Impact of Voting Advice Applications on Voters' Decision-Making

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Abstract:
So-called online Voting Advice Applications (VAAs) have become very popular all over Europe. Millions of voters are using them as an assistance to make up their minds for which party they should vote. Despite this popularity there are only very few studies about the impact of these tools on individual electoral choice. On the basis of the Swiss VAA *smartvote* we present some first findings about the question whether VAAs do have a direct impact on the actual vote of their users. In deed, we find strong evidence that Swiss voters were affected by *smartvote*. However, our findings are somewhat contrary to the results of previous studies from other countries. Furthermore, the quality of available data for such studies needs to be improved. Future studies should pay attention to both: the improvement of the available data, as well as the explanation of the large variance of findings between the specific European countries.

Keywords: Voting advice applications; e-democracy; electoral choice.

Introduction

During the last couple of years so-called online Voting Advice Applications (VAAs) have become increasingly popular in many countries all over Europe. Of course there exists a large diversity of VAAs with regard to their design as well as the features they offer, but at the end of the day they all share the same key function: VAAs are websites providing voters with information about which political party or which candidate comes closest to their own political values and policy preferences. In order to do that they proceed in three steps: First, the voters are asked to create their political profile by filling in a questionnaire on different political issues. Second, the VAA compares their answers with the positions of parties or candidates on these issues. And finally, voters are provided with a voting recommendation in form of a list ranking parties or candidates according to the degree of their issue congruence with the particular voter.

With a view to the development of the number of people using VAAs they really seem to meet the needs of voters – or at least of a large part of the electorate. The first operational VAA was the Dutch *Stemwijzer*[1]. It went online for the first time in 1998 and provided 250'000 voting advices. This figure exploded to 4.7 million voting advices in 2006 – this equals 40% of the Dutch electorate (Walgrave et al. 2008:52). In 2006 additional 1.5 million voting advices were provided by another Dutch VAA called *Kieskompas*[2] (Kleinnijenhuis et al. 2007). In Switzerland the VAA *smartvote*[3] could increase the number of generated voting advices from 255'000 in 2003 to almost one million in 2007 (Ladner et al. 2010), whereas in Germany the Wahl-O-Mat[4] started with 3.6 million voting advices in 2002 general elections (Marschall 2005), and delivered over 6.7 million voting advices during the campaign of the 2009 elections (Marschall 2009). These are just a few examples for the fast-growing popularity of VAAs. Beside the mentioned countries, VAAs have also become part of electoral campaigns in countries like Austria, Belgium, Finland, or Luxembourg. There is hardly any country in Europe without an own VAA.

Despite this obvious popularity VAAs have been in general widely neglected as a research topic by political scientists. Only very few publication are dealing with VAAs. Furthermore, until a few years ago most of the publications on VAAs were focusing on pure descriptions of VAAs and their functionality (e.g. Liebhart and Wassermair 2003, Jeitziner and Fivaz 2005, Fivaz and Schwarz

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[1] http://www.stemwijzer.nl
[2] http://www.kieskompas.nl
[3] http://www.smartvote.ch
[4] http://www.wahl-o-mat.de

2007). It is hard to find analytically or empirically oriented studies among the publications of this "first wave".[5] However, this is changing slightly and in the last two to three years a steadily growing number of studies on VAAs have been published, and in addition to that the more recent studies have also gained by focusing increasingly on empirical analyses and developing a more critical perspective.

Rütsche (2008), for instance, is addressing the legal foundations of VAAs and is debating the requirement of certain standards to which VAAs should adapt. From his point of view any particular VAA should guarantee equal treatment of all parties and candidates, and also a high level of transparency with regard to the applied statistical methods of the issue-matching procedure, as well as regarding how and by whom it is financed.

Another critical article is the one of Ramonaité (2010). On the basis of data from a Lithuanian VAA[6] she sees some evidence that VAAs offer some advantages to populist parties and the danger of promoting strategic behavior of such parties. In contrast to other parties, populist parties can switch their policy positions to the supposed positions of the median voter on short notice before the elections and therefore benefit particularly from the services offered by VAAs.

With regard to Ramonaité's findings a study from Switzerland by Schwarz et al. (2010) shows – at least partly – contradictory results. Schwarz et al. compared the policy positions of candidates before elections (based on their answers to a Swiss VAA) with the legislative behavior of the elected candidates/MPs after elections (based on roll-call data). There were no signs of a widespread use of strategic behavior of candidates. On the contrary, the overwhelming majority of elected candidates acted, once they were in parliament, according to their policy preferences revealed in the VAA before the elections.

Most of the VAAs claim to increase political interest and participation among voters by offering an additional channel of information and a new way of support in their decision-making process. And indeed, first evidence indicates a positive correlation between the use of VAAs and voter turnout. The analyses for the 2006 elections in the Netherlands of Rusuuvirta and Rosema (2009) suggest that VAAs had a modest effect on voter turnout. This finding is supported by similar analyses for the case of Switzerland. It can be shown that the use of VAAs correlates with a higher voter turnout in general, but strongest effects are found by women and young and first-time voters (Fivaz 2008, Fivaz and Nadig 2010, Ladner et al. 2010).

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[5] There are empirically oriented studies, but they are often dealing with the policy positions of candidates and parties based on data generated by VAAs, but they are not dealing with VAAs and their use in particular (e.g. Ladner et al. 2008 and Ladner et al. 2010b).
[6] http://www.manobalsas.lt

Without doubt all the above-mentioned studies are dealing with important aspects of VAAs and their use, but they do not address more interesting and far-reaching questions: Do VAAs affect the decision-making of voters using them? And subsequently, do VAAs have an impact on the electoral choice of voters using them? In this paper we address these questions on the basis of the 2007 elections in Switzerland using data gathered from surveys among voters using the Swiss VAA *smartvote*.

The next section gives a short introduction into the theoretical background, whereas the third section provides some necessary background information about the Swiss electoral and party system as well as about *smartvote*. In the forth section, we present our analyses on the impact of *smartvote* on voters' decision-making and electoral choice. Finally, in the last section we summarize the results, evaluate them critically, and offer some suggestions for further studies.

Theoretical background

Since there is hardly any theoretical oriented literature on VAAs to be found, we are bound to apply findings and debates out of the general literature on electoral behavior in order to gain some theoretical foundations for to the above raised question on the expected impact of VAAs on electoral decision-making.

What determines the electoral choice of voters? State-of-the-art theories on electoral behavior stress – besides other factors such as party attachment, and the affection to candidates– the prominent role of issue voting (Niemi and Weisberg 2001: 14). A large number of studies show the decisive importance of political parties' issues positions on a voter's electoral choice (e.g. Alvarez and Nagler 2000, Powell 2000, Kriesi and Sciarini 2003 (for the case of Switzerland), or Schoen and Weiss 2005).

