The Impact of Voting Advice Applications on Electoral Behavior –

The Case of the 2009 German Federal Election


Panel: Voting Advice Applications (VAAs) under Scrutiny – Assessing their Impact on Elections

Abstract:

Besides party identification and candidate perception, issue-orientation is viewed as a major explanatory factor for the voting decision in electoral theory, most prominently in the “Michigan Model”. VAAs provide an instrument to address the issue-orientation of voters by offering a comparison of voters’ positions on relevant issues with those of different parties or candidates in an efficiently short time, finally indicating which parties or candidates are closest to their political opinions taken the single policy positions together. By reducing information costs, VAAs might motivate citizens to vote and eventually to change their voting decision based on the result generated by the tool. The question dealt with in this paper is whether playing or not playing the widely used German VAA Wahl-O-Mat had an effect on voter turnout and electoral choice at the 2009 German Federal Election, independent of the socio-demographic characteristics and political attitudes of the VAA users. In order to answer this question, we draw (for the first time) on an online-generated dataset provided by the German Longitudinal Election Study at the 2009 German Federal Election which is representative for the German online community. The data allows us to compare VAA users and non-users in terms of their socio-demographic background and their political attitudes. Having applied a binary logistic regression model we have found that, controlled for the relevant variables, playing the Wahl-O-Mat indeed did have a significant positive effect on the decision to go to the ballot boxes but did not have a significant impact on the decision to vote for a specific party.

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1. Introduction

In the election campaigns of the last decade, the Internet has emerged as a salient platform for political marketing. Candidates and parties running for elections use the web and its applications to promote their positions, to organize their campaigns, to collect donations and to mobilize supporters (Chadwick & Howard 2009; Schweitzer & Albrecht 2011).

In addition to party-based online communication, non-party actors such as media companies, universities and citizen education initiatives have started to offer Internet applications designed to give voters information and orientation for upcoming elections (Farrell & Schmitt-Beck 2008). The growing online activities of parties as well as of non-party organizations are based on the assumption that political online communication has a significant impact on the quantity and quality of political behavior – even if the share of political online communication is small compared to the total amount of online activities (Emmer 2005).

Studies on the effects of online communication arrive at different results concerning the question whether something like a “net effect” can be identified. According to the normalization thesis, only those who are already politically active use the internet for political purposes (Chadwick 2006). Thus new information technologies foster the status quo of the disparity in offline political participation and do not have a genuine online effect on voter turnout and electoral choice. This assumption has been supported by empirical evidence: Studying the US Presidential Election in 2004, Drew and Weaver (2006) found that when controlled for demographic variables and traditional media effects, the perception of Internet news had no significant influence on the intention to participate in this election. Johnson and Kaye (2003) show that the political use of the Internet has no effects on the voting participation or on the concrete voting decision at the US Presidential Election in 2000. Observing the German Federal Election 2005, Schmitt-Beck and Mackenrodt (2009) even identified a negative influence: The intention to go to the election decreased significantly between the panel waves within the group of respondents who intensively consumed political online content.

On the other hand, the mobilization thesis suggests that the online communication can politically mobilize persons who are difficult to reach and rarely active beyond the Internet (Gibson et al. 2005). Tolbert and McNeal (2003) illustrate that such a mobilization effect of
the Internet remains stable even if controlled for the socio-economic status and the use of traditional media and that it exerts influence on the willingness to go to the polls. Emmer and Vowe (2004) found that for many political activities, the existence of online access is irrelevant, but that a significant share of their sample more often participated politically after having been equipped with an Internet connection.

Apart from different specifications, both the normalization thesis as well as the mobilization thesis assume that online communication has a measurable impact on political behavior, i.e. that there are significant “media effects” of Internet applications (Lin 2009). However, empirical research answers the question of whether and how online communication affects voting behavior differently, depending on the respective group of users. Alternatively and additionally, the impact could be scrutinized separately for single Internet applications and their specific effects (see e.g. Hirzalla et al. 2011).

Such a “supply-oriented” perspective will be applied in the following when the paper focuses on the effects of a special type of web applications which have mushroomed within the last years: “Voting Advice Applications” (VAAs). VAAs are tools which compare the policy positions of voters with those of the parties or candidates running for election (for an overview see Cedroni & Garzia 2010). Voters are asked to mark their positions concerning a list of policy proposals. At the end the VAA compares the answer patterns of the single user with the patterns of the parties/candidates indicating which party or candidate has the least distance or the highest degree of proximity to the user playing the tool with reference to the selection of policy issues.

