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Same but different: A typology of Voting Advice Application users in first- and second-order elections

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Abstract Voting Advice Applications (VAAs) fulfill different needs for different citizens. In national elections, the majority of users can be characterized as politically sophisticated citizens who use VAAs for entertainment purposes and confirmation of their party preference, but a significant minority uses VAAs to learn about politics and make an informed vote choice. VAAs might, however, play a different role in second-order elections, since in these elections campaign dynamics and information supply are very different. In the current research, we applied latent class analysis on user data from a widely used Dutch VAA (*Kieskompas*) for a supranational and several subnational elections in the Netherlands, to test if an extant typology of VAA users for national elections could be replicated. We find that the typology can be replicated for most of these elections, but also that the relative size of the

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groups of users differs across elections; in all second-order elections except for the provincial elections, more doubters and seekers are found relative to national elections. This suggests that VAAs are likely to have stronger mobilizing potential in these second-order elections.

Keywords Voting Advice Applications · User typology · Second-order elections · Digital divide · Latent class analysis

Introduction

Not all elections are created equal—and not all election campaigns therefore have the same intensity and enjoy the same interest from voters. In particular, supranational (European Parliament) and subnational elections (municipality councils, regional political arenas) receive less media attention than their national counterparts (De Vreese et al. 2007), and interest and turnout on the part of voters is also lower (Hobolt and Wittrock 2011). After all, less is at stake in these second-order elections, and voters recognize this (Ervik 2012; Heath et al. 1999; Reif and Schmitt 1980). Voters may therefore be less well informed about the key issues of the campaign, the choice of parties, and party agendas.

Voting Advice Applications (VAAs) could be very helpful to voters who want to make up their minds about their vote choice. VAAs inform their users about what are the important issues, what are the positions of parties on these issues, and which party is closest to the individual voter with respect to these issues. While little is known about VAAs in second-order context, research has shown that in national election contexts, there is a large demand of VAAs. In the Netherlands, for example, the multi-party democracy where VAAs find their origins, *Stemwijzer* and *Kieskompas* together provided voting advice to 6.85 million users in the week prior to the 2017 national elections (De Telegraaf 2017). And in other democracies too, substantial numbers of voters consult a VAA before going to the ballots (Marschall 2014; Sudulich et al. 2014). Research has also established substantive, although modest, effects of VAAs on measures of political participation in first-order contexts: using a VAA contributes to higher levels of internal efficacy and possibly to more knowledge (Schultze 2014; Van de Pol 2016; Westle et al. 2014), increases electoral turnout (Gemenis and Rosema 2014), and affects vote choice (Alvarez et al. 2014; Kleinnijenhuis et al. 2017; Wall et al. 2012).

To better understand these effects, it is essential to know to whom they apply. While VAAs might contribute most to political knowledge for those who are already knowledgeable (Westle et al. 2014), gain in efficacy and turnout are highest among less politically sophisticated voters (Gemenis and Rosema 2014; Van de Pol 2016). Therefore, more insight is needed in who uses these applications, and why.

Early research revealed that the users of national VAAs are on average younger, higher educated, more often male, and more interested in politics than the general electorate (Hirzalla et al. 2010; Hooghe and Teepe 2007; Marschall and Schultze 2015). This suggests that VAAs might only have limited capability to mobilize or



engage citizens, as they are mostly used by those who are engaged already (Norris 2001). A recent study by Van de Pol et al. (2014), however, broadened this scope and took into account motivations of VAA users. In the context of the Dutch 2012 national elections, they identified three types of VAA users, called *checkers*, *seekers*, and *doubters*. While the *checkers* seem to fit the picture of the politically sophisticated VAA user from earlier studies quite well, a minority of VAA users (the *seekers* and *doubters*) indicates not to be very efficacious and interested in the campaign, and is uncertain about their vote choice. Hence, they do not belong to the ‘choir’ VAAs are sometimes said to be preaching to.

A question arising from this research on user types in national VAAs, is to what extent these types generalize to second-order contexts: do local- regional- and European-level VAAs also attract visitors who are looking for information to make a voting decision, i.e., the *seekers* and *doubters*, or rather visitors who have already made their voting decision (i.e., *checkers*)? To answer these questions, we surveyed VAA users about their usage at the moment they completed the VAA, and did this for all types of elections held in the Netherlands, that is, the 2014 municipal elections, the 2014 European elections, the 2015 provincial elections, and the 2015 water authority elections. The aim of this study is to replicate the analysis on VAA users for the Dutch 2012 national elections reported by Van de Pol et al. (2014), and to examine whether the typology developed in that study holds at other levels of government in the Netherlands. To test the typology, we conduct analyses on the structure of user characteristics for each election, and additionally, we compare timing patterns of VAA use.

Theory

Normalizing or mobilizing: a typology of VAA users

With respect to online political information consumption, one of the most important academic debates is on the question as to what extent the internet or certain digital media are capable of mobilizing voters, and specifically those who are *not* politically interested (Bimber et al. 2014; Norris 2001). More precisely, can online tools and sites, by lowering the costs of communication and participation, increase engagement in politics? Can they contribute to political knowledge and electoral turnout (known as the *mobilizing hypothesis*)? Or are the traditional, offline inequalities in political engagement and knowledge reinforced in the consumption of online political information, which means they have a *normalizing* effect rather than *mobilizing* (Norris 2001)?

