Parliament elections of 2009 by about 14 percentage points (Dinas, Trechsel, & Vassil, in press). Although the increase in participation rates varies among countries, a positive effect of VAA use on voter turnout has become evident. Especially in times of decreasing turnout in many countries this effect is warmly welcomed.

Besides effect on participation rates, evidence is accumulating that VAAs directly affect the way people cast their votes. All across countries where VAAs are scientifically analyzed, users report that the voting recommendation that they received from the VAA subsequently influenced the choices they made on the ballot. In the Netherlands, about 10% of users reported that they adjusted their electoral decision because of the voting recommendation they received from the application (Kleinnijenhuis & van Hoof, 2008). In Germany, 6% of participants indicated that they changed their vote choice to another party (Marschall, 2005), while 3% did so in Finland (Mykkänen & Moring, 2006). In Switzerland, a substantive amount of participants stated that the voting recommendation affected their voting behavior. Around 70% of survey participants indicated that the voting recommendation influenced their decisions on the ballot, with most of them voting for different candidates because of the ranking list that they received from the VAA. A smaller but still substantial part of users indicated that they changed their party choice as a consequence of the VAA output (Ladner et al., 2010; Ladner & Fivaz, 2012; Ladner, Fivaz, & Pianzola, 2010, Ladner, Fivaz, & Pianzola, 2012).

CHALLENGES IN FINDING THOSE EFFECTS AND RECENT DEVELOPMENTS

Until recently, findings on VAA effects have exclusively relied on observational studies, mostly employing user surveys to report about the impacts of the web application on voters. Such procedures are problematic because most of the samples from which results were derived consisted of self-selected study participants. Self-selection is a problematic feature of survey research because it can severely bias the results obtained from it. If people who are enthusiastic about these web applications are more likely to participate in surveys on them, the resulting sample easily consists of those VAA users who report stronger effects of the application on their decisions compared to those who have not participated in the sample. Hence, we conclude strong and positive effects of VAAs on voters from a sample of strongly influenced users (Pianzola & Ladner, 2011).

Contrary to the electorate as a whole, we currently do not know the entire population of VAA users, making it impossible to draw a random sample from the entire population of VAA users. Without such a randomly selected sample, general inferences about VAA users from self-selected survey samples cannot be made. Thus, as a next step, researchers have set out to compare VAA users with non-users in order to draw conclusions about their effects. Here again, a simple comparison between these two groups might not be sufficient for making claims about VAA effects because people again self-select themselves into VAA use. This explicit decision to use a VAA as an information source prior to casting a vote might systematically distinguish voters who use these web applications from non-users. If these specific differences not only distinguish non-users from users but also directly affect the electoral decisions of voters, then these characteristics have to be accounted for in the comparison, otherwise results obtained from such samples on VAA effects are once more biased. For example, if people with high political interests and strong civic duty attitudes are more likely to use VAAs and these characteristics in turn also make them more likely to participate in the elections, not including these two aspects in the comparison will severely distort the measured effect of the VAA on voter turnout. As long as all relevant characteristics that might both affect VAA use and the voting behavior of interest are taken into account, group comparisons will reveal adequate results. However, if unobserved differences exist, which is likely, then simple group comparisons do not suffice for scientifically claiming an effect of the VAA on voters' decision making.

There are currently two ways around these problems. Either these self-selection mechanisms and the subsequent potential for unobserved heterogeneity are accounted for in the analysis or experimental research designs are used for analyzing VAA effects. In the first case, observational data can be analyzed by employing selection models (Heckman, 1978, Heckman, 1979; Maddala, 1983), where the decision to become a VAA user or a study participant is incorporated into the analysis. Recent studies on VAA effects that accounted for potential selection mechanisms found that it is necessary to check for unobserved heterogeneity before making group comparisons (Pianzola, 2013b; Pianzola & Ladner, 2011; Vassil, 2011). In some in-