Klein (2006: 595) emphasizes also the importance of issue voting and describes, according to normative democratic theories, the ideal voter as follows: The ideal voter informs himself carefully about all the pressing political issues and the positions of political parties towards them. Then the voter compares the parties' positions with his own preferences and makes the voting decision based on this matching. Furthermore Klein offers a direct link to VAAs by remarking that the services provided by VAAs come very close to this normative ideal type for electoral decision-making. And Klein is not alone with this point of view (see e.g. Jeitziner 2004).

All VAAs are based on the conceptions of spatial voting or to be more precise on the famous proximity-model of Downs (1957). Downs' original model was a very simple one based on an election with only one issue dimension

(usually the left-right dimension) and only two competing candidates. According to Downs a voter will vote for the candidate, which is closer to his own position on the issue dimension. Over the following decades the model was adapted to more and more complex electoral systems (e.g. multi-seats and multi-party systems, or systems with open lists; see e.g. Cox 1997), and the model was also extended in direction of the inclusion of multiple issue dimensions instead of only one. Today the proximity-voting model is often criticized on the grounds that the average voter is not willing or even capable to gather and process all the necessary information to perform the demanded comparison of policy positions. This might be possible in the original model, but clearly not in elections with multiple parties debating on a large number of political issues (Rabinowitz and MacDonald 1989).

With regard to this critique concerning voters' limited information collecting and information processing capacities VAAs seem to offer an interesting solution. VAAs reduce voters' information and transaction costs at large. They provide easy accessible information on policy positions of political parties and not only for one issue but for a large number of issues. Supported by a VAA everyone is capable to conduct his own, personalized issue matching with all the relevant political parties within a couple of minutes. The large number of voters using VAAs (see the examples in the preceding section) seems to support this view. VAAs are obviously offering services needed and appreciated by voters. This leads us to the following twofold assumption: First, we suppose that voters see VAAs not merely as toys, which offer entertainment for people interested in politics, but they see them as serious tools, providing needed advice. And second, we assume that VAAs have an impact on the electoral choice of voters using them.

The assumption that VAAs have an impact on the electoral choice is backed up by an observation about voters' party attachment. Party attachment is seen within the social-psychological theory of voting as one of the main factors to explain voting decisions (e.g. Schoen and Weiss 2005). However, the last ten to 20 years showed a constant decline of voters' party attachments (e.g. a decline in party memberships or an increasing number of swing voters) in almost all advanced democracies (e.g. Dalton and Wattenberg 2000, or Dalton 2006). Since this evident decline, the explanatory power of party attachments for the electoral choice seems questionable. And it leads also to the assumption that voters might be more open to seek cues with respect to their voting decision.

Even though there are – from a theoretical point of view – several good reasons to assume that VAAs affect voters' electoral choice, the results of the few existing empirical studies on this topic show contradictory results. Walgrave et al. (2008) analyzed the Belgian VAA 'Stemtest' ('Do the Vote Test') and its impact on voters during the 2004 election campaign in Belgium. They found indeed

evidence that the 'Stemtest' had affected Belgian voters in their electoral choice but only on a very modest level. These findings about a limited effect of VAAs are somewhat in contrast to other studies. Both Kleinnijenhuis et al. (2007) as well as Rusuuvirta and Rosema (2009) found evidence that in elections in the Netherlands VAAs played an important role and had a clear impact on the voting decision of Dutch voters.

Background information: The Swiss Electoral System and the Swiss VAA *smartvote*

The Swiss Electoral System

The functioning of VAAs, the intensity of their use by voters, and their usefulness to them depend to a great extent to the particular design of the electoral and the party systems in the different countries in which the VAAs are operating. It makes a difference whether voters have to decide only between two candidates from two parties running for one seat or whether they can choose among a large number of candidates from several political parties.

Switzerland is despite its small size a very heterogeneous country. Its linguistic, economic, socio-cultural and political heterogeneity is reflected by a distinct federalism and a highly fragmented party system (Ladner 2002). It is characteristic for Swiss parties that they are organized in a very decentralized manner with cantonal and local sections disposing of far-reaching autonomy and independence. It is not unusual that on important national issues there are different political positions within the same national party. Switzerland is divided into 26 cantons. Every of these cantons has its own party system depending on aspects like prevailing denomination, language, if the canton is a rural or an urban one, or the structure of the cantonal economy. Regarding the number of parties or the degree of party competition these cantonal party systems differ widely (Ladner 2004 and 2004b). This is also very important with regard to the elections for the national parliament. Of course the parties are running national campaigns, but an important part of campaigning takes place on the cantonal level and takes into account the particular circumstances in the different cantons. It is often said that Switzerland has not one national election instead it has 26 cantonal elections held on the same day.

Additionally, for the national elections a system of pure proportional representation without any thresholds (like the 5%-threshold in Germany) is applied. This leads to a further fragmentation of the party system. Whereas there

are to find only five parties in the German parliament,[7] there are not less than twelve parties in the Swiss parliament – and only six of them have five seats or more.[8]

Electoral districts for the national elections are the 26 cantons. The 200 seats of the first chamber – the National Council – are assigned to the cantons according to the number of their inhabitants. Thus the constituencies differ largely in their size. Whereas the six smallest cantons have only one seat, the canton of Zurich, as the largest canton, has 34 seats.

Furthermore, the electoral system offers voters various possibilities to express their preferences. The electoral choice of Swiss voters is not only restricted to parties. Due to an applied open list system they also have the possibility to vote for single candidates. Every voter has as many votes, as there are seats in his constituency (e.g. in the small canton of Uri with one seat, voters have only one vote, and in the much larger canton of Zurich with 34 seats they have 34 votes). Voters can split their votes between candidates from different parties (e.g. in the canton of Zurich a voter can give four votes to candidates from party A, ten to candidates from party B and 20 to candidates from party C). This is called "Panaschieren". In order to allow voters to support particularly those candidates they like most, voters can support their favourite candidates by giving them two votes instead of one (so-called cumulative voting; e.g. in the canton of Zurich a voter could vote for 17 candidates with two votes for each). These rules allow voters to compose a customized ballot according to their personal political preferences.[9]

One effect of this electoral system is that voting in Switzerland is particularly complex business. For example in the 2007 elections in the canton of Zurich a voter had to choose among not less than 29 party lists and 804 candidates. For voters who intend to base their electoral choice on political positions it is obviously a lot more demanding to gather all the necessary information in Switzerland than in a country with a two-party system. But this is also a good opportunity for VAAs to offer a useful service, as long as it takes into account the special needs due to the electoral system. A VAA for the Swiss national elections has thus to offer two things: First, it should be able to deliver voting recommendations for both whole parties and single candidates. And second, it has to offer voting specific voting recommendations for each

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[7] http://www.bundestag.de/bundestag/plenum/sitzverteilung.html.