Within this debate, Voting Advice Applications serve as an interesting case. When assessing the normalizing and mobilizing capacities of VAAs from the Uses and Gratifications perspective—claiming that people are active and goal-directed in choosing the media that gratify their needs (Kaye and Johnson 2004)—one might be tempted to conclude that VAAs fit the normalization thesis. This is because VAAs cannot be ‘consumed’ passively (users need to put effort in answering all statements and understanding the results) which may result in VAAs magnifying the gap



between those who are interested and informed about politics already, and those who are not.

In a study of German *Wahl-O-Mat* usage, Marschall and Schulze (2015) make a number of observations that support the claim that VAAs may have a normalizing rather than a mobilizing effect: Those who decide to use a VAA are voters who are already interested in politics, use internet as their primary source of political information, and base their vote choice on issues rather than other considerations (e.g., charisma of the party leader).

Although the above is on average true for VAA users, there might be substantial variations among users in their motivations to turn to the tool. Studying the use of the Dutch *Kieskompas* in the 2012 national elections, Van de Pol et al. (2014) found that three different user types could be distinguished, based on their reason to use the VAA (inspired by the Uses and Gratifications approach), as well as on some other parameters: vote certainty, internal efficacy, external political efficacy, and interest in the campaign. We will now further define the user types in Van de Pol et al. (2014) based on these indicators.

The group of users with the highest level of internal efficacy and most interest in the campaign (the checkers) often already decided about their vote choice and used the VAA primarily to check whether they end up being recommended to vote for their favorite party, or for entertainment purposes. Almost two-thirds (58%) of the VAA users in the study by Van de Pol et al. (2014) could be placed in this group, and interestingly, this group used the VAA relatively early in the course of the election campaign. Seekers, by contrast, hardly use a VAA for entertainment, but primarily to make a voting decision. This is probably because almost none of them already made up their minds about their vote choice. Seekers made up for about one-third of the VAA users in the study by Van de Pol et al. (2014). This group is much less interested in politics and less (internally) efficacious as compared to checkers, and they hardly ever use the VAA for entertainment purposes, but rather, to decide which party to vote for. A small third group of users (10%) are *doubters*, who are less trustful in the capacities of politicians to respond to their demands than seekers and checkers, and do not have a particular motivation for using the VAA. Both seekers and doubters consult the VAA relatively frequently on Election Day, or the day before.

In sum, although ideas about goal-directed media consumption—as assumed by the Uses and Gratifications approach—seem to support the expectation that VAAs are only used by those who are already interested in politics, it could also be the case that they gratify the needs of those *not* interested in politics (the seekers and doubters) to quickly and without too much effort inform themselves and make a thoughtful voting decision. The question is to what extent this also holds for second-order election contexts.

First- versus second-order elections

In second-order elections, such as the elections to the European Parliament and to local councils, generally less is at stake than in the first-order national elections.



According to Reif and Schmitt (1980), this leads to lower turnout, a better performance of small and new parties compared to large and government parties, and voting decisions that are motivated by national issues rather than issues faced by the EU (or the regional government).

Most literature on second-order elections focuses on EP elections and relatively little work has been done on subnational elections (Jeffery and Hough 2003). Despite some updates and recent nuances such as the rise of Eurosceptic parties and institutional changes giving the European Parliament more power (Hix and Marsh 2011; Hobolt and Spoon 2012), EP election outcomes are still closely in line with the second-order elections model (Hix and Marsh 2011; Van der Brug et al. 2016). Additionally, many observations made by Reif and Schmitt (1980) about the second-order nature of the elections to the European Parliament apply to local and regional elections as well. For example, in the Dutch subnational elections (to the municipality councils, provincial councils, and water authorities), less is at stake—policywise—compared to the national elections. The municipalities, provinces, and water authorities all have to operate within the framework of policies set out by the national government. This is supported by a study by Heath, McLean, Taylor, and Curtice (1999) who indeed observe many parallels between local and European elections in Britain. They argue, however, that local elections can be considered ‘second-order’ to a lesser degree than European Parliament elections: turnout is higher and voting decisions are to a lesser extent based on national political issues than in European Parliament elections.

The findings by Heath et al. (1999) about turnout and vote decisions are consistent with the hypothesis that the less is at stake in elections, the less voters feel motivated to find out about issues relating to the specific arena they are voting for, and the less motivated voters feel to turn out to vote. Interestingly, this is precisely where VAAs claim to be helpful: informing voters about party positions on the most important issues, and by doing that increasing the turnout. A couple of studies indeed confirmed the positive effects VAAs have on turnout (e.g., Dinas et al. 2014; Gemenis and Rosema 2014) and political knowledge (Kamoen et al. 2015; Schultze 2014) or at least a feeling of political efficacy (Van de Pol 2016). If VAAs in second-order elections are more often used for informing oneself about issues, we may therefore expect a larger number of seekers and perhaps also doubters in the different second-order elections as compared to first-order elections.