The German version of a VAA – the “Wahl-O-Mat” (“Elect-O-Mat”) – is produced by the Federal Agency for Civic Education (“Bundeszentrale für politische Bildung”), a governmental agency connected to the Ministry of the Interior. A Wahl-O-Mat was offered for the first time at the Federal Election of 2002. Since its first implementation, the German VAA was launched for the Federal Elections in 2005 and 2009, for the European Elections in 2004 and 2009 as well as for a considerable number of elections on the state (“Länder”) level (see e.g. Marschall 2011). Even in its first run in 2002 the tool was played 3.6 million times. Since then we can observe a steady increase in the demand for this application: Before the most recent Federal Election in 2009 the tool was used 6.7 million times, reaching a remarkable share of the German electorate.1

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1 See the information in the Wahl-O-Mat archives on www.wahlomat.de.
Voting Advice Applications have also been established in other countries as well (Cedroni 2010). One of the oldest and most successful tools is the Dutch “Stemwijzer”. When it was applied for the Tweede-Kamer Election in 2006, about 40 percent of the electorate used the VAA (De Graaf 2010, p. 26). For the European Elections in 2009, the “EU-Profiler” project of the European University Institute in Florence produced versions of a VAA for all 27 countries of the EU as well as for Croatia, Turkey, and Switzerland and therefore contributed to the spread of this type of application throughout Europe (Ladner et al. 2010; Trechsel & Mair 2009).

In the meantime, the success of VAAs has attracted the attention of social science research: Within the last years, Voting Advice Applications have become the object of research projects, conferences and publications, especially with the focus on their effects on political behavior (for an overview see Garzia 2010). However, many research questions still have not yet been addressed – or if so, then only insufficiently.

The spread and the high demand of VAAs in many countries raise the question whether these tools could have an impact on voters and elections. Do VAAs affect the voting behavior of those who use these tools, and if yes in which direction? Does playing a Voting Advice Application have consequences for the willingness to participate in elections? Does the usage of a VAA change the users’ decision to vote for a specific party?

In this paper, these questions should be answered by focusing on the German case in question and drawing on data from the “German Longitudinal Election Study” (GLES)² generated before the Federal Election in 2009. The GLES dataset allows for a systematic comparison between Internet users who played the Wahl-O-Mat and those who did not use or know the tool. By referring to these groups, the dataset makes it possible to identify “VAA effects” which might give an insight into the conditions under which political online communication can affect individual voting behavior.

The first chapter of this paper presents the state of the debate on voting behavior and how it could be linked to the VAA success story and also discusses already existing literature on the effects of Voting Advice Applications. We then present findings of a multivariate analysis of the GLES dataset on the effects of the Wahl-O-Mat at the German Federal Election in 2009. On the basis of this statistical analysis we can infer whether and how using the Wahl-O-Mat had an impact on voter turnout and voting decision for a concrete party by identifying VAA

² For more information on GLES see Schmitt-Beck et al. 2010.
effects controlled for relevant third variables. In the concluding chapter we discuss the findings referring to the general debate on the effects of online communication on electoral behavior and to the controversy between the normalization and mobilization theses.

2. Changes in Electoral Behavior and VAAs

Possible VAA effects are rooted in a changing electoral behavior which can be sketched by referring on the dominating approach to explain voting decisions: the Michigan Model with its triad party identification, issue orientation and candidate perception (Campbell 1960). The salient concept of party identification within this model has led to an abundance of international comparative longitudinal research on the development and stability of party attachments within Western democracies (for an overview see Dalton 2008, p. 170–192). Out of 19 industrialized countries, 17 show a decrease in the number of voters with party identification in the course of time (Dalton 2004) and all of them show a decrease in the strength of party attachments – a phenomenon which has been labeled as “dealignment” (Dalton & Wattenberg 2000).

On the one hand, the implications of the dealignment process on voting behavior have been contested in the literature time and again (Keith et al. 1992; Green et al. 2002). On the other hand, scholars argue vehemently that dealignment is indeed a continuous and significant trend within Western democracies (Clarke & Stewart 1998; Fiorina 2002; Webb 2002), questioning the centrality of the factor party identification within the Michigan Model. For Germany, the identification with a party still serves as an important predictor for the voting decision (Arzheimer & Schoen 2005).

In any case, the shrinkage of party identification should give more relevance to the candidate and issue orientation within the voting decision (Dalton & Bürklin 2003, p. 72). Studying the German case in question, empirical analyses show no clear evidence for the thesis of a general and steady personalization of the election campaigns and thereby for the increased effectuality of candidate orientation. Instead, the significance of this factor varies strongly from election to election (Schmitt-Beck 2011, p. 219). In contrast, the issue orientation had a remarkable

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3 The Michigan Model can be located between sociological (Lazarsfeld et al. 1944) and rational-choice approaches (Downs 1957). Within this model, short-term factors such as the candidate and issue orientation play a crucial role as well as the long-term factor party identification which is considered to be socialized, stable and hard to chance. Party identification serves as a predictor for the voting decision as well as a filter which biases the perception of candidates and issues (Schoen & Weins 2005).
impact on the voting decision at the Federal Election 2009 – in the light of the economic and financial crisis and almost indiscernible candidates for the chancellorship (Rudi 2011, p. 189).