stances, effect sizes change, but have remained positive in all accounts so far. As a new development in the research field, experimental designs have been used in the last two years to expand on the findings from observational studies. The advantage of experiments is that VAA use can be randomly assigned to participants, and should thus prevent issues of self-selection. Vassil (2012) has conducted an experiment in Estonia during the 2009 European parliament elections, assigning half of his study sample to the usage of the European VAA EU-Profiler, while the other half was not encouraged to make use of the application. Causal effects of VAA use on political preferences, vote choice and voter turnout are found, but only for specific subgroups of the sample. In the context of EU elections, it seems that particularly the young and less educated are prone to being influenced by the VAA in their voting behavior. In a similar vein, Pianzola et al. (2012) conducted an experiment during the 2011 Swiss federal elections, also encouraging half of the study sample to use the Swiss VAA smartvote prior to casting a vote while the other half was not contacted before the elections. Since the VAA smartvote, compared to the EU-Profiler, is very well known in its election context, a large share of study participants in the control group used the VAA prior to voting although they were not specifically assigned to it. As such, the experimental analysis is faced with non-compliance, changing the results that can be obtained from it. For compliers of the experiment, the results indicated that the VAA smartvote significantly changed the party preferences of voters and gave them more confidence in their final vote choice. Moreover, due to the VAA voters rearranged their party preferences in a way that they newly considered several different parties as eligible vote options, making them more prone to electoral competition and subsequently vote choice. For the 2013 Italian elections, Garzia and Trechsel (2013) employed, for the first time, an experimental design on a representative sample of the Italian electorate. In collaboration with the Italian National Election Study (ITANES), a random sample of the electorate received an invitation to use a VAA which was specifically designed for the experiment. With this design, results are not only representative for the electorate but also ensures that no-one in the control group is able to make use of the VAA as well. Preliminary results from the study indicate that receiving the treatment, using the VAA, had a significant effect on voter turnout. In other words, because of the VAA, people decided to go to the polls.

It is especially those recent developments in scientific inquiry into VAAs that strengthen the confidence that these web applications are not only used by an increasing number of voters but that they also affect whether they vote, how they vote and how they perceive the electoral offer (Pianzola, 2013a).

IMPLICATIONS FOR THE DEMOCRATIC PROCESS

Given that VAAs affect the decisions voters make at elections, they eventually impact upon the election outcome. If substantial shares of voters give their vote to other parties and candidates than in previous elections, normative questions arise. Should a computer algorithm be the foundation for a vote choice? Does it make sense for voters to vote for parties or candidates that share their view points? What does it say about the foundation of people's vote decisions if a web application can influence their choice? Can VAAs adequately capture the complexity of the political landscape and serve as a reliable information source? These aspects are highly debated among VAA researchers, with some attesting these web applications an added value to election environment where most voters are overstrained by the complexity and amount of choices before them, while others feel that VAA recommendations pose a severe threat to the quality of electoral decision making. Again, objective criteria are lacking, with viewpoints depending on what kind of model of democracy people envision.

For most VAA designers, the objective was to transfer the ideal of policy congruence between voters and their representatives into reality. Policy congruence lies at the heart of the normative framework of representative democracy, emphasizing a close connection between voters' policy preferences and those of representatives in order for representative democracy to function properly (Powell, 2004). Given the circumstances of low attentiveness to politics and a general lack of political interest and knowledge among the average voter across the globe (Caplan, 2007; Dalton, 2006; Delli Carpini & Keeter, 1996), empirical evidence suggests that a substantial share of voters do not vote in accordance with their political preferences and change their minds as soon as they become more informed about the electoral offer (Althaus, 2003; Lau & Redlawsk, 2006). Hence, the opportunity to systematically match ones policy preferences to those

of parties and candidates is unprecedented and opens up new opportunities for voters to orient themselves in the complexities of the electoral context.

QUESTIONS ABOUT THEIR QUALITY AND RELIABILITY

Given the overall consistent evidence of an impact of VAAs on voters, the quality of these web applications has increasingly been scrutinized. If a substantial amount of voters base their electoral decision on an online application that matches voters to parties based on a computer algorithm, then that specific algorithm and its conversions deserve closer attention. As various studies of VAA methodologies have concluded, the specific design of the tool matters (Garzia & Marschall, 2012, p. 212). One of the major discussions among VAA builders centers on the matching algorithm employed in the various VAAs. Analyses by Louwerse and Rosema (2011) as well as Kleinnijenhuis and Krowel (2008) show that the way in which the proximity between voters and parties is calculated can change the ranking list of recommended parties. In other words, the specification of the matching algorithm can lead to variation in the VAA outputs. Furthermore, both the selection of statements used for matching and their phrasing seem to play a crucial role. In studying specific selections of statements, Walgrave et al. (2009) could show that the combination of statements used on the VAA matters for the party advice. Depending on which kinds of statements are presented on the VAA, some parties might have an advantageous role on the VAA. As Gemenis (2012) suggests, the phrasing of statements and the scales used to rate them might further impact upon the nature of the voting recommendation received.