Hypotheses

Based on the typology developed in Van de Pol et al. (2014) and the second-order election model, we formulate the following expectations:

H1 The user typology of checkers, seekers, and doubters that was found for first-order elections can be replicated for second-order elections



Table 1 Kieskompas use in each election in the Netherlands

Year	Election	Number of VAA users	Number of exit survey respondents
2012	Parliament	694,387	53,617
2014	Municipality council	473,989	33,736
2014	European parliament	183,915	11,800
2015	Province council	32,171	1,558
2015	Water authority	710,289	27,933
	Total	2,094,751	128,644

H2 The proportion of seekers and doubters will be larger in second-order elections as compared to first-order elections, whereas the proportion of checkers is expected to be smaller in second-order elections as compared to first-order elections.

Because checkers are more interested in the election campaign than seekers and doubters and will be aware of the availability of VAAs sooner, we expect checkers to use VAAs relatively early in the campaign as compared to seekers and doubters, whose usage of VAAs will be more prominent close to the elections. This was found for first-order elections by Van de Pol et al. (2014). But since we expect to find more seekers and doubters in second-order elections contexts, we also expect relatively less traffic at the VAA website during the campaign compared to election day.

H3a Checkers use VAAs earlier in the campaign compared to seekers and doubters, who tend to use VAAs closer to election day

H3b Overall, in second-order elections, usage of VAAs will be more concentrated closely to election day as compared to first-order elections, and the more second order the election the more this is the case.

Data and methods

Participants

Our analyses rely on data collection in collaboration with VAA developers *Kieskompas*. *Kieskompas* is the second most widely used VAA in the Netherlands and served as a prototype for many other VAAs worldwide, such as the *EU Profiler* and the Canadian *Vote Compass* (Marschall and Garzia 2014). In the Netherlands, *Kieskompas* develops a VAA for all elections. In the period from 2012 to 2015, all types of elections that are held in the Netherlands took place once: the national legislative elections (for the parliament) in September 2012, municipal elections in March 2014, elections for the European Parliament in May 2014, and province council elections and water authority elections in March 2015. Table 1 shows how often



the VAAs were used in each of these elections. For the parliamentary elections, the European elections, and the water authority elections, a nation-wide Kieskompas VAA was developed. In the municipal elections, a VAA was developed for 36 of the 403 Dutch municipalities, and in the province council elections, a VAA was developed for one of the 12 provinces (the province of Utrecht).¹ This variation in the availability of Kieskompas across elections for a large part explains the variation in number of VAA users reported in Table 1.

The design of the VAA is identical for each election: on the first ‘page’ users are asked to indicate their age, gender, education, the extent to which they have already decided which party to vote for, and their interest in politics. Subsequently, users give their opinion on a Likert scale to a list of 30 statements about key issues in the election campaign (like “All nuclear power plants should be closed by the end of 2015”). Kieskompas compares these responses with the positions of all parties on these issues, and presents the match in a two-dimensional coordinate system, usually with left–right and progressive-conservative-orientation as the two axes (see Krouwel et al. (2012) for details and Otjes and Louwrese (2014) for a discussion). About 1 min after arriving at the result screen, a short questionnaire (the *exit survey*) pops up with questions about the user’s reason to use the VAA, internal efficacy, external efficacy, and the extent to which they followed the election campaign. The response rates to the exit survey varied between 3.8 and 6.7%, with a mean of 5.2% of all VAA users. The analyses reported in this paper are based on items from this exit survey, the background information asked on the first page, and the log data from the site, specifically the moment at which the user visited the application.

This study focuses on the users of VAAs rather than the population of voters or inhabitants of the Netherlands. Kieskompas is one of the two widely used VAAs in the Netherlands (together with Stemwijzer), and in this study we included all responses to the Kieskompas exit surveys that ran in each of the five elections mentioned above. For an estimation of the extent to which the exit survey responses are representative for Kieskompas users in general, we can compare the exit survey sample to a larger group of Kieskompas users that responded to socio-demographic information asked on the first page of the web application (for which the response rate was much higher: between 56.9% (2015 provincial elections) and 74.8% (2012 national elections)). There are no large discrepancies; especially for education, the

¹ For the provincial elections, a VAA was available in all 12 Dutch provinces, but only the province of Utrecht had a VAA developed by Kieskompas. The province of Utrecht is quite a typical Dutch province, with a total of 1,253,672 inhabitants (average for Dutch provinces is 1,402,441); a population density of 907 inhabitants per km² (minimum for Dutch provinces is 186, maximum 1275); an average percentage of people under 21 (24% for Utrecht, 23% for Dutch provinces on average); an average percentage of inhabitants with a non-Western origin (12% for Utrecht, 10% for Dutch provinces on average), but a higher than average mean income per capita (€35,500 for Utrecht, €30,717 for Dutch provinces on average) (CBS, 2014). Hence, there is no reason to assume that the results for this province differ from results that would be obtained in other provinces. During the municipal elections of 2014, not every municipality had a VAA available for its citizens. Municipalities in which a VAA was available during the 2014 elections are on average more multicultural and have a lower mean income per capita (Klein-nijenhuis et al. 2017). It is hard to predict how this could affect the external validity, but it is conceivable that this would result in relatively more seekers and doubters using the VAA in our sample.



proportions in the exit survey samples reflect these in the Kieskompas user population quite well. The percentage of females in the exit survey sample is 4–10 percentage points lower than in the population of Kieskompas users, and the exit survey sample is slightly higher educated (up to 3 percentage points more highly educated respondents). The sample of exit survey respondents is on average slightly (seven years) older than the population of Kieskompas users. See Table 3 in Appendix for all distributions.