Issues can only give orientation for the voting behavior if they are perceivable, considered as being salient and if they can be linked to parties and their positions. For the individual voter the process of collecting and processing information is a time-consuming and complex endeavor (Johann 2009). Among political online applications, VAAs are especially suitable for helping the voters in their decision making. Because of the tools’ functionality VAAs can reduce the costs for collecting and processing information and on the basis of an optimized cost-benefit analysis they can increase the probability of participating in elections (Garzia 2010, p. 19). VAAs address the issue orientation of voters because they put policy questions to the vote and calculate the issue-based proximity between the voters and the parties. VAAs reduce the information costs for the users and can point to the policy differences between the parties, which could in turn lead to higher voter participation (Faas 2010). In fact, the organizations which create and host the tools want VAAs to affect the electoral behavior: Most of the tools are part of civic education projects which are supposed to inform and mobilize voters to participate in elections.

Research on VAAs provides evidence that indeed these tools seem to have this desired impact. Studies which gauge the mobilization capacity of VAAs vary in whether they try to measure the probability of mobilization, the share of the mobilized, the mobilization effect compared to the total electorate, or the explaining power of the normalization or mobilization theses for different subgroups. Mykkänen and Moring (2006) found out that using a VAA before the Finnish Election in 2003 increased the probability of going to the election by about 20 percent. Marschall and Schmidt (2010) identified this mobilizing capacity in their study on the German VAA at the European Elections of 2009, too: ten percent of the users said that the Wahl-O-Mat made them to go to the election although they did not plan to do so before playing the tool. In the case of the Wahl-O-Mat which was launched before the Federal Election in 2009, the value was 7.1 percent (Marschall 2011, p. 44). Ladner and Pianzola (2010) found that in the Swiss Election in 2007, about 15 percent using “smartvote” were stimulated to go to the election. Boogers estimated the number of those who were motivated to participate in the Dutch Election in 2006 by using the Stemwijzer at eleven percent. As well on the basis of the Dutch National Election Study 2006, Hirzalla et al. (2011) found evidence for the normalization thesis in the group of voters older than 25 years as well as mobilization effects with persons of 25 years of age and younger.
Concerning the impact of VAAs on electoral choice, initial findings have been issued focusing on the question whether and how the voters are influenced by the result displayed by the VAAs and whether the displayed result makes the users change their decision to vote for a concrete party. Pianzola (2011) for example showed that the use of the Swiss VAA smartvote for the 2007 Swiss Federal Election had an effect on ballot modification for those with high political knowledge. For the Belgian VAA “Do the vote test”, Nuytemans et al. (2010) found that at regional elections in Belgium 2009, more than three percent of the voters choose a party, since it was indicated by the VAA. About six percent of voters using the German Wahl-O-Mat 2005 indicated that they might reconsider their original intention to vote for a party on the basis of the result indicated by the Wahl-O-Mat (Marschall 2005, p. 45). In contrast, for the Finnish VAA (Mykkänen & Moring 2006), for the Dutch Stemwijzer (Boogers 2006) and for the Swiss smartvote (Ladner et al. 2010) the numbers ranged at a remarkable level of ten percent.

These significant differences might be based on the respective political context in which the VAAs were applied. The effects of the VAAs could depend on the respective election and party system; in majority voting systems with only a few parties having a realistic chance to get seats in parliament, the need for orientation and the respective VAA factor should be lower than in political systems with many such parties (see also Wall et al. 2009, p. 205).

The differences between the studies could also be explained by the fact that the empirical VAA research did not follow a common standard and that some of the methodological decisions are debatable. In many of the studies the data which serve as a basis for the research on VAAs and their effects on electoral behavior were collected right after the tools were played. Either the users were actively (pop-up/layer window) invited to participate in a survey or a clickable button on the result screen lead to the online survey. Both online procedures to recruit a sample for a survey suffer from limitations in terms of the representativeness of the respondents (see e.g. Maurer & Jandura 2009; Schnell et al. 2008, p. 377–386; Taddicken 2007; Zerback et al. 2009), unless the representativeness is controlled for or reconstructed on the basis of selected variables (Marschall & Schmidt 2010).

Furthermore in many studies, subjectively alleged effects of the tool are inquired right after the tools have been used. In these cases, we are faced with highly speculative and predictive statements about future behavior made under the pending impression of having played a VAA. Walgrave et al. (2008) controlled for whether these statements on future behavior right after playing the tool corresponded with the factual voting behavior and found out that only
one third of those who claimed within exit surveys to change their voting intention did in fact do so (see also Kleinnijenhuis & van Hoof 2008).

Finally, exit surveys do not allow us to generate control groups of people who have not played a VAA, which could be statistically helpful to identify genuine VAA effects (see e.g. Nuytemans et al. 2010). Thus there are good reasons to control the validity of the existing findings on the effects of VAA on electoral behavior by means of an alternative methodological approach.

To sum it up: Despite methodological shortcomings there is strong evidence that VAA exert a positive influence on the intention to go to elections as well as there are initial findings that using the tool has an impact on electoral choice. The assumption of genuine VAA effects is supported by the observed general changes in voting behavior as the usage of VAA could be the result of an increased issue orientation. Within our model which is in line with prevailing impact analyses of these tools, VAA usage is the independent variable, electoral behavior is the dependent variable. Referring to the empirical findings and the theoretical debates we expect to find clear evidence for mobilizing effects of the Wahl-O-Mat by drawing on the GLES dataset generated for the German Federal Election 2009. As some empirical findings indicate that the usage of VAA can affect the concrete decision for a party (see e.g. Pianzola 2011; Ramonaite 2010; Walgraave et al. 2008) this potential effect is analyzed as well.