[8] http://www.parlament.ch/d/dokumentation/statistiken/Seiten/zusammensetzung-nr-nach-wahlen.aspx.

[9] Swiss voters seem to appreciate these possibilities increasingly. Not only the share of swing voters has increased in the last years, but also the share of those using the possibilities offered by the electoral system to compose their customized ballots (vote splitting and cumulative voting) according to their individual preferences (Burger 2001).

constituency and – due to the lack of intra-party coherence – allow different answers by several cantonal sections of the same party to one question.

smartvote – **Introduction into a Swiss VAA**

smartvote was developed in 2002 and 2003 in consideration of the special requirements of a VAA in Switzerland by the Swiss non-profit organization Politools. The core of *smartvote* is like in all VAAs the issue-matching module. But unlike the other VAAs it collects data not only from the party but also from the candidate level. A couple of month before the elections, all candidates receive the *smartvote* questionnaire, either by e-mail or by postal mail and they are asked to answer the questionnaire completely and to return it. The questionnaire consisted in 2007 of more than 70 questions on the most important political issues (like e.g., "Do you think that nuclear power plants should be shut down?"). Possible answers are "yes", "rather yes", "rather no" and "no". Candidates do not have an opting-out possibility. They have to answer all questions and confirm their answers before they are saved in the *smartvote* database.
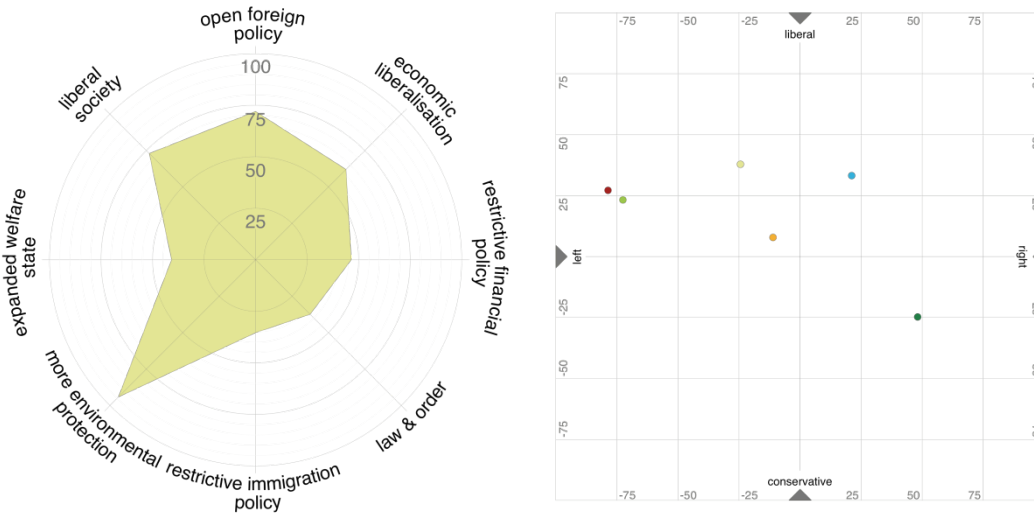
About two months before the elections the *smartvote* website is made accessible to the voters and leads them in three steps to their individual voting recommendation. First, voters have to specify their political profile. They are asked to answer the same questionnaire as the candidates but they can choose between a "deluxe version" consisting of all questions and a "rapid version" consisting of 36 questions only. Unlike the candidates the voters have also a "no answer" option if they wish to leave out a number of questions, and they can weigh the answers according to the importance the issues have for them. The website provides voters with additional background information including pros and cons for each question. Second, voters have to select the constituency for which they want to receive a voting recommendation, and they have also to decide whether they wish to receive a voting recommendation on the level of parties or on the level of individual candidates. Third, *smartvote* compares the voters' answers with the answers of parties or candidates including the voters' weighting factors. As result the voters receive voting recommendations in the form of individualized "matching-lists" with a decreasing ranking of parties or candidates according to their matching with the voters' answers.

The website provides also visualizations for political profiles: the so-called *smartspider* and *smartmap* charts (for examples see Figure 1). Both analytical graphs are based on the candidates' answers to the *smartvote* questionnaire. The *smartspider* shows the agreement or disagreement on eight major policy dimensions formulated as political goals (e.g. more law and order, more environmental protection, or a strong welfare state) in a spider net graph.

The *smartmap* is based on a system of coordinates with two major ideological cleavages serving as axes – the "north-south axis" for the cleavage between liberal and conservative standpoints and the "west-east axis" for the left-right cleavage.

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting).

smartvote went online for the first time in June 2003 at the start of the campaign for the national elections. Slightly more than 50% of the candidates participated and answered the questionnaire. In the following years *smartvote* offered its services also at several dozens of cantonal and local elections. With every election covered the website could increase its popularity and gain more and more media partners. This made it possible that in 2007 *smartvote* was regarded as ordinary part of the electoral campaign. More than 30 media partners (print media as well as TV and radio broadcasters) supported *smartvote* and integrated the tool and its analyses (e.g. the *smartspider*-graphs of important candidates) into their own news coverage. Due to the cooperation with media partners *smartvote* was not only present online, it was also present in offline media. With regard to this broad coverage it is not surprising that in the 2007 elections the number of participating candidates increased considerably: out of the 3'100 candidates 85% revealed their political preferences by answering the *smartvote*-questionnaire. And also the number of voting recommendations grew from 255'000 in 2003 to almost one million in 2007.

The Impact of *smartvote* on the Electoral Choice

The Data

The analyses in this section are based on three online-surveys conducted among voters using *smartvote* before and after the 2007 elections. The surveys were conducted by the IP16 "smart-voting" research project[10] in cooperation with Politools – the NGO operating *smartvote*.

Starting point was a pre-election survey. When voters received their voting recommendation on the *smartvote* website, they were also asked whether they would agree to participate in an additional scientific survey. 13'361 voters agreed and filled in the survey. At the end of this survey participants were asked if they would also answer a second survey after the elections. Out of the 9'930 voters who agreed to do this, 4'331 voters also filled in the second post-electoral survey.

Parallel to this a third survey was conducted among all the *smartvote* users, who had created a user account on the website. This was also a post-electoral survey. Shortly after the elections all voters with a *smartvote* user account received an e-mail and were asked to support the research project by answering an online survey. A total of 80'225 voters owned a user account and out of these 13'959 filled in the survey.