Indicators

To develop the typology of VAA users (Van de Pol et al. 2014), indicators were measured in the exit surveys of the VAA for the 2012 Dutch national elections. The selection of each of these indicators was based on previous VAA research and literature on political news consumption. These indicators have proven to be helpful in explaining online political news consumption in particular (e.g., Brandtzæg 2010; Kenski and Stroud 2006; Liu and Eveland 2005). In the current study, for reasons of comparability and replicability—except for interest in the provincial elections and reason to use the VAA in the national elections—all indicator variables used for the analyses are identical to Van de Pol et al. (2014).

The answer categories for the first indicator—one’s reason for using the VAA—were inspired by the factor analysis reported by Kaye and Johnson (2004), and adapted to VAAs. In the 2012 national elections, the categories were to gain more insight into the positions of the parties; to check whether I agree with the party I intend to vote for; to determine which party to vote for; or as an entertaining test to think about or discuss with others. In the other elections, a fifth category was added (inspired by the results of the 2012 elections): to check if the VAA makes sense. The second indicator, vote certainty, was measured using the following categories: I have already decided which party to vote for; I am still deciding between a few parties; or I do not know yet.

Internal efficacy was measured using the statement “I feel that I have a pretty good understanding of the important political issues facing our country,” taken from the standard internal efficacy scale (see Morrell 2003). “Country” was replaced by the relevant political arena, i.e., “municipality,” “province,” “water authority,” or “the EU.” Respondents indicated to what extent they agreed on a 5-point Likert scale ranging from “completely disagree” to “completely agree.” External efficacy was operationalized with the item “There are so many similar parties that it does not matter whom I vote for,” which was also used by De Vreese and Semetko (2004). The same 5-point answer scale was used here.

The last indicator was the intensity by which respondents followed the election campaign: very intensely, intensely, not very intensely, or not at all. The last two categories were collapsed because of the low number of respondents choosing them. In the provincial elections, this item was not included in the survey, which is why we replaced it for this election with the question: “How interested are you in politics,” with five answer categories ranging from “very interested” to “not interested at all.” To make the categories as comparable as possible to the other elections, we reduced



them to “(very) interested,” “not interested, not uninterested,” and “not interested (at all).” In the municipal elections and the EU elections, where both questions were included, the correlation between interest in the campaign and interest in politics is $r = .49$ and $r = .51$, respectively.

Analysis

The typology was developed using latent class analysis (LCA) on the indicators described above (Van de Pol et al. 2014) for the 2012 Dutch national elections. In short, LCA searches for a categorical latent class structure that explains the response patterns of different respondents. It tries to fit a mutually exclusive and exhaustive classification (typology) of respondents explaining these response patterns. This classification then indicates the probability of answering questions in a certain way (e.g., indicating to have high internal efficacy), depending on class membership (Hagenaars and McCutcheon 2002). LCA differs from other classification techniques, like cluster analysis, in that it uses an iterative approach to find the model (classification solution) that best fits the data, instead of providing an ad hoc classification of the data. Like principal component analysis, it looks for a latent factor explaining the response patterns, but while PCA results in continuous latent variables, LCA searches for a categorical latent variable explaining the response patterns.

Ideally, the question of replicability would be judged by including all elections in one model, and—using multigroup LCA—to formally test if the model fit improves when means are allowed to vary across elections but the measurement model is restricted to be the same, compared to a model without assumptions about comparability across elections (Hagenaars and McCutcheon 2002). In that case, one can be confident to have observed the same classification in each election. However, we cannot use this approach for our complete dataset as the indicator ‘reason to use’ has slightly different answer categories in the national elections compared to the other elections, and the indicator ‘intensity of following the campaign’ is not included in the provincial elections. This inhibits the ability to conduct comparable, formal tests. We are able to run this formal test to compare the classification for the municipality, European, and water authority elections, which is thus our first step to see if the typology replicates across elections.

To still be able to address the first hypothesis for *all* election types, we ran the same LCA as Van de Pol et al. (2014) using the same indicators for the municipal elections, the European parliament elections, the provincial elections (here we used interest in politics rather than interest in the campaign), and the water authority elections. Next we compared the classifications in the municipal, European, provincial, and water authority elections with the classification in the national elections (Van de Pol et al. 2014), based on the criterion that for each variable the primary type of users, scoring highest on the variable or category, should be the same across all elections. In other words, the values defining a type (the group with most efficacy or most people indicating voting uncertainty) should be consistent over elections. For instance, if checkers score highest on internal efficacy, or if checkers more often



than other user types indicate that they already decided which party to vote for, this should be true for all elections.

Conditional on the typology being replicated in the other elections, in the next step we study the proportion of each user type across the different elections using χ^2 tests. Finally, we assess the user traffic for each user type over the course of the campaign, and compare this between elections to test using a correlational analysis our second and third hypothesis.

