Introduction

Vasiliki Triga*

Department of Communication and Internet Studies,
Cyprus University of Technology,
Limassol, Cyprus
Email: vasiliki.triga@cut.ac.cy
*Corresponding author

Uwe Serdült

Centre for Research on Direct Democracy (c2d),
Centre for Democracy Studies Aarau (ZDA),
Aarau, Switzerland
Email: uwe.serdult@zda.uzh.ch

Theodore Chadjipadelis

School of Political Sciences,
Aristotle University Thessaloniki,
Thessaloniki, Greece
Email: chadji@polsci.auth.gr

Biographical notes: Vasiliki Triga is Lecturer at the Department of Communication and Internet Studies, Cyprus University of Technology. Before that she was a senior researcher at the Centre for Research on Direct Democracy (c2d) at the University of Zurich. She holds a PhD in Social and Political Sciences from the European University Institute in Florence. Her research interests lie in the field of ICT/internet based applications and political processes (e.g. Voting advice applications, social movements, etc.).

Uwe Serdült is vice-director of the Centre for Research on Direct Democracy (c2d) at the Centre for Democracy Studies Aarau (ZDA) and lecturer for the Master of Arts in Comparative and International Studies, offered jointly by the University and the ETH Zurich. He holds a doctoral degree in Political Science from the University of Zurich, Switzerland. Before going to Aarau he taught and worked as a post-doctoral researcher at the Universities of Zurich and Geneva respectively. Research stays lead him to Japan (Waseda University, Tokyo) and the USA (University of Pittsburgh, PA).

Theodore Chadjipadelis is a Professor at the Department of Political Science in the Aristotle University of Thessaloniki. Since April 2010 he is Board Member of "Information Society SA" and since 2011 he is President of the Managing Committee at the University of Western Macedonia. He has been involved in many committees and major projects concerning statistics, public administration and e-governance in Greece and abroad. His main research interests are applied statistics, electoral and political behaviour, urban and regional planning, e-governance.

Online voting tools, increasingly known as voting advice (aid) or engagement applications (VAAs or VEAs), progressively have been used in numerous European countries with the objective of offering to prospective voters a matching with the candidates/parties, providing clear information regarding the party/candidate agendas and clarifying the positions of candidates/parties on a series of policy issues. Although such tools have been initially used in the Netherlands and Germany, very soon they have penetrated many other national contexts with great success. They have been deployed in different types of electoral contests, like national presidential or parliamentary elections as well as less salient elections, like the elections for the European Parliament or regional elections. Despite the claim that such tools are considered especially adapted to multi-party electoral settings rather than to two party systems (e.g. the US with its Republican/Democrat contest) (Raimonaite 2010), they can still be useful by being candidate instead of party-based.

So far many VAAs have been used just once but in many different (small) countries attracting thousands of visitors. Yet there are VAAs, which have been more established and their consecutive use in a single country (like the Netherlands, Switzerland or Germany) has managed to attract a few million of visitors. The reasons regarding their increasing popularity may be attributed to a series of characteristics, such as their user-friendly interfaces and their relatively easy functionality to produce and show to the user the results that manifest the congruence of her/his views with the positions of the candidates/parties. The results are usually presented in interesting graphs, which are supposing to help the user visualise graphically her/his proximity or closeness to the candidates or parties. Although most VAAs are designed by different research teams based on the use of numerous web tools and functions, they all ultimately employ a similar mechanism, which is the following:

A research team prepares an online platform that consists of policy statements, (normally 30 to 35 – although there are cases that use 60 or more) which are evaluated as salient for the electoral contest and can divide the political parties. Subsequently a procedure for coding the parties or candidates' positions on the selected policy statements takes place. The coding of the positions is either done by an analysis of parties' manifestos or other official party-coded documents, experts' surveys, a self-placement procedure by the parties/candidates themselves or by a combination of all these ways (Trechsel and Mair, 2011). When the positions of the candidates/parties are entered into the system, then the platform is made available to the public at the beginning of the electoral campaign. Once users have provided their opinions on the policy statements, then the system matches their data with all candidates'/parties' data. The result that is produced is basically a ranking of the candidates/parties according to the percentage of matching with the users' preferences.[1]