3. Empirical Analysis

3.1 Data and Groups for Comparison

For the analysis of potential VAA effects we focus on the individual level and draw on data of a GLES pre-election study which contains several questions concerning the use of the Wahl-O-Mat. The study, conducted shortly before the 2009 German Federal Election (18th to 26th of September), was realized as an online survey. About 65,000 active members of the Respondi online access panel constitute the total population. The majority of the panel members had been recruited online via opinion sites, on-site surveys and search engines, a smaller share offline via telephone. The sample for the online survey (n = 1,153) was realized as a quota sample taking into account gender, education and age. The dataset also included an

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4 Even studies relying on a data basis which would have allowed for the comparison between users and non-users have not yet applied this approach (see e.g. Mykkänen & Moring 2006).
5 The official title of this study is: “GLES 1006 – Komponente X/8 – Online-Tracking 6: Wahlkampf”.
adjustment variable for the entire online population in Germany at age 18 and older (basis of reference: Onliner-Atlas 2008).  

Due to the quota sample, the data can be qualified as representative for the German online population and therefore offers some advantages compared to datasets used in a number of other VAA research projects: First of all, the recruitment of the online panel guarantees an adequate and proportional representation of those groups which are normally hard to reach with online surveys (e.g. elder people or persons with low education) – a degree of representativeness which self-selection methods are not able to guarantee (see e.g. Walgrave et al. 2006, p. 5; Wall et al. 2011). Another advantage of the dataset is that it allows us to create control groups for comparison. Thus, from a methodological point of view, our study takes up again VAA research which is based on representative samples (Mykkänen & Moring 2006; Nuytemans et al. 2010; Pianzola 2011; Ruusuvirta & Rosema 2009).

On the basis of variable t6_006 (“Did you use the Wahl-O-Mat?”) we have created three selective, non-overlapping groups: 1) people who are aware of the Wahl-O-Mat and have used it (“users”); 2) people who know the Wahl-O-Mat but have not played the tool (“aware non-users”), and finally, 3) people who have not heard about the Wahl-O-Mat and therefore did not play it either (“unaware non-users”). The creation of these groups allows the calculation of VAA effects on voter turnout and voting decision for the group of the “users” compared to the two other groups – a strategy that has not been pursued so far.

The frequencies of variable t6_006 (weighted for online representativeness) clearly show the prominence of the German VAA: Of the 1,146 persons who answered the item, 38.2 percent used the Wahl-O-Mat and 44.8 percent had at least heard about it. Only 16.3 percent answered that they do not know the German VAA. Referring to a survey representative for the whole Dutch electorate, Ruusuvirta und Rosema (2009, p. 12) report similar figures for the Dutch parliamentary election in 2006: 61 percent of the respondents who are entitled to vote know the Dutch VAA Stemwijzer and 38 percent of this group played the tool.

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6 For methodological details of the sampling procedure and weighting see the methodological report which can be downloaded along with the dataset under the following link: http://www.gesis.org/dienstleistungen/forschungsdatenzentren/fdz-wahlen/gles/daten/.
3.2 Socio-demographic Characteristics and Political Attitudes in Comparison

The empirical findings of recent VAA studies indicate that the socio-demographic characteristics and political attitudes of VAA users clearly differ from the entire population but also from the online population. The typical VAA user is characterized as male, young, well-educated and interested in politics (De Rosa 2010; Ladner & Pianzola 2010; Marschall & Schmidt 2010; Marschall 2011; Mykkänen & Moring 2006; Wall et al. 2009).

For the German case these characteristics have been so far empirically established only by referring to exit surveys. We therefore re-checked these findings for our three groups with the online representative GLES dataset. Variables which play a significant role within the bivariate relationship will be controlled for in the later analysis of voter turnout and voting decision. Additionally, we use the variable “satisfaction with democracy” as a control variable, because a number of studies show that a higher degree of satisfaction significantly affects the voter turnout in a positive direction (see e.g. Westle & Niedermayer 2009; Steinbrecher & Rattinger 2011).

Table 1 shows the bivariate relationship between the socio-demographic and political attitude variables (IV) and the use of the Wahl-O-Mat (DV). The findings indicate that the independent variables have a low to moderate influence on the use of the German VAA. Among the female respondents, the percentage of those who do not know the Wahl-O-Mat is nearly twice as high as among the male respondents. More than 50 percent of Wahl-O-Mat-users have a high formal educational attainment and only 6.5 percent of the well-educated belong to the group of the “unaware non-users”. However, the share of the “aware non-users” is relatively high in each education category. For the variable “satisfaction with democracy”, the results are similar. While this variable has the weakest effect on playing the VAA, political interest exerts a stronger influence on the use of the tool. Only 8.8 percent of the respondents who are strongly or very strongly interested in politics do not know the Wahl-O-Mat. Age has the strongest impact on playing the web application: In the group 18 to 24 years of age, 66.8 percent use the Wahl-O-Mat, whereas only 8.2 percent do not know the VAA at all. In contrast, only 19.5 percent of the respondents age 60 and older played the Wahl-O-Mat.
Table 1: Relationship between the use of the Wahl-O-Mat and socio-demographic characteristics and political attitudes (row percents)