Results

Formal test of user types

Table 2 shows the results of the latent class analysis for each election.² The first three columns in the table show the results for the 2012 national elections, also reported in Van de Pol et al. (2014).³ In order to examine the first hypothesis that the typology developed for the national elections can be replicated for second-order elections, we compare each typology to the original. Based on Table 2, the face validity of the typology across elections is clear (the similarities in response patterns that can be observed across elections are quite evident), but we will test the replication in two ways.

As explained in the method section, multigroup latent class analysis can be used to formally test if the same classification is observed in different elections, but this is only possible for the municipality, European, and water authority elections. A multigroup LCA model comparing only the municipality and European elections, in which means are allowed to vary across elections but the measurement model was restricted to be the same, resulted in a significantly better fit than that of a model without assumptions about comparability across elections ($\chi^2 = 258584.4$, $df = 31$, $p < .001$). In other words, we can be sure that we measured the same types of VAA users in both elections (Hagenaars and McCutcheon 2002).

When we include the water authority elections, this results in a slightly worse fit, which indicates that the typology is slightly less comparable in these elections. Therefore, we applied the second, less formal criterion formulated in the method section—that the ordering of types on each variable should be constant across elections—both to assess whether the typology can be replicated for the provincial elections and to assess how the typology for the water authority elections is different from that of the national elections.

² In Table 2, the labels added to the classification results in all elections after the 2012 national elections are based on the interpretation of the authors. The LCA only gives the distributions of the indicator variables. However, we could easily identify the same types across elections because the distributions for the classes in each election resemble the distributions for the original 2012 typology to a great extent.

³ To make the results more comparable, we rescaled external efficacy to have a range from 1 to 5, which is why the values reported here are one-scale point higher than the values reported in Van de Pol et al. (2014).



Table 2 Distribution of indicator variables (rows) per election (columns) for three user types (sub columns) in percentages and rank numbers (between brackets)

Reason for using the VAA	2012 National elections				2014 Municipal elections				2014 European elections			
	Doubters	Seekers	Checkers	Total	Doubters	Seekers	Checkers	Total	Doubters	Seekers	Checkers	Total
Gaining more insight into party positions	19 (1)	19 (1)	14 (2)	16	23 (3)	30 (1)	26 (2)	28	19 (2)	22 (1)	22 (1)	22
Checking agreement with favorite party	26 (3)	29 (2)	46 (1)	38	14 (3)	15 (2)	41 (1)	24	19 (2)	16 (3)	48 (1)	31
Determining vote choice	29 (2)	41 (1)	3 (3)	17	48 (2)	51 (1)	5 (3)	34	46 (2)	59 (1)	6 (3)	32
For entertainment	25 (2)	12 (3)	38 (1)	28	8 (2)	2 (3)	18 (1)	9	9 (2)	1 (3)	16 (1)	9
Checking sensibility VAA					7 (2)	2 (3)	11 (1)	6	8 (2)	2 (3)	9 (1)	6
<i>Total</i>	100	100	100	100	100	100	100	100	100	100	100	100
Vote certainty												
Already decided	19 (2)	3 (3)	54 (1)	34	10 (2)	1 (3)	44 (1)	18	12 (2)	1 (3)	39 (1)	20
Still deciding between a few parties	45 (2)	64 (1)	43 (3)	50	35 (3)	47 (2)	49 (1)	46	38 (3)	49 (2)	57 (1)	51
Don't know yet	36 (1)	33 (2)	3 (3)	16	55 (1)	52 (2)	7 (3)	36	50 (2)	51 (1)	4 (3)	28
<i>Total</i>	100	100	100	100	100	100	100	100	100	100	100	100
Internal efficacy (M)	3.4 (2)	3.3 (3)	4.0 (1)	3.7	2.8 (2)	2.8 (2)	3.6 (1)	3.1	2.9 (2)	2.8 (3)	3.6 (1)	3.2
External efficacy (M)	2.2 (3)	4.2 (2)	4.5 (1)	4.2	2.1 (3)	3.9 (2)	4.3 (1)	3.8	2.1 (3)	4.0 (2)	4.4 (1)	4.0
Intensity of campaign interest												
Very intense	7 (2)	2 (3)	14 (1)	10	15 (2)	7 (3)	39 (1)	20	18 (2)	8 (3)	38 (1)	23
Intense	32 (2)	30 (3)	54 (1)	44	22 (3)	26 (2)	36 (1)	29	28 (2)	27 (2)	37 (1)	32
Not very intense/none	62 (2)	68 (1)	31 (3)	46	63 (2)	67 (1)	25 (3)	51	54 (2)	65 (1)	25 (3)	45
<i>Total</i>	100	100	100	100	100	100	100	100	100	100	100	100
Percentage of each type	10	32	58	100	15	49	37	53,617	11	41	48	100
<i>N</i>				53,617				33,736				11,800



Table 2 (continued)