The questionnaires of these surveys were designed in a way that allows for merging them into one dataset. Thus, we created a combined dataset with a total of 27'320 respondents. There were some differences between the pre-electoral and the two post-electoral surveys. Whereas questions about the socio-demographic profile of *smartvote* users (e.g. age, gender, educational level or political orientation) were part of all surveys (maximal N = 27'320), some questions concerning the actual electoral choice could only be asked in the two post-electoral surveys (maximal N = 18'290).

A last point we have to address is the question about the explanatory power of this dataset. Is it possible to draw a representative picture of the voters using *smartvote* based on this data? We lack of reliable information of the target population and with a view to the design of the data collection one can expect several processes of self-selection. At the end of the day it is not possible to give a final answer to this question. The large number of respondents does not guarantee a sufficient representativeness of the dataset. But if we compare the respondents'

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[10] For details about the research project see http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting.

socio-demographic profile with findings of similar studies for other countries and other VAAs as well as with results from studies on Internet use in general (e.g. Marschall 2005 or Wall et al. 2009) we find very similar patterns. Therefore, we can assume that this dataset offers a sufficient quality, which is at least comparable with the state of the art of research on VAAs in other countries.

And finally, the lack of representativeness is only important if we try to estimate the overall impact of *smartvote* on the electoral outcome. If we simply try to find out whether *smartvote* has an impact or not, the look at a specific group of the population – those using *smartvote* – is sufficient.

First Analyses: Influence of *smartvote* on the Decision-Making and the Final Voting Decision

The conducted post-electoral surveys among *smartvote* users contained a number of questions aiming directly on measuring the potential impact of *smartvote*. One part of these questions focused on the impact on political participation. Previous studies indicate that there is a positive effect with regard to the political participation especially among young and first time voters and women (Fivaz 2008, Fivaz and Nadig 2010). Another part of these surveys addressed the question, whether the use of *smartvote* had a direct influence on the voting decision or not; and if yes, how exactly *smartvote* affected voters using it.

Asked directly 67% of respondents stated that *smartvote* had affected their voting decision. These findings differ to a large extent from results of similar studies for Germany, the Netherlands and Belgium. According to Marschall (2005) in Germany only 6% of voters using a VAA were directly affected in their electoral decision, and also in Belgium VAAs had only an impact on a few percent of their users (Walgrave et al. 2008). Research results for the Netherlands show higher values (Kees and van der Kolk 2007), but with 15% there is still a significant difference to the 67% we found for Switzerland. We will come back on this aspect later.

In the following tables we present some simple statistics about the influence of smartvote on different user groups. Table 1a shows the share of influenced users with regard to age, gender and educational level.

Table 1a: Influence of *smartvote* on voting decision

Share of *smartvote* users (voters) influenced in their voting decision		
Yes (%)	**No (%)**	**N (=100%)**

Age groups			
18-24	71	29	3'346
25-34	73	27	4'759
35-44	68	32	3'461
45-54	59	41	2'400
55-64	54	46	1'637
65+	48	52	711
Gender			
Male	65	35	11'382
Female	70	30	4'968
Educational Level			
Low	69	31	490
Middle	66	34	5'850
High	67	33	9'774

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting).

Table 1a shows that there are only minor differences between voters with regard to the educational level or gender. The by far largest differences are to be found between the several age groups. The influence of *smartvote* on the voting decision is the strongest among young voters.

In one of the preceding sections we provided a short introduction into the Swiss electoral system. One of the most important aspects of this electoral system is the large difference between the cantons (electoral districts) with regard to the number of seats (M) and subsequently the number of candidates (C) running for a seat.[11] In Table 1b we compare the ration between C and M – with other words: the number of candidates per seat – with the impact of *smartvote* on its users. The more candidates running for a seat the more information has to be gathered and processed by voters. Thus, the already mentioned information problem of voters is most pressing in those constituencies with the highest C/M-ratio. Due to this aspect we would assume that VAAs are most intensively used in constituencies with a high C/M-ratio, and that VAAs have also their strongest influence in these constituencies.

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[11] In the literature on the effects of electoral systems on the outcome of elections "M" is used as the abbreviation for the number of seats, whereas for the number of Candidates a "C" is applied (see e.g. Carey and Shugart 1995 or Cox 1997).

Table 1b: Influence of *smartvote* on voting decision (continuation)

Share of *smartvote* users (voters) influenced in their voting decision		
Yes (%)	No (%)	N (=100%)
C/M-ratio[1]		
1	22	78	46
3	13	87	16
4	33	67	42
7	52	48	103
8	31	69	99
9	54	46	474
10	50	50	221
11	59	41	1'087
12	60	40	2'514
13	72	28	1'147
16	68	32	1'448
18	62	38	407
19	66	34	1'453
20	72	28	3'376
24	72	28	3'941
Total	67	33	16'374

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting).

Remarks: 1) C/M-ratio: the numerical relation between the number of candidates (C) and the number of seats (M) in a particular constituency. The higher the C/M-ratio the more candidates are competing against each other per seat.

Indeed, Table 1b supports our assumption. The higher the C/M-ratio in a constituency the more *smartvote* users were affected in their voting decision by the voting recommendation they received.

Finally, Table 1c contains the findings with regard to political attitudes like the ideological self-positioning and the party choice (we only included the six most important parties).

Share of voters influenced by *smartvote* in their voting decision			
	Yes (%)	**No (%)**	**N (=100%)**
Ideological Self-Positioning[1]			
Left-wing	68	32	7'593
Centre	70	30	4'804
Right-wing	58	42	3'623
Party Choice[2]			
CVP	64	36	1'653
FDP	64	36	2'346
SVP	49	51	1'522
SP	66	34	4'696
GPS	71	29	2'918
GLP	80	20	1'181

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting).
Remarks: 1) The ideological position was measured with an eleven point scale (from "0" for left tot "10" for right. The answers were recoded as follows: 0 to 3 = left-wing; 4 to 6 = centre; 7 to 10 = right-wing. 2) CVP = Christian-democrats; FDP = Liberal-democrats; SVP = National-conservatives; SP = Social democrats; GPS = Greens; GLP = Green-liberals.

