

### **Voting Advice Applications: The Power of Self-Persuasion**

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The Oxford Handbook of Electoral Persuasion

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### **Abstract and Keywords**

This chapter deals with persuasion processes in modern elections. It focuses on the impact of so-called Voting Advice Applications (VAAs) that are becoming ever more popular among citizens in the Western world and beyond. By matching the political preferences of voters with the supply side (i.e., parties and candidates) in the campaign, these tools affect voters in several ways. Among others, they have a positive impact on turnout, as both observational and experimental studies could show. Furthermore, they trigger a process of self-persuasion, in which users reflect on the VAA-generated output in terms of partisan preferences, cognize these results, and change/reinforce their priors.

Keywords: internet and politics, elections, representation, issue voting, Voting Advice Applications, self-persuasion

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Most of the classic contributions on electoral persuasion were produced in a certain media context. The seminal book by Walter Lippmann, published in 1922 (Lippmann 1922), foresaw that the media environment would change rapidly—for instance, he points to the future importance of “moving images” and David W. Griffith, Sergei Eisenstein, or Leni Riefenstahl, to name a few, proved him right. With the advent of TV and in particular cable TV, researchers had to include TV as a potential—and later the most important—channel for measuring media effects. Today, we arguably have arrived in the Internet Age. In the United States, 49 percent of adult citizens get their news online, in social media, or on news websites. Among the youngest cohort, this proportion is much larger, with online sources having become the most important news provider among all media (Pew Research Center 2018).

For early observers, this meant great news for democracy, as we were about to witness a multiplication of channels, a democratization of journalism, free access to news for everyone, and the possibility for citizens to engage with politics and with each other as well as to organise themselves. At the same time, critical observers, such as Sunstein (2001, 2007, 2017), point out that the Internet, through the fragmentation of the media landscape, creates selective exposure, echo chambers, and radicalization. After the 2016 presidential elections in the United States (at the latest), any observer of politics has be-

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come aware of fake news, alternative facts, misinformation, information bubbles, Russian hackers, the Cambridge Analytica scandal, social media bots, and so on. The question therefore arises whether, and if so how, the new media environment is changing electoral persuasion?

When looking at the most recent developments in electoral campaigning, one may ask the subsidiary question: What if, because of technology, we have entered a new era of propaganda without even knowing it? For sure, there is lots of room for thinking that the Internet brought more problems with it than opportunities for democracy. But, as we will argue in this chapter, potentially detrimental effects of technology could be eased, among others and certainly not exclusively, by technology itself.

Disruptive Internet-based technologies have started to spread across the globe. Be it in the field of information gathering, housing, transportation, communication, social connecting—the world the way a modern smart-phone holder sees it has drastically changed. One of the characteristics common to these disruptive technologies is their ability to better match the individual preferences of users with an increasingly specialized and refined offer from vendors or information sources. Users have personalized profiles and act upon tailor-made proposals for maximizing their personal preferences. Arguably, one of the main effects of the availability of new technologies is therefore customization.

In politics, the disruptiveness is—intriguingly—less prominent, at least for the moment. For sure, campaigns use the power of the Internet to reach out to as many followers and potential voters as possible. For sure, parties, candidates and representatives embrace social networks. For sure, access to a large amount of political information has become much easier, rendering democratic processes more transparent and potentially accountable. For sure, on the other hand, the Internet also allows for the spread of fake news, bots, and informational as well as techno-fraudulent hacking of elections. However, by and large, the impact of technology on politics does not seem to follow the disruptive pattern of impact in other areas of society. To be sure, this is changing fast, with the debate about foreign—and most notably Russian—influence via social media on the US presidential elections of 2016 being the most prominent case. At the same time, the debate about technology's effect on individuals' propensity to engage with politics remains controversial (Bimber 1999; Chadwick 2006; Farrell 2012; Grofman, Trechsel, and Franklin 2014; Hindman 2009; Norris 2001). Public opinion formation, it is argued by many scholars, still follows the general, traditional patterns described in the relevant literature.

In this chapter we refrain from taking sides in this debate. After all, what is “a large” or “a limited” impact means depends first and foremost on the definition given by the researcher. And it is context dependent. For instance, if a certain technology leads one percent of all voters to change their behavior, this may have no impact at all on the outcome of an election in which the winning party obtains 75 percent of all votes. However, in a highly competitive referendum campaign, where the electorate is split into equal halves, such a shift may become decisive. Thus, we are not only interested in determining to what extent technology impacts on political outcomes. Rather, we focus on the character-

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istic, shared among disruptive technologies identified earlier: a tailor-made, personalized offer that matches users' preferences. In politics, such a technology does so far not exist. One cannot (yet?) choose one's best-fitting candidate and "buy" her services to satisfy one's preferences. The Uber, Lyft, or AirBnB of democracy has not yet seen the light of day.