Although there are differences involved in the various stages of the design and implementation of a VAA (e.g. number of policy statements, answer categories, number of parties included and coded, types of graphs presenting the results, variety of algorithms calculating the matching of the users with the parties' answers, weighting (or not) the policy statements, etc.), these do not alter the basic functioning and objectives. The observed differences between the various platforms are the result of specific theoretical choices, which will be one of the foci of the discussions in the papers consisting the special issue.

The increasing number of VAAs, and also the big amount of data generated, has given rise to a variety of research interests that can be organised into distinct research agendas. While in the start-up phase of the VAA research, the agendas were principally led by political scientists (Wagner and Ruusuvirta, 2012; Walgrave et al., 2008; 2009; Wall et al., 2012), the frequency of using VAAs and the emergent need for transparency, use of clear rules and innovative features led gradually to the involvement of researchers from other disciplines (psychologists, communication researchers, computer programmers etc). At the present stage, we could claim that VAAs constitute an interdisciplinary field of internet studies that is at an early phase and focuses mainly on political processes through the use of online tools. Another feature that characterises VAA studies is the dominance of case studies (e.g. Cedroni and Garzia, 2010), which admittedly offer a rich corpus of valuable data and details on specific electoral contexts. Case studies have been particularly useful at the birth of the VAA research since they have provided the necessary inductive insights for advancing the field. Presently though, what is needed more is a general frame that will emerge out of comparative studies. Comparisons between several cases will help to draw similarities and differences and identify more clearly the crucial research questions that need to be put forward by future research. This element is addressed to a certain extent by some of the papers included in the special issue.

Another tendency that is detected in the current state of literature on VAAs is the dominance of quantitative methodologies for the analysis of the collected data. This is hardly surprising since VAAs can generate large datasets ideally suited to quantitative studies. However, there is a case for deploying a variety of techniques, both quantitative and qualitative. The use of mixed methodologies and techniques will redirect the study on VAAs towards not just a top-down (guided by researchers) but also a bottom-up (guided by users) approach. The latter will enable an inductive evaluation of the actual role and use of the tools by the users themselves. This subsequently will inform the future design of VAAs.

In an attempt to disentangle the growing volume of research studies on VAAs, the special issue purports to keep a balance between a rather optimistic theorisation of VAAs potential (de Graaf, 2010; Ladner and Fivaz, 2010) and a more reserved, if not sceptical, position (Walgrave et al., 2009). This is achieved by including papers that identify the advantages of VAAs for the overall voting process and others that focus more on some problems from which VAAs cannot escape. The objective in doing so is to point out the potential strong and weak elements that future research will need to address.

To this end, we have attempted to organise the research on VAAs around two major axes, which also summarise the existing literature. The first one concerns all issues related to the design of the tool including important methodological aspects that are involved in every stage of preparation before launching it to the public. Such issues concern the selection and formulation of statements (Gemenis, 2012; Nuytemans et al., 2010; Walgrave, 2009; Walgrave et al., 2009), the party coding procedures and their reliability (Trechsel and Mair, 2011; Wagner and Ruusuvirta, 2009), the type and scale of answer categories, the calculation of the results (Louwerse and Rosema, 2011) and the organisation of the media campaign. The second axis is related to the analysis of data that is generated by VAAs. Such analysis may concern various levels and various national contexts. More specifically, some of the most common issues related to the profile of VAA users (Boogers and Voerman, 2003; Hooghe and Teepe, 2007; Marzuca et al., 2011; Wall et al., 2009), the effects of VAAs on voters' mobilisation and participation

(Marschall and Schmidt, 2010), the effects of VAAs on the process of opinion formation and the impact on the vote choice (Pianzola and Ladner, 2011; Ruusuvirta and Rosema, 2009), the ideological profile of parties/candidates and party mapping (Wall and Russurvita, 2012; Wheatley et al. 2012) as well as the logic of electoral competition (Ramonaite, 2010).