The results from Table 1c do not provide a stringent picture or at least one, which is easy to explain. It is common for both the ideological self-positioning and the party choice that right wing voters have been affected to a smaller degree than centre or left-wing voters. With regard to party choice *smartvote* had its strongest impact on the voters of the Green-liberals (GLP). At least this aspect can be explained. The GLP was in 2007 a new party participating for the very first time in a national election. The GLP positioned itself as a party between the left-wing parties like the Greens and the Social democrats on the one side and the classic centre parties like the Liberal or the Catholic-conservatives. The party program combined a strong focus on environmental issues (e.g. global warming) with moderate positions with regard to the economy, taxing or migration policy. Thus, they addressed successfully two groups of voters: First, the moderate voters of the left and the centre, who had become disappointed by the other parties, and welcomed the GLP as new alternative. Second, beside these swing voters the GLP could gain a number of young and first-time voters. Both groups have in common that they have only weak party alignments. For such voters a VAA is an ideal tool to seek for support with regard to the electoral choice, therefore the result of the GLP in Table 1c is not unexpected.

With regard to the Swiss electoral system voters have at their disposal multiple options to express their political preferences on their ballot. Voters using

smartvote were also asked in which way they have been affected in their electoral choice (see Table 2).

Table 2: Influence of *smartvote* on the voting decision (in percentage)

	Yes (%)	No (%)	N (=100%)
Did you copy the *smartvote* recommendation without any changes onto your voting list?	15	85	10'650
Based on the *smartvote* recommendation, did you rather vote for candidates from different lists (vote-splitting)?	61	39	10'580
Based on the *smartvote* recommendation, did you vote for parties and candidates, which you would otherwise not have voted for?	67	33	10'559
Based on the *smartvote* recommendation, did you abstain from voting for parties and candidates you would otherwise have voted for?	35	65	10'372

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting).

According to Table 2 only a small number of voters copied the voting recommendation without any changes on to their ballot. This indicates that VAAs do not produce a kind of an "instant voter", whose voting decision is completely computer-generated without own deliberations. In fact the opposite seems to be true. As we can see from Table 2 most of the voters used the voting recommendation to refine their ballot. Due to *smartvote* they split their vote more often and also voted for more often for candidates, which they otherwise would have overlooked. These findings come along with evidence from another study, which could show, that users do not trust *smartvote* blindly, but that they use it as a starting point for gathering further information about the candidates ranking highest in their voting recommendation (Fivaz and Nadig 2010).

The findings presented in this section so far show that *smartvote* has a significant impact on the voting decision of its users. Even though not all users are affected to the same degree, the impact on all groups of users is on an average level several times higher than it is observed in other countries. Nevertheless, the findings are also somewhat questionable, and they should be dealt with some caution. First, one should keep in mind that the presented analyses are based on surveys, which deal with the problem of self-selection among its respondents. It is plausible to consider, that users, which are pleased with *smartvote* and its outcome are more likely to fill in this additional survey, than users, which are disappointed with it. Second and more important, Walgrave et al. (2008) show evidence that users' subjective perceptions about the impact of a VAA on their actual electoral choice are often misleading. They tend to overrate the impact of

VAAs. In the following section we try to overcome this problem by applying an additional method to assess the impact of *smartvote*.

In-Depth Analyses: Swing Voters Among *smartvote* Users

As presented in the previous section a large majority of *smartvote* users stated that the tool has affected their vote choice. However, we likewise mentioned that we do not know whether this influence was actually exercised at the polls. As Walgrave et al.'s (2008) study on the 2004 Belgian elections suggests the VAAs did affect first of all people's vote intentions and only to a lesser extent their actual vote. Thus, we will now apply a new indicator to measure the impact of *smartvote*. Instead of the direct question used in the preceding section, we will use swing voters as a kind of an alternative, indirect impact measurement.

Swing voters were defined as voters who had voted in 2007 for a different party than in the previous elections in 2003.[12] Regarding the kind of services VAAs are offering it seems very likely that VAAs are especially interesting for swing voters. The numbers presented in Table 3 confirm this view. Swing voters were affected at a much larger degree by smartvote than the other voters (73% to 56%).

Table 3: Swing voters influenced by *smartvote* in their voting decision

	Influenced by *smartvote*		
	Yes (%)	No (%)	N
Swing voters			
Yes	73	27	4'426
No	56	44	7'136
Total	**63**	**37**	**11'562**

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting).

The following tables are structured the same way as Tables 1a to 1c and present the share of swing voters among several specific groups.

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[12] With this definition some voters dropped out of our data sample (e.g. those who were to young to vote in 2003 or those who could not remember anymore for which party they had voted in 2003).

	Share of swing voters		
	Yes (%)	No (%)	N (=100%)
Age groups			
18-24	41	59	1'066
25-34	43	57	3'512
35-44	40	60	2'842
45-54	34	66	2'121
55-64	33	67	1'473
65+	28	72	677
Gender			
Male	38	62	8'678
Female	38	62	3'039
Educational Level			
Low	22	78	59
Middle	39	61	3'476
High	38	62	8'038

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting).

There are no differences between women and men – at least with regard to the results in Table 4c. The share of swing voters is also almost identical between voters with a high and a medium educational level. However, among voters with only a low educational level there is a very low share of swing voters. Finally, the most distinct differences are to be found with regard to the age groups. The older the voters are the less swing voters can be found in those age groups.

The results in Table 4b go along with the expectations we had. With regard to the relevant literature (e.g. Cox 1997) it is to be expected that – under a proportional voting rule – there is a positive relation between the number of seats and the number of parties or candidates competing about those: with increasing number of seats there is also an increase of parties and candidates. In constituencies with a large number of candidates per seat voters have more options at their disposal, which should in turn increase the likelihood for more swing voting – at least this was our assumption. Table 4b seems to confirm this assumption: In constituencies with a large M/C-ratio swing voting is more frequent.

Table 4b: Share of swing voters in relation to choices per seat (continuation)

	Share of swing voters		
	Yes (%)	No (%)	N (=100%)
C/M-ratio[1]			
1	25	76	32
3	33	67	12
4	50	50	22
7	24	76	68
8	26	74	69
9	38	62	329
10	30	70	156
11	30	7	794
12	35	65	1'806
13	32	68	794
16	38	62	1'042
18	28	72	305
19	38	62	1'006
20	38	62	2'495
24	47	53	2'800
Total	38	62	11'730

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting).
Remarks: 1) C/M-ratio: the numerical relation between the number of candidates (C) and the number of seats (M) in a particular constituency. The higher the C/M-ratio the more are candidates competing against each other per seat.

Table 4c is addressing aspects of ideological and political positions. According to the ideological self-positioning of voters on the left-right axis there are more swing voters among those who position themselves in the centre of the scale. In terms of party choice there is a little bit of a different picture. We find the highest shares of swing voters among parties of the left and the left part of the centre (GPS, CVP and Green-liberals). On first sight, the case of the Green-liberals with a share of 100% of swing voters is surprising. But one should keep in mind that this party was the first time participating in a national election in 2007. Thus, by definition all of their voters must be swing voters.

