Voter Advice Applications in Second-Order Elections

To what extent does the use of VAAs in the European Parliamentary Elections 2009 lead to a higher voter turnout?

[redacted]

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Supervisor: Dr. Giedo Jansen (first) and Shawn Donnelly (second)

University of Twente, Drienerloaan 5, 7522 NB, Enschede, Netherlands

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Abstract

Voter Advice Applications have been predominantly introduced in the context of national elections with research on VAAs therefore focusing on their impact on citizens and elections in national contexts: From their functionality, impact on party-choice of the users to mobilization rates, knowledge over their contribution to society has been widely researched. In this research, the mobilizing effect of VAAs is studied in the context of the European Parliamentary Elections 2009, which is considered to be second-order in nature due to low turnout rates when compared to turnout rates in national elections. The hypothesis of this research is that citizens' use of VAA has a positive impact on the turnout of the citizen as compared to citizens that did not use VAAs. The study assumes that second-order elections show differing composition of VAA user types and hence an increased effect for VAA use on turnout is expected. The analysis is conducted by running a logistic regression analysis including VAA users from Belgium, Denmark, Finland and the Netherlands with confounding variables education, gender, political interest and socio-economic status included. The results of this research confirm the hypothesis, with VAA users being three to six times more likely to turnout, however the validity of the result is limited by the small number of included confounders.

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1. Introduction

Voter Advice Applications (VAAs) have seen increasing popularity during election campaigns both regionally, nationally and supranationally in the European context (Garzia and Marschall, 2016, Garzia, 2010). With the rise of VAAs in Europe, researchers have increasingly researched on their function, effects on voter and candidates and potential on voter turnout and election campaigns (Garzia and Marschall, 2016). The introduction of technological tools such as VAAs poses a new way of citizens to inform themselves and hence practice citizen participation in a modern democracy. Although VAAs have been found to increase turnout in national elections in prior research, there is little knowledge on their impact in elections that are second-order in nature, that is exhibiting consistently lower turnout rates compared to national elections. Such second-order elections are commonly regional or communal elections and European Parliamentary elections. To understand the potential that VAAs possess to contribute to citizen participation and representation, the latter ought to be first re-evaluated for their impact on democratic legitimacy in the modern day of institutional and technological shifts.

Citizen participation in democracies have undergone major transformations: From city assemblies where politics were defined by the very citizens gathered to small city-states to the nation states that we know today. With large populations having to organize their rule, representative democracy "is democracy rendered practicable for a long time and over a great extent of territory" (De Tracy, 1811, p. 19). The efficacy of this new representative democracy, in which representatives act in politics in large nation states, is in a field of tension with political participation (Dahl, 1989, Urbinati, 2011, p.26). The role of the citizen in representative democracy "has a watchdog quality: it is passive rather than active" (Barber, 1984, p.34,) as constituents passively monitor their representatives over the implementation of campaign pledges (Urbinati, 2011). A complex network of national and supranational political institutions far from the reach of citizens has changed high citizen participation into a fundamental necessity for a democracy to be considered representative.

Voting as the most prominent aspect of political participation (Janoski and Gran, 2002, Aldrich 1997) has received scrutiny by researchers and political debates on micro- and macro-levels: The micro-level analysis of voting addresses individual measures such as attitudes, beliefs, knowledge and personality traits whereas macro-level analysis of voting attempts to draw conclusion from aggregate data on turnout (Salisbury, 1975, Geys, 2006, Dhillon and Peralta, 2002). With the analysis of both micro- and macro-levels researchers aim to crystallize what affects the voter turnout and how therefore voter turnout can be subsequently increased.

Voter turnout has decreased from the 1980s, when 76% of voting age population voted during parliamentary elections globally (IDEA, 2016). In the period of 2011-2015 only 66% of the population in voting age had cast their vote in the parliamentary elections (IDEA, 2016). To have a closer look at the trend in Europe, voter decline has been more significant there than on other continents: Average turnout across established European democracies show a consistent decline of 10 percent within the last 25 years, whereas European post-communist countries are faced with 20 percent since free elections in the late 1980s (IDEA, 2016).