However, there are most interesting technological developments that go into the direction of a personalization of political information available to voters. There are two forms of personalization of such information: a marketing-oriented one and a civic education one. The marketing-oriented one is employed by campaigns in an ever more refined way. Most visibly, personalized profiles of voters have found their ways into enormous databases run by the tech branches of campaigns in the United States (Hersh 2015), leading to digitally based "ground wars" during and between elections (Nielsen 2012). Generally, the communication by campaigns and their ever more refined targeting abilities have drastically changed through the availability of modern communication technology (Hillygus and Shields 2008). However innovative the contacting abilities of campaigns, the mechanisms behind this personalized form of political advertising follow the traditional logic of persuasion. The second form of personalized information provision targets civic education. Typically here, the logic is inverted, with citizens actively seeking what campaign may match their political preferences best. It is this form of personalized information provision that is at the center of this chapter, as exposure to the latter can lead to *political self-persuasion*, a concept that has so far hardly been explored. For our purposes, we adopt the definition of self-persuasion given by Aronson (1999, 875): "In contrast with traditional, direct techniques of persuasion (advertising, political rhetoric, etc.), self-persuasion is indirect and entails placing people in situations where they are motivated to persuade themselves to change their own attitudes or behavior."

In the following section we will present the most compelling vehicles of such political self-persuasion—inducing civic education platforms so-called *Voting Advice Applications* (VAAs). VAAs are Internet-based tools available prior to an election that aggregate political information on candidates and parties, allowing their users to compare their own issue-specific policy preferences to the electoral options available. The system typically produces rankings of the degree of overlap between a user's preferences and the candidates or parties running in the elections. In the past decade or so, such VAAs have proliferated throughout modern, liberal democracies, most notably in Western Europe.

In multi-party systems, VAAs are particularly popular. Also, VAAs seem to be particularly interesting to voters when they can choose several parties or candidates and rank them (as in open, free list systems, for instance). In Benelux as well as Scandinavian countries, for instance, between a quarter and more than half of the electorate typically uses a VAA prior to the respective national elections. With the advent of these tools, research has started to develop on their potential effects on voters. We argue that one of the most compelling effects of VAAs lies at the intersection of public opinion formation, social psychology, and political communication: political self-persuasion. VAAs help their users to acquire personalized, tailor-made information. They help users to learn more about their very

own politics and about the electoral offer relative to their views. In other words, one of the central functions of VAAs is that they link the individual's views to the views held by political parties and/or candidates. Through novel, experimental research, it could be shown that this process of linking these views may lead to what we call political self-persuasion. In the third section we will elaborate on the particular mechanism leading to political self-persuasion. In the fourth section we present an overview of empirical findings that support our theoretical argument. The fifth section provides our conclusions and a look to the future of VAA research.

## VAAs in Electoral Campaigns

One of the defining characteristics of online political communication lies with its interactive capabilities and the possibility, for Internet users, of gathering “more detailed information [that] can be customized to a greater extent” (Prior 2005, 579). The provision of tailor-made information is indeed a common phenomenon in today's online landscape. Social media relentlessly (re)shape the information environment by allowing users to manage information in a way that fits their needs (Lau and Redlawsk 2006). Facebook, for instance, provides its users solely with information about the status and activities of persons and pages they decide to follow. In this way, users receive information—including political information—in the light of their own preferences.

Not only social networks provide people with personalized (political) information. In the last decade, VAAs have proliferated across European democracies and beyond. In the United States, VAAs are not (yet) widely used, probably due to the general polarization there into two political camps. However, even in the United States, VAAs may become increasingly important tools for voters, for instance in multi-candidate primary elections or in low-information races at the local or state level. Generally, VAAs help users casting a vote by comparing their policy preferences on major issues with the programmatic stances of political parties on such issues (for recent overviews, see Garzia and Marschall 2014, 2019). To establish the position of political parties on the issues, VAA providers rely on either expert assessments, party self-positioning, or an iterative combination of the two (see also Garzia, Trechsel, and De Sio 2017; Trechsel and Mair 2011). VAA users respond to the very same list of issue statements marking their degree of (dis)agreement with each of the statements. After comparing the user's profile with that of each party/candidate through a matching algorithm (for a review, see Mendez 2014), the VAA produces its “advice,” usually in the form of a rank-ordered list, at the top of which stands the party/candidate closest to the user's policy preferences. Other variants include more complex graphic illustrating proximity or distance on a two- or three-dimensional policy space as well as in a multi-dimensional “spidergram” (see Figure 1).

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Figure 1. Different forms of VAA output: Matchlist, two-dimensional policy space, and spidergram.

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VAA generated output can be considered a form of political communication. At the same time, it is considerably different from most of the campaign messages that citizens traditionally receive. Like traditional media, VAAs relay information about parties' positions to voters. Unlike other sources, however, they provide *customized, tailor-made* political information. VAAs offer an explicit ranking of viable options with an implication that this ranking is tailored according to the user's own political opinion. In other words, VAAs reveal to the user the structure of the political competition in light of her own preferences. We will come back to this crucial difference with other sources of political information further later.