Hence, the design of VAAs naturally defines its output, with various components that need to be carefully considered while composing these applications. However, there are no objective criteria for deciding whether one VAA design or methodology outperforms another. Simply because the essence of VAAs - visualizing political competition and the abstract concept of political space - is not something that can be clearly defined. What VAAs do is provide voters with a new form of political information, one that is easily accessible, comparable and useful for casting votes. In how far and to what extent users want to incorporate that

information in their decision making, is, ultimately, still up to them.

FUTURE RESEARCH DIRECTIONS

The developments over the last decade have shown, VAAs are here to stay. Not only in Western Europe and North America, but all over the world have these applications become available to voters prior to (mostly) national elections. An even bigger popularity and importance of VAAs might result from the development of e-voting systems based on the Internet. In countries like Estonia, Norway and Switzerland, citizens have the possibility to vote electronically or there are at least some first trials with e-voting going on. Especially for electoral systems where voters can choose among a high number of parties and candidates and where they have the possibility to hand in a very personalized ballot list (open list systems) like in Switzerland, VAAs are not only helpful for the selelction of the candidates to vote for, but also for the composition of the voting list and they could become the starting point for the transmission of the vote choice to the polls. After having selected the required number of candidates from different parties with the aid of the issue matching algorithm of the VAA, the voters might want to send this selection to the voting station either in the form of a printed document or perhaps even more directly via a secured mode through the Internet. This could boost the use of VAAs in an unforeseeable manner not without severe consequence for elections, parties and the functioning of democracy.

CONCLUSION

In the last decade, VAAs have proliferated in election campaigns worldwide. An ever increasing number of voters turn to VAAs before casting their ballots, using the web application as an integral part of their decision-making. Scientific research into the usage of VAAs and their impact on voters has intensified over the last several years, providing deeper insight into both the characteristics of VAA users, their intentions and how the application affects their political behavior. At the beginning, it seemed that it was mainly the young, the well-educated and men who turned to VAAs in

elections. Nowadays it seems that the characteristics of users are not that distinct anymore from the regular voting populace – mainly caused through the increased popularity of VAAs among voters. Empirical findings suggest that a large portion of users look for guidance in using the application in order to orient themselves in the rather complex election settings. The information gain through VAAs seems not only to be helpful to voters in terms of orientation but also in terms of decision-making. Large shares of users indicate that they reconsidered previous party and candidate choices after using a VAA, attesting a transformative effect of the web application on their political choices. In tracing such trends, both observational and experimental analyses have confirmed such a decisive impact of VAAs on voters. Significant shares of voters change their political preferences or even their vote choice after consulting a VAA prior to filling out the electoral ballot. Furthermore, VAA use also seems to incline people to turn out more, thus mobilizes citizens to cast a vote.

Although VAA research has advanced severely in the last few years, there is still much to uncover about these new features in election campaigns. Empirical evidence exists for a causal effect of VAAs on voting preferences and behavior, yet the exact mechanism behind this still has to be explored. Questions about how exactly voters use the voting recommendations produced by VAAs for their decision-making and which aspects of the VAA are decisive for reconsidering previously held beliefs have yet to be tackled. Instead of relying on retrospective questioning, a new way towards answering more in-depth aspects of VAA use and impact could be realized through conducting laboratory experiments, preferably among representative groups of voters.

With VAAs affecting voters in their political thinking and choices, quality aspects of these applications will increasingly be scrutinized. The design of VAAs and the matching algorithms employed, as well as the visualization options within these applications will thus increasingly be subjected to scientific inquiry. The difficulty of objectively defining the quality of an application that tries to mirror the complexities of the political landscape will likely continue to be highly debated, not only among scientists but also among politicians and the public at large. With the spread of e-voting opportunities, the significance of VAAs in election campaigns will only gain in importance.

If citizens can one day electronically send the voting recommendation of a VAA to the ballot box, then such applications will not only change the electoral process but also its campaigns.

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KEY TERMS AND DEFINITIONS

Voting Advice Applications: Web applications where voters can match their policy preferences to those of parties or candidates running in elections. The user receives a customized voting recommendation based on policy congruence.