The political arena has broadened with the development of technological devices and the internet as campaigns are taking partially place digitally and tech-savvy voters are reached through technological devices such as initially television and radio but at later developments of the internet through mobile phones, computers or tablets. Technology has since provided cheaper and more direct access to political information and forms of new participation (Fox and Ramos, 2012, Hirzalla et. al., 2011). The vast offer of media has made it difficult for the voter to navigate between biased information resulting from filtering technologies that might lead to information bubbles and information overload (Heblich, 2016). The overload resulting from general political information can lead to a resignation of the voter since party positions are not always clear (Heblich, 2016) and multiparty systems require voters to inform themselves on more candidates than in two-party systems. Research at the turn of the millennium has

been consistent that the new coverage of politics by media has led to disengagement of citizens in voting as "interested individuals cannot find substantive information on which base their votes and are turning away from the political process" (Tolbert and McNeal, 2003 p. 176, McChesney, 1999).

In addition to the impact of technological shifts, it is crucial to consider institutional shifts in the party positions and landscape on declining voter turnout. From traditionally four cleavages such as centre vs. periphery, catholic vs. protestant, rural vs. urban, owner vs. worker (Rokkan, 2000) a shift towards a two-dimensional cleavage in political behavior has been manifested. With increasing secularity, education levels, standards of living and sectoral change, the classic cleavages of political behavior have been shifting: The rise of 'new politics' and 'new values' (Franklin 1992, Inglehart, 1977) have given way for demands of cultural liberalism and social justice. These new preferences, identities, values and interests pose the existing parties under pressure to re-evaluate their program. Kriesi et. al. argue that the mainstream parties in the European context take up the new preferences and embed them in their own party program (2006). This convergence of the mainstream parties by the 1990s and with it the left-centrist party's detachment from labor unions has been researched as a cause for voting decline in established democracies (Karreth, Polk and Allen, 2012, Howell, 2001, Spoon and Klüver, 2019).

However, results on the significance of party convergence on turnout decline has been inconclusive (Kittilson, 2003). Crepaz (1990) measured that voter turnout is significantly influenced by the party landscape's diversity and the presence of emerging post-materialist parties that address topics such as the environment, women's rights, and participatory democracy. The range of policy positions enables the voter to find a party that matches its preferences. In return, a mere presence of mainstream parties of a left-right spatial model is more likely to result in lower turnout as the voter cannot find distinguishable policies and hence leads to resignation of the voter (Crepaz, 1990).

With multi-party systems and simultaneous party-convergence, citizens are increasingly reliant on the availability of non-biased information to distinguish between the political positionings of the candidates and parties before an election to cast an informed vote. VAAs aim to provide citizens with such an overview and have been continuously developed across European states. Research on the impact of the use of VAAs on the electoral turnout has shown a positive relationship of varying degrees. Research by Gemenis and Rosema (2014) found that of the total turnout in the Dutch parliamentary elections was increased by 4.4 percent and that the increase can be explained by the mobilizing effect of the use of VAA. In the context of German national elections Marschall and Schmidt (2008) researched that of VAA users those politically uninterested 15 percent mentioned a mobilizing effect whereas 12 percent who did not have a party preference were most likely to be mobilized by the use of VAA. Ruusuvirta and Rosema (2009) found that in pre-election interviews 40 percent of those who intended to vote ended up using a VAA. 30 percent of those who did not know whether they would vote eventually used a VAA, whereas only 12 percent of respondents who intended to not vote finally used the VAA.

However, as surveys with VAA users are often conducted in the immediate aftermath of the use of the app, respondents are often asked solely on their intention to vote and controlling for their actual turnout at the election proves impossible. Due to this issue, it is possible that on aggregate level a turnout increase will not be observed in proportion to the intention to vote or the claim to have voted by surveys and this has been indeed found in one study (Walgrave, van Aelst and Nuytemans, 2008). Additional research has been made as to what the demographics and user typology behind the mobilized users were. Although the abovementioned findings indicate that VAAs have a mobilizing effect, it is important to note that the mobilizing effect is not equal to all users but varies based on demographics and personal traits but also in the election type that the VAA is used in.