	2015 Provincial elections				2015 Water authority elections			
	Doubters	Seekers	Checkers	Total	Doubters	Seekers	Checkers	Total
Reason for using the VAA								
Gaining more insight into party positions	20 (3)	32 (1)	28 (2)	29	21 (3)	23 (2)	36 (1)	26
Checking agreement with favorite party	14 (3)	15 (2)	44 (1)	31	10 (2)	6 (3)	33 (1)	15
Determining vote choice	41 (2)	50 (1)	6 (3)	25	60 (2)	70 (1)	18 (3)	52
For entertainment	15 (1)	2 (2)	15 (1)	10	4 (2)	1 (3)	8 (1)	3
Checking sensibility VAA	10 (1)	2 (3)	7 (2)	5	5 (2)	1 (3)	6 (1)	3
<i>Total</i>	100	100	100	100	100	100	100	100
Vote certainty								
Already decided	15 (2)	3 (3)	42 (1)	25	10 (2)	5 (3)	33 (1)	14
Still deciding between a few parties	38 (3)	59 (1)	57 (2)	56	22 (2)	22 (2)	47 (1)	30
Don't know yet	47 (1)	38 (2)	1 (3)	19	68 (2)	73 (1)	20 (3)	55
<i>Total</i>	100	100	100	100	100	100	100	100
Internal efficacy (M)	2.4 (3)	2.6 (2)	3.2 (1)	2.9	2.3 (3)	2.4 (2)	3.1 (1)	2.6
External efficacy (M)	2.0 (3)	3.9 (2)	4.4 (1)	4.0	2.1 (3)	3.8 (2)	4.1 (1)	3.7
Intensity of campaign interest^a								
Very intense	46 (2)	30 (3)	78 (1)	57	17 (3)	11 (3)	38 (1)	21
Intense	37 (2)	59 (1)	21 (3)	36	23 (3)	25 (2)	37 (1)	29
Not very intense/none	17 (1)	11 (2)	1 (3)	6	60 (2)	64 (1)	25 (3)	51
<i>Total</i>	100	100	100	100	100	100	100	100
Percentage of each type	10	36	55	100	16	52	32	100
<i>N</i>				1,558				27,933

^aFor the provincial elections we measured interest in politics rather than interest in the current campaign

User types based on rankings per category

Taking the second criterion formulated in the method section—that for each category the type of users ranking highest should always be the type of users ranking highest—we conclude again that the typology of VAA users as developed for the national elections, replicates rather well for second-order elections.

We discuss this ranking for each indicator variable. Starting with the indicator *Reason for using the VAA*, Table 2 shows that the reasons *gaining more insight* and *determining vote choice* are always chosen most often by seekers, except in the water authority elections where checkers most often indicate *gaining more insight* as a reason to use a VAA. The reasons *checking agreement with favorite party* and *for entertainment* are in each election most often selected by checkers. Also *checking sensibility of the VAA* is in each election most often chosen by checkers—except in the provincial elections.

When looking at the indicator *vote certainty*, checkers turn out to always be the primary group indicating they already decided and doubters almost always the primary group indicating they do not know yet—only in the water authority elections these are the seekers. The seekers are the group most often indicating they are still deciding in the national and provincial elections; in other elections these are the seekers.

Checkers are in each election the user group scoring highest on internal and external efficacy.

Regarding the indicator *intensity of campaign interest*, finally, we also see a very consistent pattern: checkers always are the most interested and seekers always rank highest on *not very intense/none*—except for the provincial elections, where a slightly different question was asked to the respondents.

Summarizing, in line with hypothesis 1 we can largely replicate the typology that was established for the national elections in second-order elections in the Netherlands. The LCA results for the water authority elections show relatively the strongest deviations from the typology that was developed for the national elections, which corroborates the results from the multigroup LCA.

The proportions of user types

Hypothesis 2 predicts that in comparison to first-order elections, in second-order elections the proportion of seekers and doubters will be larger relative to the proportion of checkers. Departing from the observation that the typology that was developed for the national elections is similar in second-order elections, we can test hypothesis 2 by comparing the shares of checkers, seekers, and doubters in each second-order election to the proportions found for the first-order national elections. We performed a series of χ^2 tests to do this. The distribution of user types indeed appears to differ for both the municipal elections ($\chi^2 = 3816.03$; $df = 2$; $p < .001$), the European election ($\chi^2 = 414.59$; $df = 2$; $p < .001$), and the water authority elections ($\chi^2 = 5122.77$; $df = 2$; $p < .001$) in comparison to the national elections. If we look at the shares of user types in all these second-order elections, in line with hypothesis 2, we indeed



see that the proportion of seekers and doubters is larger as compared to the national elections, whereas the share of checkers is smaller. However, the distribution of user types for the provincial elections is not significantly different to what we found for the national 2012 elections ($\chi^2 = 9.90$; $df = 2$; $p = .078$).

User types and VAA use over time

Hypothesis 3a predicts checkers to be relatively more prominent early in the campaign as compared to seekers and doubters. Figure 1 shows the usage of VAAs over the course of the campaign for each election. Like in the 2012 national elections, the second-order elections have a small peak at the beginning of the campaign—when the VAA becomes available—and a large peak on and just before election day. Only in the water authority elections, there was no peak at the campaign start. In line with H3a, checkers visiting the VAA website mostly cause the peaks at the beginning of the campaigns. The presence of seekers is more or less constant throughout the campaign until just before election day, when there is a huge increase in VAA use by seekers. The peak at the end of the campaign is primarily driven by seekers using the VAA, and to a lesser extent by doubters.