The ability of VAAs to reduce the costs of information at election time is one of the keys to understanding their growing success among voters (Alvarez et al. 2014a). To mention just a few examples, the pioneering Dutch VAA *Stemwijzer* was used almost seven million times during the parliamentary election of 2017. The German VAA *Wahl-O-Mat*, developed for the federal election of the same year, peaked with over 15.6 million users. Garzia and Marschall (2016) found almost complete coverage of Western democracies (in many of which multiple VAAs are simultaneously operating) as well as a growing penetration of VAAs in Asia, Central and Southern America, and North Africa. In Benelux countries and all Scandinavian democracies, the proportion of eligible voters resorting to VAAs at election time ranges between 30 and 50 percent (Garzia and Marschall 2019). In several countries, VAAs are mentioned as the primary source of political information during the campaign by a plurality of voters, with the utility attached to VAAs as an information source greater than that for the traditional media such as newspapers and television (Garzia and Trechsel 2020; Ruusuvirta 2010).

In terms of socio-demographic profile, early VAA users substantially resembled the general population of political information seekers on the web: male, highly educated, and strongly interested in politics (Hooghe and Teepe 2007). Rising usage figures led, however, to a generalized spread among the population at large. As a result, the typical VAA user is increasingly resembling a prototypical median voter—at least, in those countries where the majority of the voting population resorts to VAAs at election time. Importantly, from an attitudinal point of view, VAA users can be classified according to the three-fold

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typology developed by Van de Pol et al. (2014) and involving, in order of sub-population size:

- *Checkers*: the largest group of users, with high political interest, relatively strong certainty in their vote choice, and thus least interested in the voting advice provided by the application. They mostly use the VAA to merely check if the voting advice provided by the application matches with their pre-existing, relatively fixed voting intention.
- *Seekers*: users with comparatively lower political interest and clarity of party preferences. Their patterns of VAA usage point to a quest for guidance into the few alternatives being already considered.
- *Doubters*: the smallest part of a VAA sample, are defined by their strong lack of party preferences, and are in turn those more likely to be persuaded by the output of the VAA.

The academic literature on campaign innovations locates the spread of VAAs within a broader trend in the post-modern campaigning environment: the growing presence of non-party actors who “communicate” in electoral campaigns without running themselves for office (Farrell and Schmitt-Beck 2008). Like traditional media, they relay information about parties’ positions to voters. Unlike other sources, however, they provide personalized political information. Voters do not simply go to a VAA website to inform themselves about parties’ positions, but to match their personal political profile with the parties’ offer (Boogers and Voerman 2003). In doing so, they open themselves up for political self-persuasion. In the following section we will discuss the theoretical bases for political self-persuasion to take place. By doing so, we will refer to a hypothetical scenario in order to illustrate the logic of political self-persuasion.

## Logic

How does VAA-generated, tailor-made political information lead to self-persuasion among users of these online platforms? Before delving into the empirical findings offered in the literature so far, we propose a theoretical discussion of the logic underlying our argument. For the sake of clarity, we apply the heuristic of a scenario in which a random citizen of a random country is using a VAA developed for the upcoming elections.

Our citizen, let’s call her Julie, is curious about the upcoming national elections and ready to learn more about the candidates and parties running in her voting district. She would probably locate herself somewhere at the intersection of checkers and seekers. There are eight parties running for seats in parliament and all of them propose a list in Julie’s district; *mypersonalpolitics.org*, a widely known VAA in Julie’s country, has coded the positions of these parties on thirty policy statements, ranging from “The legalization of same-sex marriages is a good thing” to “The wealthy should be taxed more heavily.” Julie goes online and takes a position on each item. She also adds saliency to each of them, indicating how important an issue is to her. A simple algorithm then produces a match list with

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all eight parties running in the election listed according to their overlap with Julie's views.

Now Julie did have certain political priors before logging on to *mypersonalpolitics.org*, that is, she did have some kind of political interest, party preferences, and vote intentions. With the exposure to personalized information provided by *mypersonalpolitics.org*, Julie will not only learn more about politics in general—where the eight parties stand on the issues in the campaign—but she will most crucially learn more about *her own* politics—where *she* stands vis-à-vis the positions taken by each party on each issue. Therefore, the VAA-generated information is fundamentally different from two main forms of information Julie is exposed to during a campaign: information provided by campaigns themselves and expert or media-generated information.

First, campaigns are information providers that use all sorts of channels for bringing their message to Julie: classic techniques include direct mailing, phone calls, emails, canvassing, TV commercials, Internet-based ads, and so on, all of which are geared toward political persuasion. By employing these techniques, campaigns primarily try to persuade voters to turn out, to cast a vote in favor of their candidate, to donate money, and to help the campaign by spreading the message among colleagues, friends, and family. Messages are at best only marginally personalized and generally fail to offer objective comparisons with competitors' stances. Second, VAA-generated information is also fundamentally different from traditional information provided by experts and the media, which is not designed to persuade voters but rather to educate citizens about the stances of candidates and parties on the issues at stake. This latter form of "objective" information targets the entire voting population, and sometimes subgroups, such as the young, the elderly, and so on. But it is almost never aimed at an individual person, such as Julie, taking into account the views Julie has and adapting the information to these views.