	Share of swing voters		
	Yes (%)	No (%)	N (=100%)
Ideological Self-Positioning[1]			
Left-wing	36	64	5'414
Centre	48	52	3'398
Right-wing	31	69	2'734
Party Choice[2]			
CVP	44	56	1'233
FDP	25	75	1'824
SVP	28	72	1'124
SP	14	86	3'491
GPS	58	42	2'096
GLP	100	0	803

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting).
Remarks: 1) The ideological position was measured with an eleven point scale (from "0" for left to "10" for right. The answers were recoded as follows: 0 to 3 = left-wing; 4 to 6 = centre; 7 to 10 = right-wing. 2) CVP = Christian-democrats; FDP = Liberal-democrats; SVP = National-conservatives; SP = Social democrats; GPS = Greens; GLP = Green-liberals.

In order to assess the impact of *smartvote*, we need to answer the question whether there is a positive correlation between using the tool and being a swing voter or not. We try to find an answer by conducting a multivariate analysis. We conducted a logistic regression analysis in order to predict a change in the electoral choice between the 2003 and 2007 elections. Table 4 contains the corresponding results.

The dependent variable in our regression is the change of the electoral choice. Furthermore, the regression contains nine independent and control variables and a constant. The most important of those is of course a dummy variable measuring, whether voters had stated that they had been influence by *smartvote* or not. We assumed that voters who had been surprised by the result of the *smartvote* voting advice were more likely to switch the party they voted for. Thus, we included also a corresponding variable, which indicates whether a voter was surprised by the received *smartvote* voting advice or not. We also controlled for the general openness with regard to a party change and for party attachment. Both variables were coded by using the so-called "propensity to vote"-questions. The survey contained a battery of questions, which asked voters on an eleven-point scale about the propensities to vote for the most important parties. The first variable was coded as "yes" if a voter had a high propensity to vote (8 or higher) for one or more parties different to the party they had actually voted for; the latter was coded as "yes" if a voter showed a high propensity to vote for at least one

party at all. Moreover, it is to expect that voters with a general moderate centre-position are more likely to swing vote than voters with a position on the left or the right pole of the ideological spectrum. Therefore, we took into account also the centre-position of a voter as a control variable. We already mentioned in this section our assumption that a large number of candidates competing per available seat is making swing voting more likely. Thus, we also included the already introduced M/C-ratio as a further control variable into the regression. Finally, we also included the standard socio-demographic factors like gender, age and educational level of voters as control variables.

Table 5: Logit predictions for party change

	B	S.E.	Wald	Df	Sig.	Exp(B)
Affected by *smartvote*	.349	.091	14.536	1	.000	1.417
Surprised by voting recommendation	.141	.060	5.524	1	.019	1.151
Openness to party change	.297	.107	7.658	1	.006	1.346
Party attachment	-.434	.087	24.693	1	.000	.648
Centre position	.385	.088	18.968	1	.000	1.469
M/C-ratio of constituencies	.033	.008	15.551	1	.000	1.033
Age	-.180	.032	30.997	1	.000	.836
Gender	-.105	.096	1.183	1	.277	.901
Educational level	-.073	.086	.720	1	.396	.929
Constant	-.945	.332	8.097	1	.004	.389

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting).
Remarks: 1) Dependent variable is party change: binary coding, 0 = same party choice 2003 and 2007, 1= different party choice between 2003 and 2007. 2) N = 2'664, -2 Log likelihood= 3396.121, Cox&Snell R-Square= .060, Nagelkerke R Square= .082, % of correctly predicted cases = 63.3%, chi-square= 166.108 with p-2s=0.000.

The explanatory variable – being influenced by *smartvote* – proved to be a significant predictor for swing voting. The positive correlation shows that using *smartvote* increases the likelihood for swing voting.

With exception of gender and educational level all of the control variables were also significant. The positive correlation between being a swing voter and being surprised by the received voting advice can be interpreted as a further confirmation of the impact of *smartvote* on the voting behavior. The outcome with regard to the other control variables was as expected: party attachment seems to be a negative predictor for party change, whereas the general openness for party change and the ideological centre-position are positive predictors of swing voters and increase significantly the likelihood of a party change. Facing a larger set of choices among candidates (a high M/C-ratio) also predicts higher odds for party change. With other words, those voters with more options to change their vote to another party are also more likely to be swing voters. With regard to the socio-

demographic factors, only age significantly predicts the likelihood for party change.

All things considered, the regression analysis supports our assumption that voters see *smartvote* as a serious and useful tool for their decision-making and that it affects also their actual vote. Thus, the findings in this section come along with those of the previous section. And there is also a further argument that supports our assumption. As already mentioned our definition of swing voters excluded all the young voters who were eligible to vote in 2007 for the first time. On the other hand, above all the young voters are those who are most affected by *smartvote* as seen in Table 1a. Thus, it is not to be expected that analyses that include the young voters would come to totally different findings. Although we do find significant effects in our analysis presented above, we have to state that the overall model quality is weak (see remarks for Table 5).

At the end of this section we try to give a first estimation about the impact of *smartvote* on the specific political parties. We present some findings about the flow of voters between the parties in Table 6. The analyses presented in Table 6 included only swing voters who had stated in the surveys that they had been influenced by *smartvote*.

Table 6: Party change between the 2003 and 2007 elections among those who were influenced in their vote decision by *smartvote*

Party voted for in 2003		Party voted for in 2007						
		CVP	FDP	SVP	SP	GPS	GLP	Total
CVP	N	■	59	17	55	41	62	234
	%	■	25.2	7.3	23.5	17.5	26.5	100.0
FDP	N	152	■	99	46	45	135	477
	%	31.9	■	20.8	9.6	9.4	28.3	100.0
SVP	N	48	89	■	19	9	23	188
	%	25.5	47.3	■	10.1%	4.8	12.2	100.0
SP	N	135	137	22	■	728	251	1'273
	%	10.6	10.8	1.7	■	57.2	19.7	100.0
GPS	N	28	16	6	178	■	117	345
	%	8.1	4.6	1.7	51.6	■	33.9	100.0
Total	N	363	301	144	298	823	588	2'517
	%	14.4	12.0	5.7	11.8	32.7	23.4	100.0

Source: NCCR "Democracy, IP16 "smart-voting 2.0" (http://www.nccr-democracy.uzh.ch/research/module5/smart-voting/smart-voting).
Remarks: 1) Only the major five parties in Switzerland plus the Green-liberals have been included in this table. 2) CVP = Christian-democrats; FDP = Liberal-democrats; SVP = National-conservatives; SP = Social democrats; GPS = Greens; GLP = Green-liberals. 3) The Green-liberals is a new party and has not yet run in the 2003 elections.