Based on such conceptualisation, the special issue is structured upon two parts each one of which consists of five papers. Below we focus on the first part that tackles VAA-design-related issues.

The first paper under the title '*Voting advice applications under review: the state of research*' by Diego Garzia and Stefan Marschall constitutes one of the first articles in the field that attempts to summarise and present comprehensively the state-of-the-art. A primary task is to identify several types of VAAs by pointing out the differences among them while underlining their basic similarities, namely their non-party character as well as the mechanism to compare the positions of voters' with the positions of parties/candidates. The authors recognise that VAAs constitute predominantly a European phenomenon and based on this premise they try to explain their popularity predicting simultaneously that VAAs will play an important role in the future. They identify the following themes which are rendered as the major research pillars that link the past, present and future research: political behaviour, political parties including party formation and organisation, political communication and democratic theory. Although the authors focus mainly on political science, their explanations of how VAAs can be useful tools for modern democracies open up the field for innovation and interdisciplinarity.

The second paper '*The practicalities of issuing vote advice: a new methodology for profiling and matching*' by André Krouwel, Thomas Vitiello, and Matthew Wall provides a generic methodology of how to design a VAA based on a specific tool, the Kieskompass. After its first application in the 2006 Dutch legislative election, Kieskompass has been used in many other elections, national and supranational. The authors discuss in detail the eight-step methodology that they propose. Special emphasis is drawn on how to code parties' positions on the selected policy statements. Their approach lies in the fact that they employ a combination of tools for coding parties' positions, such as self-placement by the parties themselves as well as experts' coding based on novel party-document analysis techniques (e.g. the use of automated text-analysis to extract salient issues, practices of specifying a 'hierarchy' of party policy sources and a process of 'authorisation' in which the parties and the coding team interact (often over several 'rounds' of contact) to produce a final coding decision). In their analysis they use data generated by the Kieskompass in order to test their approach and show the difficulties involved when researchers attempt to represent aggregate voters' opinions in a political map along with the parties positions. They conclude that a combined approach of party coding can offer a more valid estimate of party positions avoiding potential problems of arbitrariness and error. This, in turn, can furnish citizens with useful information and engage them in political discussions and deliberation.

Another important topic regarding the design of VAAs is tackled by the third paper by Aphrodite Baka, Lia Figgou and Vasiliki Triga. The title of the paper *'Neither agree, nor disagree': a critical analysis of the middle answer category in Voting Advice Applications*' already indicates that the main focus is on the answer categories and in particular, the meanings attributed to the middle category of a five-point Likert scale that is commonly used by VAAs. The innovation of this paper lies firstly in the fact that it

adopts a qualitative approach, which is not common in the existing volume of research studies, and secondly in that it challenges basic premises regarding the meanings attributed to the middle category by VAA users. The analysis is undertaken on data collected from users of the 'helpmevote' VAA that took place in October 2010 for the Greek local elections. It is based on the written justifications for choosing the middle category of the Likert scale provided by users. The results of the thematic analysis reveal that mid-point response was selected by the users not only to convey lack of knowledge or indifference, in accordance with the existing literature, but also to express dilemmas or objections towards the formulation of the policy statement. Such outcomes underline the fact that VAAs and especially the selection of the policy statements entail the typical problems of a close-ended questionnaire that is measured on a Likert scale. Furthermore given that VAAs are linked to political processes and in particular elections, they are implicated with inherently dilemmatic issues (e.g. ideology), a fact that needs to be taken into consideration when selecting the policy statements.