What these two forms of campaign information have in common—the information provided by campaigns themselves as well as those produced by experts and the media—is their high level of abstraction. Such traditional information resembles horoscopes that are provided for any interested political Aquarius or Libra. VAA-generated information, on the other hand, is Julie's political palm reading. The information output is contingent on Julie's views on politics.

The tailor-made information reveals Julie's position within a political landscape populated by parties. It is not only a map of electoral politics, it also has a geolocation function, indicating Julie's position on the map similar to the blue dot in our smartphone applications. This particular form of precise information, based on Julie's stances on thirty political issues, may lead to two consecutive processes: First, Julie may internalize this personalized information, increase her knowledge, and generally learn from this information. Second, and as a potential consequence, Julie may update her political priors on where she stands with her political preferences vis-à-vis the electoral offer and even with her general attitude toward taking part in an election. And this process of updating can take the form of self-persuasion.

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For this translation of the newly acquired knowledge about her own politics into modified political preferences, such as vote intentions, or even into behavior, a number of preconditions might have to be met. For instance, Julie probably needs to trust *mypersonalpolitics.org* to provide her with objective information. It is sound to assume that the more transparent the tool—the coded positions of parties and the matching algorithm used—the higher the probability that its users will trust the platforms. Classic media studies have found that “trust in the media” serves as an important individual level moderator between the media and its user. The higher a medium’s credibility, the higher its influence (Eagly and Chaiken 1993; Hovland 1954; Santana Pereira 2012) In our scenario, *mypersonalpolitics.org* does have these credentials, so Julie does trust its output. Second, the strength of attitudinal priors makes it more or less likely that the newly acquired information changes, for instance, Julie’s vote intentions. Experimental research has shown that this is indeed the case (Taber and Lodge 2006).

Let us assume that Julie is ready to trust the VAA-generated, personalized, and tailor-made information. The match list shows that the Yellow Party matches her preferences best. This does not come as a surprise to her, as so far, her most preferred political party was, indeed, the Yellow Party. Julie also had the strongest vote intention for the Yellow Party prior to using *mypersonalpolitics.org*. The result of the VAA therefore confirms her top-placed vote intention and reinforces it. Exposed to the tailor-made voting recommendation, which matches her policy preferences with the stances of all parties running in the elections, Julie persuades herself that she was right from the outset. Her vote intention for the Yellow Party gets strengthened. So what was the mechanism at work in our scenario? It is a typical mechanism of self-persuasion, where “people [are placed] in situations where they are motivated to persuade themselves to change their own attitudes or behavior” (Aronson 1999, 875). For Aronson, one of the most prominent scholars of self-persuasion in psychology, change of attitudes or behavior is primordial. In the example of Julie, the reinforcement effect of self-persuasion, the confirmation of her initial preference, corresponds largely to this mechanism. Contrary to the direct impact of techniques of persuasion, where a receiver of information knows that the sender’s intention is to persuade the receiver, the impact of VAA-generated information is indirect. The information is generated by a politically neutral medium—the VAA—and contingent on the receiver’s own political stances.

In our scenario, Julie’s prior vote intention is confirmed by the tailor-made information. This confirmation leads to self-persuasion, similar to the well-known process of motivated reasoning (Colombo 2015; Kunda 1990; Lodge and Taber 2000, 2013; Taber and Lodge 2006). In the case of motivated reasoning, subjects make use of information in a biased way, that is, they only take the information into account that confirms their beliefs and therefore protects them from cognitive dissonance. In the case of VAA-induced self-persuasion, the information used by Julie is partly her own, that is, the result of the VAA is not exogenous to her preferences. This in turn makes it much easier for Julie to be self-persuaded by the result, both cognitively and possibly even emotionally, as the VAA works as some kind of political mirror of herself. The personalized, tailor-made information provided by the VAA thus activates both cognitive and emotional processes, consistent with



more recent insights on motivated reasoning (see for instance Lodge and Taber 2013; Marcus 2003; Marcus, Neuman, and MacKuen 2000; Mutz 2006). Note that if instead of the Yellow Party Julie would have found herself facing the Orange Party on top of her match list, the mechanisms of self-persuasion would have worked in a fundamentally similar way, albeit possibly with less clear results. As we will see in the empirical part of this chapter, it would have taken more self-persuasion for Julie to switch her primary vote intention than to reinforce her prior one.

In our example, we posited that the process of self-persuasion led to a reinforcement of Julie's initially expressed vote intention. However, the VAA-generated information typically shows the proximity of the user to all the parties running in the election. The probability may be quite high that more than one party comes close to Julie's preferences, therefore augmenting her potential choice set. For example, Julie may become not only more convinced about her primary vote intention, the Yellow Party, but also come to think more highly of the Orange Party as well as the Purple Party—with these parties lagging only a little behind the best-matching Yellow Party in her mind. In such a scenario, Julie may, again through the mechanism of self-persuasion, update her priors also with regard to the Orange and the Purple parties, strengthening her vote intentions (or more generally, her affect) for these two parties. In this scenario the result of self-persuasion may be ambivalence. Julie becomes an ambivalent partisan due to the “conflicting partisan evaluations” (Lavine, Johnston, and Steenbergen 2012) she is confronted with.