<table>
<thead>
<tr>
<th></th>
<th>users in % (N)</th>
<th>aware non-users in % (N)</th>
<th>unaware non-users in % (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>total</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>gender</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>42.7 (263)</td>
<td>45.3 (279)</td>
<td>12.0 (74)</td>
</tr>
<tr>
<td>female</td>
<td>33.6 (178)</td>
<td>44.9 (238)</td>
<td>21.5 (114)</td>
</tr>
<tr>
<td><strong>Cramers V</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>education</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>low</td>
<td>25.4 (90)</td>
<td>51.1 (181)</td>
<td>23.4 (83)</td>
</tr>
<tr>
<td>medium</td>
<td>34.9 (158)</td>
<td>46.6 (211)</td>
<td>18.5 (84)</td>
</tr>
<tr>
<td>high</td>
<td>55.2 (171)</td>
<td>38.4 (119)</td>
<td>6.5 (20)</td>
</tr>
<tr>
<td><strong>Cramers V</strong></td>
<td>0.138**</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>satisfaction with democracy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>quite to very unsatisfied</td>
<td>31.7 (85)</td>
<td>47.4 (127)</td>
<td>20.9 (56)</td>
</tr>
<tr>
<td>partly satisfied and unsatisfied</td>
<td>36.6 (189)</td>
<td>46.0 (238)</td>
<td>17.4 (90)</td>
</tr>
<tr>
<td>quite to very satisfied</td>
<td>45.9 (163)</td>
<td>42.5 (151)</td>
<td>11.5 (41)</td>
</tr>
<tr>
<td><strong>Cramers V</strong></td>
<td>0.185**</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>political interest</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>none or weak</td>
<td>21.2 (42)</td>
<td>45.5 (90)</td>
<td>33.3 (66)</td>
</tr>
<tr>
<td>average</td>
<td>34.3 (138)</td>
<td>47.3 (190)</td>
<td>18.4 (74)</td>
</tr>
<tr>
<td>strong and very strong</td>
<td>47.8 (261)</td>
<td>43.4 (237)</td>
<td>8.8 (48)</td>
</tr>
<tr>
<td><strong>Cramers V</strong></td>
<td>0.090**</td>
<td></td>
<td></td>
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<tr>
<td><strong>age</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18-24</td>
<td>66.8 (123)</td>
<td>25.0 (46)</td>
<td>8.2 (15)</td>
</tr>
<tr>
<td>25-34</td>
<td>43.6 (88)</td>
<td>44.6 (90)</td>
<td>11.9 (24)</td>
</tr>
<tr>
<td>35-44</td>
<td>34.6 (93)</td>
<td>47.2 (127)</td>
<td>18.2 (49)</td>
</tr>
<tr>
<td>45-60</td>
<td>31.5 (103)</td>
<td>49.8 (163)</td>
<td>18.7 (61)</td>
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<tr>
<td>61+</td>
<td>19.5 (31)</td>
<td>56.0 (89)</td>
<td>24.5 (39)</td>
</tr>
<tr>
<td><strong>Cramers V</strong></td>
<td>0.193**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*: p<0.05; **: p<0.01

Dataset: GLES 1006 – Komponente X/8 – Online-Tracking 6: Wahlkampf (weighted for online-representativeness)

Source: own calculations

The results of the cross tabulation confirm our expectations derived from the exit surveys, if only the group of users is compared to the group of unaware non-users. However, a comparison between the users and aware non-users reveals a rather complex picture: While gender, age and education have the expected values, a strong political interest and a high satisfaction with democracy are also typical for the group of the “aware non-users”.

To sum it up: Socio-demographic variables as well as political interest and to a lesser degree the satisfaction with democracy have an influence on playing the Wahl-O-Mat. In order to calculate the effects on voting behavior unbiased by the typical composition of the group of VAA users, we will control for these variables in the upcoming analysis.
3.3 Effects of VAA Use on Voter Turnout

For estimating the impact of VAA usage on voter turnout, we apply a binary logistic regression model (Sharma 1996, p. 328–332) with the variable “intention to vote” recoded as a binary dependent variable. We sequentially integrate the socio-demographic and political attitudes variables and – in the last model – the variable addressing the VAA usage as IVs. In each case the lowest parameter value of the independent variables was treated as reference category (for gender: male). Table 2 shows the exponentiation of the B coefficient – exp(B) – that can be interpreted as follows: Values between 0 and 1 indicate that the probability of going to the ballot boxes is smaller compared to the reference category. Values higher than 1 imply that the probability to cast a vote is more likely compared to the reference category (see e.g. Diaz-Bone & Künemund 2003, p. 9–10; Menard 2002, p. 56).