When comparing the overall use of VAAs over the course of the campaign between first- and second-order elections, the difference is striking. In support of H3b, the concentration of usage around election day is much stronger in second-order elections. This is also reflected in the correlations between overall frequency of usage and time (see Fig. 1); for second-order elections the number of visits increases much stronger with time in the run-up to the elections. Most extreme in this regard is the water authority election, and least extreme among the second-order elections is the provincial election. Concluding, in second-order elections we observe information-seeking activity relatively much *later* than in first-order elections. This finding seems to be at odds with the fact that the reported interest in the election campaign, among the full sample of VAA users, is much lower for the national elections than for all other elections (see the marginal distributions for each election in Table 2).

Conclusion and discussion

This study demonstrates that the election context matters for the use of Voting Advice Applications. We studied at all types of elections—a supranational, a national, and three subnational elections—and found substantive differences in VAA usage and user types. More specifically, we can draw three general conclusions.

First, in each election we can distinguish the same three types of VAA users: checkers, seekers, and doubters, largely corroborating the typology developed in Van de Pol et al. (2014). Their distinctive usage patterns are largely similar across elections: checkers are most certain about their vote choice, most interested in the campaign and most efficacious about politics. In contrast, seekers use VAAs to learn: they are generally less interested, less internally efficacious, and less decisive about



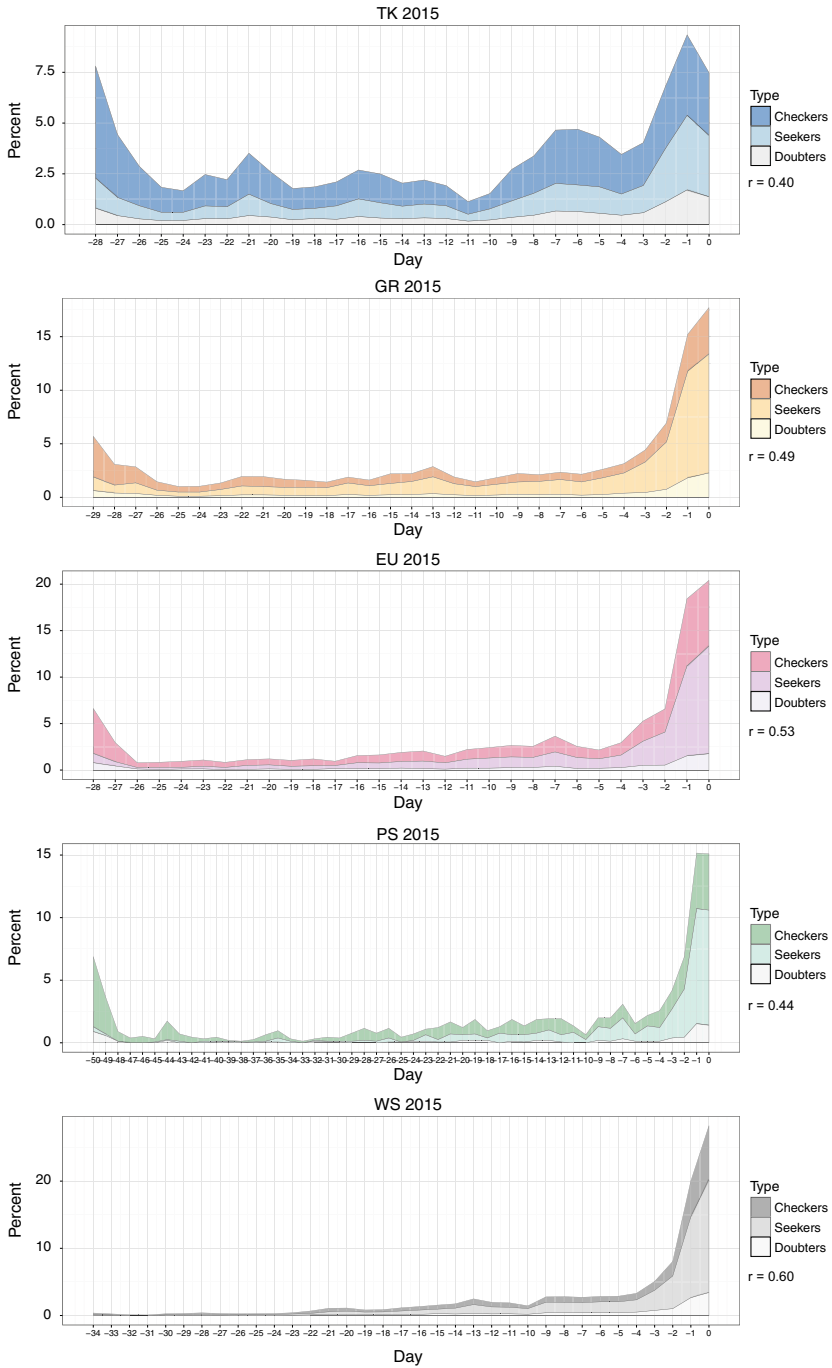


Fig. 1 Frequency of visits per day of the campaign, for each election. Correlations between number of days until election day and the total frequency of visits are shown in the legend



their voting decision, so they mostly consult VAAs to determine their vote choice. Doubters are relatively less internally efficacious as well, but especially doubt the responsiveness of the government. While in each election the response patterns for each user type is very similar, deviations are relatively largest for the water authority elections.