Self-persuasion may lead to combinations of effects that have been, so far, treated largely separately in the literature. For instance, VAA exposure may lead to both a process of reinforcement of one's prior vote intention *and* to ambivalence, by creating in the user some form of electoral availability (Bartolini and Mair 1990; Mair 1987) to alternative parties. Finally, VAAs may also have an effect on the intention to turn out. Depending on the VAA output, a user may become more or less inclined to turn out in the election. In the following section we present an overview of the research conducted so far in the field of VAA studies. In particular, recent experimental results confirm the logic of self-persuasion presented here.

## The Effect of VAAs on Their Users: A Review

In this section we concentrate on three different types of effects that can be imputed to VAAs. First, VAAs provide a particular form of information about parties and party positions that may ignite a number of *cognitive* effects, mostly in terms of increasing interest in and knowledge about politics. Second, the VAA output may provoke self-persuasion effects in terms of vote intentions and vote choice similar to the ones we discussed earlier. Finally, the intentions to turn out and other forms of electoral participation may be affected by this new type of campaign information sought by its users.

### Cognitive Effects: Information-Seeking and Political Knowledge

Several studies in the field of VAA research confirm the idea that usage of these platforms during the campaign improves a user's knowledge about political matters. Ladner (2012) reports that more than four *smartvote* users out of five indicate that using the VAA improved their knowledge of the 2011 Swiss election. Kamoen et al.'s (2015) analysis of the 2012 Dutch parliamentary election provides evidence that VAA usage increased users' perceptual knowledge of political parties and party standpoints. However, they also find discrepancies between perceptual and factual knowledge measures, thus casting doubts as to whether VAAs are actually capable of shaping knowledge—rather than just boosting perceptions of that knowledge.

This issue of causality is tackled by Schultze (2014), who shows that usage of the *Wahl-O-Mat* among German voters has a positive effect on users' knowledge about party standpoints. Similar findings are presented by Boudreau, Elmendorf, and MacKenzie (2018) in their experimental analysis of voter education tools in the US context. Importantly, knowledge effects appear larger for young users (Ladner, Fivaz, and Nadig 2009) as well as among those who consider VAAs to be a "serious" advice instrument (Alvarez et al. 2014b; Kamoen et al. 2015).

Significant VAA effects have been witnessed also in the domain of information-seeking behavior. A number of post-test surveys conducted among *Wahl-O-Mat* users in Germany show that between 50 and 60 percent of respondents declare to be motivated to collect further political information after having been exposed to the VAA (Marschall 2005; Marschall and Schmidt 2010). Similar figures are reported in the cases of Finland (Mykkänen, Moring, and Pehkonen 2007) and the Netherlands (Boogers 2006).

### Self-Persuasion Effects on Party Preferences, Vote Intentions, and Vote Choice

Let us turn now to the central question of this chapter, the detection of self-persuasion effects due to VAA exposure. Existing research has so far focused on the following key questions: Do VAA users change their pre-existing party preference/vote intentions in line with the advice provided by the tool? Under what conditions do such effects take place?

As to the first question, it is worth noting from the outset that the large majority of VAA users would appear relatively unaffected by the VAA in terms of *switching* party preferences or vote intentions. Making use of pre-electoral opt-in data from the EU Profiler, a recent cross-national analysis finds that, indeed, a large majority of those users who are advised to vote for a better-fitting, alternative party from their preferred one are hardly affected by the VAA output. Only a minority (about 8 percent) of EU Profiler users switched their party preference in line with the party proposed by the application (Alvarez et al. 2014b). Similar results are reported in national case studies from Belgium (Nuytemans et al. 2010), Finland (Mykkänen, Moring, and Pehkonen 2007), Germany (Marschall 2005), and Switzerland (Ladner, Felder, and Fivaz 2010).

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However, when switching occurs, the mechanism behind this rather radical effect is fundamentally cognitive in form. As Alvarez et al. (2014b) show, switching party preferences is best explained by the size of the distance between the user and the best-matching party. This distance corresponds to what Alvarez et al. call the *representative deficit*: the lower the match between the best-matching party's standpoints and the voter's preferences, the higher the representative deficit. The representative deficit becomes, in this study, the best predictor for switching party preferences post-VAA exposure. The underlying reasoning stems from the intuition that the revealed proximity between the user and the parties may, under certain conditions, lead the user to a learning process that eventually affects his political behavior. The representative deficit is precisely the conditioning mechanism that makes users more likely to take their revealed preferences into account. A low representative deficit can be interpreted as a convincing political self-portrait. It shows the users that "their" party—that is, a party that greatly overlaps with their policy preferences—does indeed exist. Alvarez et al.'s findings provide evidence that VAA users are responsive to the voting advice provided by the tool. Yet, they do not blindly follow the personalized suggestions: they do so only when they are shown convincing levels of overlap between their views and the best-ranked party's positions.