In the paper '*Matching voters with political parties and candidates: an empirical test of four algorithms*', Fernando Mendez approaches a topic at the core of VAA research: How are user's subjective policy preferences aggregated to produce a match with the parties/candidates? The argument is that VAAs are predicated on a particular model of vote choice in which the citizen is assumed to be (or ought to be) an issue voter. All other considerations that are known to affect how citizens vote (such as party identification, charismatic leadership, valence considerations, retrospective voting etc.) are ignored by VAAs. This is largely as a result of deliberate VAA design, for it would be difficult following the present logic of VAA design to incorporate such factors. Mendez argues that although most VAAs have been based on a proximity model of issue voting there is also a directional model that should be considered. Both models of issue voting (proximity and directional) give rise to at least four metrics (algorithms). The empirical analysis of the paper then focuses on which metric (algorithm) performs best. The findings could have important implications for VAA design.

The last paper of the first part of the special issue under the title '*Design challenges in cross-national VAAs: the case of the EU Profiler*' by Tom Louwerse and Simon Otjes addresses another important methodological aspect of VAAs, since it discusses the dimensionality of political space as been defined by the EU profiler. More specifically, the objective is to examine whether the dimensions used to delineate the political space in Europe conform to the underlying patterns based on which users select their answers (scale reliability). Along with this analysis, the authors also test whether these dimensions conform to other estimates of party positions, such as expert surveys (convergent validity). The results show moderate to high convergent validity and low scaling reliability, which is attributed to the special characteristics of the EU profiler and mainly its cross-cultural nature and structural issues regarding party competition in Europe. Regarding the latter the authors make reference to another argument according to which the differences between political parties in various European countries cannot simply be aggregated into a pan-European model. More specifically, they pose the question of whether VAAs should opt for providing voting recommendations or just information regarding the parties' positions. Every choice has different implications for the design and the mapping of the political space on which the user is able to find his/her position.

The following five papers belong to the second part of the special issue as they are focused on the analysis of the data generated by VAAs. Each paper deals with different issues using different methodological tools.

The paper entitled '*Voter advice applications in practice: answers to some key questions from Turkey*' describes the promotion of one of the first VAAs that has ever taken place in Turkey. This paper does neither fully tackle design related issues nor does it solely concentrate on data analysis. In fact it focuses on the organisation of the campaign for the VAA that covered the 2011 Turkish Parliamentary elections, its role in penetrating the public, and its diffusion as well as its impact on the Turkish context. The authors, Ali Çarkoğlu, Thomas Vitiello and Mert Moral, provide a rich description of the Turkish media system and its characteristics such as political parallelism, polarisation and rather biased coverage of the elections. They name the campaign as 'double screen' due to its organisation on both traditional (television, newspapers) and new media (email lists, online blogs, social networks, etc.). In this context, the VAA appeared as a differentiated tool that was perceived as 'objective'. In an effort to estimate the importance of channels though which users gained access to the VAA platform, the authors implemented an innovative methodology based on a multiple-interrupted time series (MITS) analysis. Their overall conclusion puts forward two important elements of the organisation of the campaign that can be valuable for future cases. Firstly, the fact that the nature of the media system as well as the type of the campaign has an effect on the profile of the VAA users. Secondly, the fact that although VAAs are effective online tools, in order to attract users, they need to be advertised through both online and offline media.

In '*Using VAAs to explore the dimensionality of the policy space: experiments from Brazil, Peru, Scotland and Cyprus*', Jonathan Wheatley addresses issues related to the field of party politics in a comparative manner. More specifically, the author investigates the question how the data generated by a VAA can be exploited in order to identify possible policy dimensions among the responses of VAA users and how to map the ideological orientations of partisan supporters along these dimensions. To test this, the author uses data from four different VAAs, the presidential elections in Brazil (2010) and Peru (2011) and the parliamentary elections in Scotland (2011) and Cyprus (2011). To map the policy space in the four different national settings, he firstly identifies the core supporters of every party and then measures the ideological congruence with the respective party. The analysis confirms the empirical validity of the two-dimensional (Left-Right and GAL-TAN) model of ideological space in the four cases. The results of this analysis do not only contribute to the VAA literature but also to the wider field and existing volume of methods on party mapping.