Secondly, there are differences between first- and second-order elections in the proportions of each user type: The proportion of seekers and doubters is higher in all second-order elections, except for the provincial elections. These findings are in line with the second-order election literature: because less is at stake in these elections, voters are less engaged (Heath et al. 1999; Hobolt and Wittrock 2011). The pattern observed in the data fits nicely with the importance of each election in the Netherlands. Because the provincial elections also indirectly determine the composition of the national Senate, relatively more is at stake in these elections compared to other subnational elections. In line with this, in these elections, checkers are almost as prominently represented as in the first-order elections. In contrast, in the water authority elections even less is at stake than in other second-order elections, since the policy area in which these authorities operate is relatively limited (flood control and water resources management).

Our third main conclusion is that, as expected, checkers use VAAs relatively *early* in the campaign and seekers relatively *late*, while doubters' use of the tool is quite stable over time. In addition to these differences between users, we found large general differences between elections. During second-order elections, voters use VAAs much later in the campaign than during first-order elections. Again, we observe this difference at its extreme for the water authority elections, where more than 50% of all traffic happens in the last three days of the campaign.

Our finding that in second-order elections, more than in national elections, VAAs are used for gratifying informational needs—finding out about party positions and determining one's vote choice—suggests that VAAs' mobilizing capacity is larger in second-order elections. Previous findings that VAAs are mostly used by those who are politically interested and engaged already (Marschall 2014; e.g., Marschall and Schulze 2012), do not apply to second-order elections, where the checkers are in a minority—except for the provincial elections. Since VAA users in second-order elections are generally less politically sophisticated, probably there is a larger opportunity for beneficial VAA effects in these elections, like increased internal political efficacy and electoral participation. These VAA effects, after all, are stronger for less politically interested citizens (cf. Zaller 1992), especially the seekers. The mobilizing potential of VAAs is strongest in the final days of the election campaign, when VAA usage increases sharply and most users are seekers.

This is the first study to focus on a comparison of VAA use between first- and second-order elections. Yet, it has a few limitations. In order to achieve the highest possible response rate in the exit survey—on which our analyses are based—we needed to be concise and could only measure both internal efficacy and external efficacy with one item, while they are usually each measured with more items. In the trade-off between more reliable measurement and a larger and less biased sample of



VAA users, we prioritized the latter. We selected the items that were most relevant for VAA use. Relatedly, unfortunately there were inconsistencies in the measurement of these indicators across elections, preventing us from testing a more sophisticated multigroup latent class model for all elections. However, we could establish measurement equivalence for two elections, and for the other elections we observe highly similar patterns across elections. Secondly, it has to be noted that this sample of respondents who answered the exit survey is a non-random, self-selected group of VAA users. While the size of this sample is modest judged by the response rate, its composition does not differ much from the population of *Kieskompas* users in terms of gender, age, and education (see Table 3 in Appendix). Lastly, as VAAs are relatively established in the Netherlands—even in second-order elections—our findings might be less directly applicable to other countries where VAA usage in subnational elections is less widespread, or where not as many parties participate in the elections. We presume that in a two-party system a similar three-fold typology of VAA users may exist, but the proportions of each group as well as the time patterns of use may well be very different.

Another limitation of the current study is that only *Kieskompas* users were included in our research, and no users of the Dutch VAA that is used more often: *Stemwijzer*. Little is known, yet, about the differences between usage and reasons of use for *Kieskompas* users and *Stemwijzer* users, if any. Also, the prime focus on *Kieskompas* users guided our selection of municipalities, province, and water authorities in this research. We were unable to draw a random sample of municipalities and provinces, and had to use what was available to us. There is no a priori reason to expect these particular units to be different from others, but in our research, there was no way to formally assess that assumption.

For future research, we suggest to compare the indicators used in this study between VAA users and non-users, who were not taken into account in these analyses. This way, more can be said about the likelihood of less politically engaged citizens to use VAAs, and hence whether VAAs successfully reach less informed segments of society. The current study could also serve as a starting point to investigate effects of VAAs in second-order elections, to find out whether VAAs contribute to knowledge, efficacy, and participation more in second-order elections than in national elections. For now, we demonstrated the value of VAAs for informational needs in campaign times, which is larger in second-order elections.

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Appendix

See Table 3



Table 3 External validity of exit survey samples for the population of VAA users: socio-demographic characteristics

	National (2012)		Municipalities (2014)		Europe (2014)		Provinces (2015)		Water authorities (2015)	
	Population	Sample	Population	Sample	Population	Sample	Population	Sample	Population	Sample
% Female	41.1%	31.6%	47.0%	42.9%	42.6%	34.6%	45.9%	37.0%	47.3%	43.4%
Age										
<i>M</i>	39.02	45.80	41.70	49.38	40.70	47.62	43.61	51.01	42.59	51.74
<i>SD</i>	15.02	14.89	15.38	15.02	15.51	16.22	15.94	15.47	15.27	15.37
Education										
Low	7.8%	7.1%	7.4%	8.5%	5.0%	5.3%	5.7%	6.7%	5.3%	8.6%
Middle	34.1%	29.1%	33.4%	30.6%	30.6%	28.5%	26.5%	24.4%	31.8%	31.3%
High	58.1%	63.8%	59.3%	60.9%	64.3%	66.1%	67.8%	68.8%	62.9%	60.1%



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