Arguably the largest proportion of VAA users remain either unaffected by VAA output (Wall, Krouwel, and Vitiello 2014) or find themselves in the situation of Julie. But this does not mean that VAA effects are non-existent; even if vote intentions do not change, confidence in one's choice may be affected. In a randomized field experiment carried out during the 2011 federal elections in Switzerland, Pianzola et al. (2019) empirically prove the existence of self-learning mechanisms. They part from the idea of Bayesian learning theory, according to which exposure to new information may lead to an updating of priors. If in the context of a VAA this updating takes place, then the VAA user may find herself with a set of posterior beliefs that are different from her priors (Achen 1992; Alvarez 1998; Bartels 2002; Fiorina 1977, 1981; Lenz 2009). As in the case of Julie, preferred parties became even more preferred by their users following VAA exposure: prior vote intentions for a given party therefore become strengthened due to the personalized information provided by the VAA. At the same time, and again identical to our scenario with Julie, alternative parties became electorally attractive to users. The latter significantly expanded the number of parties for which they harbored strong potential vote support.<sup>1</sup> Both mechanisms of motivated reasoning and of ambivalence generation were operating, so the authors of this study argue. In other words, self-persuasion mechanisms were at work, leading to an updated structure of vote intentions predicted by theory. What remains unclear, however, is to what extent these self-persuasion effects persist across time. According to one of the most prominent scholars in the field of self-persuasion, Elliot Aronson (1999, 875), "self-persuasion strategies produce more powerful and more long-lasting effects than do direct techniques of persuasion." Future—potentially experimental—research will have to address this important question in the field of political attitude formation.

When it comes to actual voting behavior, in terms of partisan choice, research so far only points to limited effects of VAA exposure. Compared to voting behavior, political preferences can be thought to be more responsive (that is, malleable) to the external stimulus

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provided by the voting advice vis-à-vis actual vote choices. Indeed, on the basis of a multi-wave (i.e., pre/post electoral) panel of Flemish voters, Walgrave, Van Aelst, and Nuytemans (2008, 65–66) demonstrate that the reported intention to alter one's vote choice in accordance with the advice provided is not always matched with actual changes in voting behavior: only a minority of users reporting a change of vote intention behaved accordingly at the polls.

A recent study by Kleinnijenhuis et al. (2019) regarding the Dutch national elections of 2010 and 2012 reveals genuine effects of VAA usage on vote choice. Most prominently, voters who were undecided were the most affected. In addition to such direct effects, Garzia and Marshall (2019) argue that other, more indirect, effects on users are still to be uncovered, for example the hypothetical effect of VAA exposure on party identification with other parties than a voter's most preferred one.

Generally, it appears that voters do not uncritically follow the advice obtained by the VAA—regardless of how much it simplifies the political decision-making process. After all, VAAs are only one among many competing information sources available to voters during a campaign. Most importantly, however, VAA generated information may result in self-persuasion, solidifying one's prior vote intention and, in extreme cases of convincingly strong overlap with a party different from one's initially preferred one, switching of vote intentions. In both cases it is the quality of the personalized information that affects its users. In parallel, at lower levels of partisan attachment, VAA exposure may lead to a widening of electoral choice sets. When VAA output shows its user that alternative parties are not so far from her preferred party, these alternatives enter an enhanced structure of vote intentions. As a result, the user becomes more of an ambivalent partisan.

### Persuasion Effects: Electoral Participation

As mentioned earlier in the section on the logic of VAA effects, users may not only be affected in their vote intentions. Their initial propensities to turn out may be equally impacted on by this particular form of personalized campaign information. Indeed, existing research on VAA usage and electoral participation grounds on the *civic voluntarism* model, which postulates that political resources, such as information and knowledge, are a key precondition for participation (Verba, Lehman Schlozman, and Brady 1995). With more information, citizens are better able to make sense of their own position relative to the electoral supply and thus more likely to cast their ballot in elections. Available studies of the impact of political knowledge on electoral participation confirm that higher levels of political information increase the likelihood of voting (Delli Carpini and Keeter 1996; Lassen 2005; Palfrey and Poole 1987). Accordingly, the individual-level probability to cast a vote can be postulated as inversely proportional to the effort required in gathering enough information. A number of costs are involved in the process of becoming sufficiently informed, namely: *procurement*, gathering the relevant data; *analysis*, undertaking a factual analysis of the data; and *evaluative*, relating data and/or factual analysis to specific goals (Carmines and Huckfeldt 1996, 245). With several issues at stake and a multitude of parties and/or candidates running for office, the task of gathering information may

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augment the cost of voting up to a point that overcomes benefits, thus possibly keeping citizens away from the ballots. In the low-information rationality framework, voters are expected to minimize this effort by relying on whatever “free” or inexpensive information can be picked up (Popkin 1991). In this sense, the wide amount of readily available information about politics and political parties provided by the VAA contributes to reducing the transactional costs involved in gathering relevant political information and increasing the likelihood of voting.