The next three papers investigate the question whether VAAs have an impact on the electoral choices of the users. Researchers have attempted to measure such potential effects in various ways, such as by measuring the degree of political participation or other issues related to vote choice. Both elements are elaborated by Stefan Marschall and Martin Schultze in their paper '*Voting advice applications and their effect on voter turnout: the case of the German Wahl-O-Mat*'. The authors combine rational-choice arguments with voter's issue-orientation aiming at answering the question whether VAAs and, in particular, the German Wahl-O-Mat, have an impact on the voting procedure. They evaluate the effect of VAAs in connection to the overall debate regarding the effects of online communication on political participation. Their leading hypothesis is

constructed upon two major premises regarding VAAs. On the one hand, VAAs contribute positively to the collection and dissemination of information related to the voting process and, on the other, they help users to acquire a clearer idea of the parties' positions on a series of policy themes, which subsequently helps them to formulate their preferences in a better manner. Through an innovative methodological approach that combines various sources of data (such as "German Longitudinal Election Study") the authors compare Internet VAA users with non-users and demonstrate that for the German Federal Election in 2009 the Wahl-O-Mat had a significant effect on users' intention towards voting. Such findings are in agreement with previous studies that proclaim the mobilising potential of VAAs.

The paper '*Voting advice applications and party choice. Evidence from smartvote users in Switzerland*' contributes to the corpus of studies that control for potential impact of VAAs on specifically the vote choice. While the previous paper controls for potential effects on voter's turnout, the authors of this paper examine the impact of VAAs on their users' electoral choices for the 2007 Swiss parliamentary elections. Based on (pre- and post-election) survey data collected from voters and users of the Swiss VAA, namely the smartvote, Andreas Ladner, Jan Fivaz and Joëlle Pianzola measure how the smartvote recommendations affect the actual voting decisions of the VAA users. The results from the analysis show that users may be affected but certainly not all in the same way. The majority of smartvote users employ the recommendations for refining their voting choices. Yet although this outcome is important, it does not tell us whether this refinement affects the actual vote. To address this problem the authors undertake an additional in-depth analysis by inserting a second measurement. An important explanatory indicator appears to be the tendency to 'swing-voting', which characterise those who changed their party choices in the 2007 elections from the previous ones. The authors acknowledge that for addressing questions regarding the impact of VAAs on vote choices there is a necessity to improve the quality of the available data and resolve the problem of self-selection. However, despite the limitations of such studies, the potential influence of VAAs on individual electoral decisions is a very crucial matter that needs to be investigated further since it will have a decisive effect on the design and quality of VAAs.

The last paper by Patrick Dumont and Raphaël Kies concentrates on the smartvote.lu, which was used during the 2009 national elections in Luxembourg. As the title of the paper shows '*Smartvote.lu: usage and impact of the first VAA in Luxembourg*' the focus is twofold. On the one side, the authors investigate the profile of the users and whether the level of education, degree of political interest and media consumption play an important role on the probability of the VAA usage. On the other side, they examine and control for the same factors on the VAA's impact on the electoral outcome. For addressing both research questions, they run a multi-variate analysis on a post-electoral representative survey with the goal to identify the factors influencing both the VAA usage and impact. The results of their analysis confirm the existing knowledge generated by previous studies regarding the profile of VAA users being young, educated and politically leaning more towards the left. Nevertheless the analysis reveals also that although the better-educated, younger, more interested voters are greater VAAs users, they are at the same time the least influenced by the use of the tool.

In bringing together many of the different strands of VAA research, this double special issue aims to provide the reader with an advanced introduction into some of the major issues that surround the study of this growing phenomenon. It does so by

reviewing the state of the art, identifying some of the most common methodological problems of VAA design, and offering examples of what type of empirical research can be conducted on VAA generated data.

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Note

1 In some cases, such as the Kieskompass, results are presented in terms of a two-dimensional map.