Due to the assumed logistic relationship between the variables, an exact interpretation of exp(B) in terms of impact is difficult (Best & Wolf 2010, p. 832; Menard 2002, p. 57), which is why we decided to focus only on the interpretation of the direction and significance of exp(B). As an overall goodness-of-fit measure we calculate Nagelkerke-Pseudo-$R^2$ which can be interpreted analogously to the $R^2$ measuring the goodness-of-fit in linear regression analyses (Backhaus et al. 2003, p. 449; Nagelkerke 1991, p. 692). According to our hypothesis we expect that the use of the Wahl-O-Mat should lead – controlled for the variables of model 1 to 5 – to a value significantly higher than 1 compared to the reference category of the “unaware non-users”, thereby indicating an independent positive effect of the VAA usage on voter turnout.

Table 2 shows that the significant effect of gender and education disappears by adding the “satisfaction with democracy” and the political interest variables. Most notably, the incorporation of political interest into the model results in a substantial improvement raising Pseudo-$R^2$ from 0.082 to 0.245 – a value clearly above 0.2 which has been proposed as a threshold for the acceptability of explanatory models (Backhaus et al. 2003, p. 456). Thus, our model explains the variance of the dependent variable “voter turnout” in a way that exp(B) can be meaningfully interpreted. The inclusion of age leads only to a tiny increase of Pseudo-

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7 In the dataset, variable a07 asked for the intention to vote. For our analysis we removed those cases/respondents who had already voted by mail. In a next step we recoded the variable into 0 (“unlikely to vote”) and 1 (“likely to vote”).
R². By looking at the variables included in Model 5 we can tell that only political interest and satisfaction with democracy have a significant positive effect on voter turnout.  

Table 2: Logistic regression model for the explanation of the intention to vote – exp(B)

<table>
<thead>
<tr>
<th></th>
<th>model 1</th>
<th>model 2</th>
<th>model 3</th>
<th>model 4</th>
<th>model 5</th>
<th>model 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>gender (reference: male)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>female</td>
<td>0.649**</td>
<td>0.676*</td>
<td>0.718</td>
<td>0.975</td>
<td>0.982</td>
<td>1.007</td>
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<td>education (reference: low)</td>
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<tr>
<td>medium</td>
<td>1.449*</td>
<td>1.370</td>
<td>1.013</td>
<td>1.018</td>
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<tr>
<td>high</td>
<td>2.621**</td>
<td>2.250**</td>
<td>1.503</td>
<td>1.520</td>
<td>1.339</td>
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</tr>
<tr>
<td>satisfaction with democracy (reference: quite to very unsatisfied)</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>partly satisfied and unsatisfied</td>
<td>1.585*</td>
<td>1.623*</td>
<td>1.662*</td>
<td>1.663*</td>
<td></td>
<td></td>
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<tr>
<td>quite to very satisfied</td>
<td>3.131**</td>
<td>2.428**</td>
<td>2.439**</td>
<td>2.370**</td>
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<td></td>
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<td>political interest (reference: none or weak)</td>
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<td></td>
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<tr>
<td>average</td>
<td>4.295**</td>
<td>4.225**</td>
<td>4.011**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>strong and very strong</td>
<td>11.575**</td>
<td>11.362**</td>
<td>9.770**</td>
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<td></td>
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<tr>
<td>age (reference: 18-24)</td>
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<td></td>
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<tr>
<td>25-34</td>
<td>0.931</td>
<td></td>
<td>1.078</td>
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<td></td>
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<tr>
<td>35-44</td>
<td>0.800</td>
<td></td>
<td>1.007</td>
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<tr>
<td>45-60</td>
<td>1.207</td>
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<td>1.545</td>
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<tr>
<td>61+</td>
<td>0.914</td>
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<td>1.303</td>
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<tr>
<td>VAA use (reference: unaware non-users)</td>
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<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>aware non-users</td>
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<td></td>
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<tr>
<td>users</td>
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<td>1.367</td>
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<td></td>
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<td></td>
<td></td>
<td></td>
<td>2.664**</td>
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</tbody>
</table>

Pseudo-R² (Nagelkerke) 0.012 0.042 0.082 0.245 0.249 0.269

*: p<0.05 ; **: p<0.01

Dataset: GLES 1006 – Komponente X/8 – Online-Tracking 6: Wahlkampf (weighted for online-representativeness)
Source: own calculations

We observe a small improvement of our model subsequent to the integration of the Wahl-O-Mat usage into Version 6. What is more, the incorporation of this variable has a significant effect on voter turnout. Controlled for the variables of Versions 1 to 5, we see on the one hand that knowing the Wahl-O-Mat without having played it has no significant influence compared to the reference category of the unaware non-users. On the other hand playing the German VAA indeed has a measurable positive effect, indicating that using the tool results in a higher probability of participating in the 2009 German Federal Election. Thus, the observed mobilizing power of the Wahl-O-Mat is not a statistical artifact of the specific socio-demographic characteristics and political attitudes of the typical VAA user, it is an independent effect that – according to our analysis – increases the voter turnout.