For VAAs to bear an actual effect on electoral behaviour, however, improving knowledge is a necessary yet not sufficient condition. Discovering one’s position vis-à-vis the political parties running in the election cannot be expected to lead the user to participate in a mechanical fashion. Her views need to be *echoed* to a reasonable extent by at least one of the available alternatives. This is where the crucial role played by tailor-made political information kicks in. Again, a study using observational data focuses on the concept of representative deficit discussed earlier (Dinas, Trechsel, and Vassil 2014). According to its authors, VAA usage may have both a participation- and an abstention-enhancing effect, depending on the user’s distance from the electoral offer. For instance, a perfect overlap with a political party may incentivize a user to go to the polls, while a user with a large representative deficit, finding himself to be somehow far from all parties, experiencing a sense of “political solitude” may discourage him from turning out. To use a simple commercial analogy, if the offer displayed in the shop window does not match the demand, the likelihood of entering the shop is low (Dinas, Trechsel, and Vassil 2014, 292).

The first studies investigating the impact of VAAs on electoral participation were conducted by Stefan Marschall and his team focusing on the German VAA *Wahl-O-Mat*. In both the 2004 and the 2009 German federal elections, more than one out of ten users declared themselves to “feel more motivated to turn out because of having used [that] VAA” (Marschall 2005; Marschall and Schmidt 2010). In the same years, another research group led by Andreas Ladner began analyzing the electoral impact of the Swiss VAA *smartvote*. Their early analysis of the 2007 federal election found about 40 percent of respondents declaring that using the VAA had a “decisive or at least slight influence on their decision to go to the polls” (Ladner and Pianzola 2010). On the basis of these data, Fivaz and Nadig (2010) concluded that the overall turnout in that election could have been about 5 percent lower had the *smartvote* platform not been made available to Swiss voters.

A critical issue with the aforementioned studies lies with their exclusive reliance on opt-in surveys administered to users right after having been exposed to the VAA. In other words, the influence exerted by the VAA on users is measured through self-assessment and *only* among those who are willing to fill the opt-in survey. Apart from being subject to a heavy self-selection bias, this type of data does not even assure that subjective estimates of impact will match with actual changes in terms of preferences and behavior.

In order to address this issue, VAA researchers have turned to mass survey data. Marschall and Schultze (2012) take advantage of a pre-electoral wave of the German Lon-

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gitudinal Election Study (GLES) and find a 6 percent increase in the probability of casting a ballot among VAA users as compared to non-users. However, their study suffers from rather low levels of external validity because the dataset employed consists of a quota sample of the German online population. Moreover, the dependent variable is measured before the election, so one cannot be sure whether turnout intentions get actually converted into electoral participation.

To overcome these limitations, a growing number of studies have resorted to data collected by national election studies. Working with nationally representative samples substantially increases the external validity of the findings. At the same time, the structure of post-election surveys allows for factual measures of VAA usage (rather than subjective assessments of impact) and actual voting behavior. Gemenis and Rosema's (2014) analysis of 2006 Dutch Parliamentary Election Study (DPES) data estimates, by means of simulation, that the presence of VAAs was responsible for 4.4 percent of the reported turnout in that election. The aforementioned analysis by Dinas, Trechsel, and Vassil (2014) on European Election Study (EES) data shows that even after controlling for a wide set of socio-structural, attitudinal and behavioral variables, the individual-level probability of casting a vote in the European Parliamentary election of 2009 was 14 percentage points higher for VAA users as compared to non-users.

This inventory of studies, by and large confirming the hypothesized positive association between VAA usage and electoral mobilization, highlights nonetheless commonalities in terms of their exclusive reliance on case studies. To put the mobilization hypothesis to a more demanding empirical test, Garzia, Trechsel, and De Sio (2017) performed a cross-national, longitudinal analysis of eleven election study datasets from four different European countries: Finland (2003, 2007, 2011), Germany (2009, 2013), the Netherlands (2003, 2006, 2010, 2012), and Switzerland (2007, 2011). The authors found strong effects of VAA usage on electoral participation in each country/election under analysis.

A well-known limitation of cross-sectional data concerns possible causal inference. VAA use is not randomly assigned to individuals. It is the respondent, rather than the researcher, who decides whether to use a VAA for the elections or not, thus self-selecting themselves into the "treatment condition" (in this case, using a VAA). If the decision to become a VAA user and the decision to go to the polls have common determinants that are either unmeasured or unknown, estimates from a regular regression model will be biased. The selection process might systematically distinguish VAA users from non-users, and if those differences are also predictive of electoral participation then regular regression methods will provide biased and inconsistent results (Wooldridge 2002). Hence, the ideal scenario for a causal assessment of VAA effects on users' patterns of electoral mobilization remains using a randomized experimental design.