It is important to look at the data in Table 6 with great caution. Although the quality of our data sample is sufficient to conduct analyses about *smartvote* users,

the data sample is not at all suited for analyses with regard to the general outcome of the elections.

Among the *smartvote* users of the five major parties a remarkable number of voters changed their vote to the Green-liberals who were competing for the first time in national elections in 2007. The percentage values indicate that the influence of *smartvote* also has certain limits. The vast majority of voters are switching their vote between parties, which are relatively close to each other with regard to their ideological position. The largest flow of voters can be found between the Greens and the Social democrats on the left side of the political spectrum, and between the Liberals and the National-conservatives on the right side. The Christian-democrats as the classic centre party gains and looses voters to both sides. In contrast to that, flows of voters between the parties on the poles are rather small.

If we look at the votes received and lost by the different parties due to *smartvote* users we find on the winner side the Green-liberals (plus 588 votes) followed by the Greens (plus 478 votes) and the Christian-democrats (plus 129 votes). Among the loosing parties are, first of all, the Social democrats (minus 975 votes) followed by the Liberal-democrats (minus 176 votes) and the National-conservatives (minus 44 votes). These findings should not be overrated due to the mentioned problems of the data sample, but they indicate, which party had gained and which party had lost votes through *smartvote*. Furthermore, these results – at least in general – coincide with the results of the elections. The Greens, the Green-liberals, and to a very minor extent the Christian-democrats increased their share of votes in accordance to the tendency revealed in our sample. The same is true on the side of the parties who lost the elections, the Social democrats and the Liberal-democrats. However, for the National-conservatives our figures reveal a slight loss, whereas in reality they considerably increased their share of votes (see Lutz 2008).

Since the sample of *smartvote* users under scrutiny is not fully representative for all *smartvote* users and even less for all voters (e.g. we know that voters of left wing parties are strongly overrepresented) the lack of a full correspondence with the results of the elections is not astonishing. The figures, however, confirm our assumption, that *smartvote* had a certain impact on the outcome of the elections in 2007. In order to establish the real extent of the impact, however, we would not only have to know more about the representativeness of our sample, but also about the voters who were inclined to vote for another party and did not change their electoral decisions against the results of the received voting recommendation.

Conclusions

VAAs have become increasingly popular and have emerged as indispensable elements in pre-election periods (Marschall and Schmidt 2010). But up to now only very few studies have focused on the impact of VAAs on the actual electoral choice of their users. In this paper we addressed the question whether there is such an impact or not, based on the example of the Swiss VAA *smartvote*.

We found strong evidence that *smartvote* users are in deed affected by the voting advice they receive. 67% of voters using the tool stated that it influenced their party choice. This figure is several times higher compared with the findings of similar studies from other countries (Marschall 2005, Kees and van der Kolk 2007, Walgrave et al. 2008, and Rusuuvirta and Rosema 2009). We found further confirmation for our findings by additional analyses based on swing voters. We could show that the use of *smartvote* during the 2007 election campaign had a significant positive correlation with being a swing voter. However, we had to deal with several problems with regard to the quality of the available data (e.g. self-selection processes among respondents, or lack of responsiveness). Thus, we can only provide first and no final answers, especially as far as the overall impact on the electoral outcome is concerned.

With regard to further research on this topic, we suggest at least three aspects from where future studies should proceed. First, it is necessary to improve the quality of available data. Most studies use only data from online surveys with all the well-known problems of lacking representativeness. Thus, studies should use combined online and offline data whenever possible. The study of Walgrave et al. (2008) for the 2004 Belgian elections demonstrates impressively the advantages of such a research design. Second, regarding the large differences between our findings on the impact of *smartvote* and the findings in other studies the search for an explanation of these differences scholars should pay more attention to international comparisons. In order to support comparative studies research projects on VAAs should intensify their cooperation. A first step could be to develop comparable questionnaires and data sets. Third, with a view to the results presented in this paper and indicating a clear impact of VAAs on the electoral choice the question whether this leads to better voting decisions or not becomes increasingly pressing.

References

Alvarez, Michael, and Jonathan Nagler. 2000. "A New Approach for Modelling Strategic Voting in Multiparty Elections." *British Journal of Political Science* 30: 57-75.

Burger, Rudolf. 2001. *Konzept zur Analyse der Panaschierstatistik. Eine Studie mit Daten der Nationalratswahlen 1999*. Neuchâtel: Bundesamt für Statistik.

Carey, John M., and Matthew Soberg Shugart. 1995. "Incentives to Cultivate a Personal Vote: a Rank Ordering of Electoral Formulas." *Electoral Studies* 14 (4): 417-439.

Cox, Gary W. 1997. *Making Votes Count. Strategic Coordination in the World's Electoral Systems*. Cambridge: Cambridge University Press.

Dalton, Russell J. ,and Martin Wattenberg. 2000. *Parties Without Partisans. Political Change in Advanced Industrial Democracies*. Oxford: Oxford University Press.

Dalton, Russel J. 2006. *Citizen Politics. Public Opinion and Political Parties in Advanced Industrial Democracies*. Washington D.C.: CQ Press.

Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York: Harper and Brothers.

Fivaz, Jan, and Giorgio Nadig. 2010. "Impact of Internet-based Instruments on Civic Literacy and Voter Turnout." *Policy & Internet* (forthcoming).

Fivaz, Jan. 2008. "Impact of "smart-voting" on Political Participation." Presented at the *Civic Education and Political Participation Workshop at the Université de Montréal*; Montreal, June 17-19.

Fivaz, Jan, and Daniel Schwarz. 2007. "Nailing the Pudding to the Wall – E-Democracy as Catalyst for Transparency and Accountability." Presented at the *International Conference on Direct Democracy in Latin America*, Buenos Aires, March 14-15.

Fivaz, Jan, and Bruno Jeitziner. 2005. "E-Democracy Beyond E-Voting." In *Innovation and the Knowledge Economy. Issues, Applications, Case Studies*, eds. Paul Cunnigham, and Miriam Cunnigham. Amsterdam: IOS Press, 590-597.

Jeitziner, Bruno. 2004. "Wahlen im Internetzeitalter. Informationsvermittler als politische Berater von Wählern und Politikern." In *Perspektiven der Wirtschaftspolitik. Festschrift zum 65. Geburtstag von Prof. Dr. René L. Frey*, eds. Christoph A. Schaltegger, and Stephan C. Schaltegger. Zürich: vdf Hochschulverlag, 47-64.

Kees, Aart, and Henk van der Kolk. 2007. "The parliamentary election in the Netherlands, 22 November 2006." *Electoral Studies* 26: 797-837.