8 However, the finding that people who are satisfied with democracy and strongly interested in politics are more likely to go to the ballot boxes is anything but surprising (see e.g. Steinbrecher & Rattinger 2011, p. 82–89; Westle & Niedermayer 2009, p. 25).
3.4 Effects of VAA Use on Voting Decision for a Specific Party

Does using VAAs also influence electoral choice? Walgrave et al. (2009) and Ramonaite (2010) argue that there are always specific parties profiting from the actual selection of theses for VAAs. Thus we could expect that there is a measurable effect of the Wahl-O-Mat usage on the distribution of votes on the parties at the German Election 2009.

We again apply binary logistic regression models to check whether the mobilizing effects of the tool indeed lead to a shift in the election results. For the new model the DVs are dummy-coded variables for the decision to vote for one of the parties which are represented in the German Bundestag (CDU/CSU, SPD, FDP, GRÜNE, LINKE). With our new model of estimation, we test (again drawing on GLES data for the 2009 German Federal Election) whether the use of the German VAA results in a higher likelihood of voting for a specific party – controlled for the socio-demographic characteristics and the political attitudes. Table 3 presents the logistic regression for the selected parties including all control variables.

Table 3: Logistic regression model for the explanation of the voting decision for a specific party – exp(B)

<table>
<thead>
<tr>
<th></th>
<th>CDU/CSU</th>
<th>SPD</th>
<th>FDP</th>
<th>GRÜNE</th>
<th>LINKE</th>
</tr>
</thead>
<tbody>
<tr>
<td>gender (reference: male)</td>
<td></td>
<td></td>
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<tr>
<td>female</td>
<td>1.063</td>
<td>1.041</td>
<td>0.953</td>
<td>1.112</td>
<td>0.845</td>
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<td>education (reference: low)</td>
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</tr>
<tr>
<td>medium</td>
<td>1.145</td>
<td>0.932</td>
<td>1.205</td>
<td>0.753</td>
<td>1.025</td>
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<td>high</td>
<td>0.850</td>
<td>0.732</td>
<td>1.229</td>
<td>1.125</td>
<td>0.762</td>
</tr>
<tr>
<td>satisfaction with democracy (reference: quite to very unsatisfied)</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>partly satisfied and unsatisfied</td>
<td>2.723**</td>
<td>2.242**</td>
<td>1.986*</td>
<td>1.970</td>
<td>0.573**</td>
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<td>quite to very satisfied</td>
<td>5.225**</td>
<td>2.768**</td>
<td>1.880*</td>
<td>2.440**</td>
<td>0.277**</td>
</tr>
<tr>
<td>political interest (reference: none or weak)</td>
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</tr>
<tr>
<td>average</td>
<td>1.070</td>
<td>1.380</td>
<td>1.645</td>
<td>1.633</td>
<td>1.910</td>
</tr>
<tr>
<td>strong and very strong</td>
<td>0.977</td>
<td>1.869*</td>
<td>2.063*</td>
<td>1.353</td>
<td>3.043**</td>
</tr>
<tr>
<td>age (reference: 18-24)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>25-34</td>
<td>0.936</td>
<td>0.689</td>
<td>1.427</td>
<td>0.937</td>
<td>0.797</td>
</tr>
<tr>
<td>35-44</td>
<td>1.005</td>
<td>0.932</td>
<td>1.172</td>
<td>0.593</td>
<td>1.478</td>
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<tr>
<td>45-60</td>
<td>0.590</td>
<td>0.885</td>
<td>0.726</td>
<td>0.966</td>
<td>2.923**</td>
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<td>61+</td>
<td>1.127</td>
<td>1.257</td>
<td>0.816</td>
<td>0.306*</td>
<td>1.276</td>
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<td>VAA use (reference: unaware non-users)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>aware non-users</td>
<td>1.330</td>
<td>0.985</td>
<td>2.398*</td>
<td>2.086</td>
<td>1.217</td>
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<tr>
<td>users</td>
<td>1.236</td>
<td>0.610</td>
<td>1.962</td>
<td>3.000*</td>
<td>1.618</td>
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<tr>
<td>Pseudo-R² (Nagelkerke)</td>
<td>0.073</td>
<td>0.059</td>
<td>0.054</td>
<td>0.074</td>
<td>0.114</td>
</tr>
</tbody>
</table>

*: p<0.05; **: p<0.01
Dataset: GLES 1006 – Komponente X/8 – Online-Tracking 6: Wahlkampf (weighted for online-representativeness)
Source: own calculations

9 For the dichotomization of the dependent variables we used variable a08b, which asks for the intended voting decision of the second vote (the more important vote in the German election system). Due to their small frequencies in the dataset, a consideration of smaller parties is not possible.
Only for the voting decision of the German Green Party (GRÜNE) can we observe a positive effect that is significant on the five-percent level. However, Table 3 also shows that the overall goodness-of-fit of each model is weak, as the values for Pseudo-$R^2$ range clearly under the threshold of 0.2. Thus, the selected independent variables seem to have explanatory power for the voter turnout (see Chapter 3.3), but not for the decision to vote for a specific party. Given the low values, exp(B) in Table 3 is hardly interpretable.\(^{10}\)