Only a very limited number of experimental studies of VAA effects have been conducted so far. Vassil's (2012) analysis of the 2009 Estonian election to the European Parliament finds very weak effects of VAA usage on participation. As his study population consists exclusively of university students, however, the findings are of limited external validity. A

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similar problem afflicts the study by Maheo (2016) who administered her “treatment” only to a subsample of voters in a low-income voter neighborhood in Montreal during the 2014 Quebec provincial election campaign.

An experimental analysis of VAA effects involving a nationally representative sample of voters is that already mentioned by Pianzola et al. (2019) in the context of the Swiss Federal election of 2011. Yet another one was carried out by Enyedi (2016) in his analysis of the 2010 Hungarian parliamentary election. Both studies suffer from problems related to compliance rates of VAA takers in the treatment groups compared to VAA non-takers in the control group. In the Swiss example, for instance, given the overall wide availability of *smartvote* to all subjects included in the experiments, the proportion of VAA-takers in the control group was very high, decreasing the statistical power of the causal inference the authors could draw.

To overcome the limitations stemming from the existing studies, we set up an experiment in the context of the 2013 parliamentary elections in Italy (Garzia, Trechsel, and De Angelis 2017). The Italian case can also be considered an ideal “laboratory” for the assessment of VAA effects in the context of real-world elections; the country is in fact characterized by a surprising lack of VAAs made available to voters (Marschall 2014). Concerns with respect to potential compliers within the control group are further minimized by our decision to resort to a “mock” VAA platform. Through an invited accessibility design, the experimental VAA platform was in fact accessible only to the respondents in the treatment group. In this way, we were able to overcome the main shortcoming inherent to the existing studies without the need to indulge in the unpractical (as well as unethical) exercise of denying a group of citizens access to a VAA, while incentivizing others to use it. The experiment was embedded in a multi-wave computer-assisted web interviewing (CAWI) panel of the Italian National Election Study (ITANES). The panel design of the study was especially useful for the purposes of the experiment as it allowed us not only to measure the outcomes of interest after the election but also to measure baseline attitudes and behavior before participants’ exposure to the treatment. Our results provide further evidence for the positive impact of VAAs on electoral participation: indeed, the proportion of voters mobilized by the electoral campaign and having been exposed to the VAA was 10.7 percentage points higher than the mobilisation effect of the campaign excluding the VAA.

Indeed, the delivery of readily available, tailor-made political information to users does not only appear to enhance their knowledge about party standpoints it provides them with a clear overview of where parties stand compared to their own opinions, possibly motivating them to take advantage of their right to vote. We believe that, again, self-persuasion mechanisms are at work, by which a majority of VAA users trust the information, like the experience, learn about politics, and so on, to the point that participation in the elections become both more personally and socially desirable to them.

### Conclusion

This chapter focused on the impact of the Internet on modern elections in general and of VAAs on public opinion formation processes in particular. These tools have spread across the globe and millions of citizens have become used to consulting them prior to local, regional, national, and supranational elections. This increased usage of VAAs has several measurable impacts. As both observational and experimental studies show, exposure to VAAs boost individual level turnout. Furthermore, through a process of self-persuasion, both the choice set of electorally available parties is enlarged and prior party preferences for one's closest party strengthened when initial choice and VAA supported preferences coincide.

We believe that these findings are rather good news for democracy in the digital age. Research indeed shows that there is a real existing cognitive path, going from the search for arguments and issue-based information to taking the latter into account when deciding in electoral processes. This should strengthen the quality of democracy. Also, these findings might present an alternative to the most recent accounts of what one might call a not-so-intelligent, -capable, -reflecting or -rational voter (see for instance the important contribution by Achen and Bartels 2016). If given the possibility to compare their own preferences to the electoral offer, voters tend to reflect and to evaluate and finally, to be persuaded by themselves, by their own personal political preferences. It might also help some of them to overcome their political ignorance, offering them the opportunity to become "enlightened issue voters."

We believe that in today's times, this finding about self-persuasion is important as it shows that voters could indeed become more issue- or argument-based deciders. Many recent developments have revealed that technology can have destructive effects, including in elections. But technology can also be constructive, in particular if it can lead to the emergence of voter cognizing campaign information that is personalized to the extreme and also relatively objective. Cues, shortcuts, and heuristics may be tools helping voters to forge an opinion. But once exposed to their own reflections, based on issue preferences, they actually take the latter into account. So it could be that the fragmentation of the media environment leads to a renewed era of findings of "minimal effects" (Bennett and Iyengar 2008)—but it could also be that new technology enables "maximal effects" when voters are not persuaded, but self-persuaded.

Clearly, to better understand the effects of technology on voters in electoral processes, we need to dig further. Questions such as how VAAs actually change the nature of electoral campaigning, how parties and candidates react to these developments, how artificial intelligence could eventually enter the equation, and how VAA-effects are context-dependent are still largely lacking. For sure, the impacts of VAAs on elections are moving targets—but this makes research on these important developments even more pressing in the future.



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### Notes:

(1.) Note that due to the PR and open list electoral system in Switzerland, voting for more than one party is possible.

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