Klein, Markus. 2006. "Jenseits von Distanz und Richtung. Die Verbundmessung von Politikpräferenzen im Vergleich mit dem Distanz- und Richtungsmodell des Wählens – empirische Befunde eines Methodenexperiments." *Politische Vierteljahresschrift* 47 (4): 595-617.

Kleinnijenhuis, Jan, Otto Scholten, Wouter van Atteveldt, Anita van Hoof, André Krouwel, Dirk Oegema, Jan A. de Ridder, Nel Ruigrok, and Janet Takens. 2007. *Nederland vijfstromenland. De rol van de media en stemwijzers bij de verkiezingen van 2006*. Amstderdam: Uitgeverij Bert Bakker.

Kriesi, Hanspeter, and Pascal Sciarini. 2003. "Auswirkungen von Sachpräferenzen auf die Wahlentscheidung." In *Schweizer Wahlen 1999*, eds. Pascal Sciarini, Sibylle Hardmeier, and Adrian Vatter. Bern: Haupt, 321-328

Ladner, Andreas. 2002. "Das Schweizer Parteiensystem und seine Parteien." In *Handbuch der Schweizer Politik*, eds. Ulrich Klöti, Peter Knoepfel, Hanspeter Kriesi, Wolf Linder, and Yannis Papadopoulos. Zürich: Verlag Neue Zürcher Zeitung, 211-258.

Ladner, Andreas. 2004. *Stabilität und Wandel von Parteien und Parteiensystemen. Eine vergleichende Analyse von Konfliktlinien, Parteien und Parteiensystemen in den Schweizer Kantonen*. Wiesbaden: VS Verlag für Sozialwissenschaften.

Ladner, Andreas. 2004b. "Typologien und Wandel: Die kantonalen Parteiensysteme im letzten Drittel des 20. Jahrhunderts." *Swiss Political Science Review* 10 (4): 3-32.

Ladner, Andreas, Daniel Schwarz, and Jan Fivaz. 2008. *Die Positionierung der Nationalratskandidierenden 2007. Eine explorative Analyse der Antworten auf die Fragen der Online-Wahlhilfe smartvote*. Chavannes-Lausanne: IDHEAP.

Ladner, Andreas, Gabriela Felder, and Jan Fivaz. 2010. "More Than Toys? A First Assessment of Voting Advice Applications in Switzerland." In *Voting Advice Applications in Europe. The State of the Art*, eds. Lorella Cedroni, and Diego Garzia. ScriptaWeb (E-Book).

Ladner, Andreas, Gabriela Felder, and Jan Fivaz. 2010b. *Die politische Positionierung der europäischen Parteien im Vergleich. Eine Analyse der politischen Positionen der europäischen Parteien anlässlich der Wahlen des Europäischen Parlaments 2009 mit besonderer Berücksichtigung der Schweizer Parteien*. Chavannes-Lausanne: IDHEAP.

Liebhart, Karin, and Martin Wassermair. 2003. "Wahlkabine.at – Eine Online-Wahlhilfe erweckt neues Interesse an Politik." In *Kopf an Kopf*.

Meinungsforschung im Medienwahlkampf, eds. Sieglinde K. Rosenberger, and Gilg Seeber. Wien, Czernin, 103-124.

Lutz, Georg. 2008. *Eidgenössische Wahlen 2007. Wahlteilnahme und Wahlentscheid*. Lausanne: FORS.

Marschall, Stefan, and Christian K. Schmidt. 2010. "The Impact of Voting Indicators: The Case of the German Wahl-O-Mat." In *Voting Advice Applications in Europe. The State of the Art*, eds. Lorella Cedroni, and Diego Garzia. ScriptaWeb (E-Book), 61-86.

Marschall, Stefan. 2009. "Der Wahl-O-Mat als Instrument der Gesellschaftsberatung – Potenziale und Grenzen." *Zeitschrift für Politikberatung* 2: 485-492.

Marschall, Stefan. 2005. "Idee und Wirkung des Wahl-O-Mat." *Aus Politik und Zeitgeschichte* 51-52: 41-46.

Niemi, Richard G., and Herbert F. Weisberg, eds. 2001. *Controversies in Voting Behavior*. Washington D.C.: CQ Press.

Powell, G. Bingham Jr.. 2000. *Elections as Instruments of Democracy. Majoritarian and Proportional Visions*. New Haven: Yale University Press.

Rabinowitz, George, and Stuart Elaine Macdonald. 1989. "A Directional Theory of Issue Voting." *American Political Science Review* 83 (1): 93-121.

Ramonaitè, Ainè. 2010. "Voting Advice Applications in Lithuania: Promoting Programmatic Competition or Breeding Populism?" *Policy & Internet* 2 (1): 117-147.

Rütsche, Bernhard. 2008. *Elektronische Wahlhilfen in der Demokratie. Beurteilung im Lichte der Wahl- und Abstimmungsfreiheit, Spannungsverhältnis zu den politischen Partieen, Fragen staatlicher Regulierung*. Basel: Helbing Lichtenhahn.

Ruusuvirta, Outi, and Martin Rosema. 2009. "Do online vote selectors influence electoral participation and the direction of the vote?" Presented at the *European Consortium for Political Research (ECPR) General Conference*, Potsdam, September 10-12.

Schoen, Harald, and Cornelia Weiss. 2005. "Der sozialpsychologische Anasatz zur Erklärung von Wahlverhalten". In *Handbuch Wahlforschung*, eds. Jürgen W. Falter, and Harald Schoen. Wiesbaden, VS Verlag für Sozialwissenschaften, 187-242.

Schwarz, Daniel, Lisa Schädel, and Andreas Ladner. 2010 (forthcoming). "Pre-Election Positions and Voting Behavior in Parliament: Explaining Positional Congruence and Changes among Swiss MPs." *Swiss Political Science Review* 16(4).

Walgrave, Stefaan, Jonas Lefevere, Koen Pepermans, and Michiel Nuytemans. 2009. "Why representation fails. Determinants of incorrect voting in a

crowded party system." Presented at the *NCCR Democracy Workshop on Political Representation 'New Ways of Measuring and Old Challenges'*, Berne, November 12-13.

Walgrave, Stefaan, Peter van Aelst, and Michiel Nuytemans. 2008. "'Do the Vote Test': The Electoral Effects of a Popular Vote Advice Application at the 2004 Belgian Elections". *Acta Politica* 43: 50-70.

Wall, Matthew, Maria Laura Sudulich, Rory Costello, and Enrique Leon. 2009. "Picking your party online – An investigation of Ireland's first online voting advice application." *Information Polity* 14: 203-218.