On the basis of our analysis, we cannot identify a significant influence of the Wahl-O-Mat usage on the electoral choice. Other variables we have not taken into account might have a higher explanatory power. Thus, including variables like political attitudes towards specific policy issues or certain general political values could raise the goodness-of-fit substantially – possibly overriding the significant effect of the VAA usage on the decision to vote for the Green party. Indeed, simply by including variable a33 (left-right self-assessment) into the model the effect of VAA usage on voting for the GRÜNE party is no longer significant in comparison to the reference category “unaware non-users”. But even without the inclusion of alternative relevant variables, Table 3 indicates no significant effects of using the Wahl-O-Mat on the decision to vote for one of the other four parties. Our logistic regression model drawing on the GLES dataset does not provide evidence that specific parties benefit from the usage of the German VAA and that there is a measurable impact of the using the Wahl-O-Mat on the electoral choice.

4. Discussion and Summary

The spread of Voting Advice Applications and their popularity among voters raises the question whether and how such online tools influence the individual voting behavior of their users. Initial empirical findings provided by VAA research projects as well as general tendencies in voting behavior suggest that the use of VAAs should indeed have effects on voter turnout and voting decision.

Drawing on a GLES dataset generated before the 2009 German Federal Election we tested this assumption for the Wahl-O-Mat with binary logistic regression models operating with

\(^{10}\)Nevertheless, the findings displayed in Table 3 show marginal significant effects indicating that a high satisfaction with democracy makes a voting decision for the left-wing party LINKE – compared to the other parties – less likely.
control groups in order to estimate possible VAA effects on “users” in comparison to “aware” and “unaware non-users”.

Our expectations concerning the impact of the tool on voting behavior have only partly been met. According to our empirical analysis, the use of the Wahl-O-Mat has a significant positive effect on going to the ballot boxes, thus supporting already existing findings on the mobilizing capacities of VAAs (see e.g. De Rosa 2010; Nuytemans et al. 2010; Mykkänen & Moring 2006; Ruusuvirta & Rosema 2009). This effect still remains significant, even if relevant socio-demographic characteristics and political attitudes are controlled for.

However, in the data at hand we could not find a measurable effect of the Wahl-O-Mat usage on the decision to vote for a specific party. This suggests that – based on the dataset we used – playing this tool does not lead to a change of the election result. One possible explanation for this “non-effect” might be that, contrary to the theory of cognitive mobilization, voters with strong political interest and high formal education (i.e. the typical VAA users) have a strong party attachment and are therefore less inclined to change their voting decision (Ohr et al. 2005).

Still, concerning the voter turnout, the findings clearly indicate a significant relationship between voting behavior and the use of the Wahl-O-Mat before the 2009 German Federal Election. We assume – as it is suggested by other studies on VAAs and their impact – that these effects are even stronger than those we could measure.

Which conclusions can be drawn from our findings for the effects of online communication on political behavior? Do our findings support the normalization or mobilization thesis? By looking at the Wahl-O-Mat, we have focused on a web application which – according to our analysis – can mobilize people to go to the ballot boxes regardless of their socio-demographic characteristics, political interest and satisfaction with democracy. Thus these web-based “media effects” (Bryant & Oliver 2009) do not only work for the already mobilized people but also for apolitical milieus (see e.g. Marschall 2011); for that reason our findings support the mobilization thesis. However, due to the fact that the majority of the VAA users are already mobilized before they play the tool, the extent of the mobilization effect is rather small. Therefore, studies on the mobilizing capacity of internet tools must in a first step take into consideration the characteristics of their specific user community.

However, our analysis leaves some questions unanswered. To begin with: Due to our methodological approach, we could not calculate the exact share of voters mobilized by the
Wahl-O-Mat. Furthermore, referring to a pre-election dataset means that we had to rely on subjective and predictive individual statements. Whether respondents who declared that they had been motivated by the VAA to go to the elections really did so, could not be controlled. Moreover, the causal relationship between VAA use and voting behavior might have worked the opposite direction than the one we have assumed (VAA usage as IV, voter turnout as the DV): It could be that a firm intention to vote causes people to resort to VAAs, as they are looking for an orientation for their voting decision. Concerning the impact of VAAs on electoral choice, we only could show that no specific party profited from the mobilizing effect of the German VAA. However, we cannot check with the data at hand, whether the parties have equally benefited from VAA-induced swing votes or whether other factors have overridden VAA effects on electoral choice. Finally, due to the limited number of cases in the dataset, effects for small parties (for example “Piratenpartei”) could not be estimated.

All these questions call for more systematic VAA research resorting to alternative data and methods. For the German case in question, it would be helpful to generate survey data which is representative for the whole German electorate; due to the popularity of the Wahl-O-Mat there should be a sufficient number of cases (VAA users) for statistical analysis within a representative sample. Additionally, a panel design that re-checks the impact of the tool could reduce the dependency on self-evaluations – following the (albeit non-representative) study of Walgrave et al. (2006). Finally, experimental designs could give new insights into the impact of Voting Advice Applications on electoral behavior.
4. References