Recent research suggests that the mobilizing effect in second-order elections such as regional, municipal or European Parliament Elections, is potentially significantly higher as compared to national elections (Van de Pol, et. al., 2019). This assumption is based on the analysis of user profiles and finding that

users with higher probability to be influenced by the VAA in their intent to cast a vote are proportionately more represented in second-order elections (van de Pol, et. al., 2019). However, no prior research has verified whether VAA users are more likely to turnout in second-order elections. Assuming that the mobilizing effect of VAAs will be considerably larger in second-order elections, the social and scientific relevance of ascertaining this effect can be substantial. This is further substantiated with the consistently lower levels of voting participation in European Parliamentary Elections as voters consider the European Parliamentary Elections less salient in comparison to first-order elections: From 45.5 percent in 2004, to 43 percent in both 2009 and 2014 to 51 percent in 2019 (European Parliament, 2019), voter turnout in European Parliamentary Elections is consistently lower compared to over 70 percent turnout in national elections of established European democracies and over 55 percent in post-communist countries in Europe in 2015 (IDEA, 2016). A quantifiable increase in voter turnout among VAA users in second-order elections can encourage further research in the development of VAAs and thereby pave way for a more equal political representation of 466 million inhabitants of the European Union.

2. Research question

A literature review reveals that the use of VAAs have a positive effect on the subsequent voter turnout of its users in first-order elections (Gemenis and Rosema, 2014, Marschall and Schmidt, 2008). Since second-order elections typically show a lower voter turnout and a differing user type distribution, it is assumed that the mobilizing effect of the use of VAAs can be higher in the context of second-order elections (van de Pol et.al., 2019). Based on this theory, the central research question of this proposal is: "To what extent does the use of VAAs in the context of European Parliamentary Elections 2009 lead to a higher voter turnout among citizens?".

3. Theoretical framework

In this section, the state of the art of VAA research and second-order phenomenon are revisited. This chapter will consider current theories on why we can assume different mobilizing effects in second-order elections among VAA users based on the perceived salience of the election and subsequent differing VAA user types. A hypothesis will be derived based on the findings and lastly, theories on the confounders to voter turnout will be discussed.

3.1 VAAs and their user rates

VAAs provide voters with socially, economically, and politically topical theses and the choice to express their level of accordance to these prior to an election, matching the responses with stances of political candidates and parties (issue-matching system). The voter is then provided with a ranking of parties and candidates that his answers matched best based on differing algorithms and hence providing the voter with advice on his vote. Their development dates to 1989 when the Dutch VAA StemWijzer was developed: initially shared as a floppy-disc among students it had five million uses in 2006 (VAA Research, 2020). Nowadays, VAAs are widely used mostly in Europe, with more than one VAA operating in most European countries (Garzia, 2010, Garzia and Marschall, 2016). Although having spread also to Tunisia, Egypt, USA, Venezuela, and Mexico to name a few, the VAAs in Netherlands, Germany, Belgium and Finland exhibit the highest user numbers per capita (Garzia and Marschall, 2016) with i.e. 13 million users of the Wahl-O-Mat in the German federal elections 2013, and a million users of the Vaalikone in Finnish national elections in 2007.

Reasons for the high user numbers in the aforementioned countries has been subject to research. Garzia (2010) argues that there are both micro and macro level explanations for the phenomenon. On the macro-level, the age of the VAA matters as it allows for the optimization, visibility, and familiarization of citizens with the tool and hence countries that introduced VAAs earlier exhibit higher user rates. In Belgium, The Netherlands and Finland, VAAs were presented in prime-time TV shows and have been

partly developed by national newspapers or broadcasting companies, such as the case of Vaalikone by the Finnish national broadcasting company YLE or the Doe de Stem Test! in Belgium by broadcaster VRT (Garzia, 2010) allowing for increased visibility. More strongly, however, political systems seem to play a role in the differing success of VAAs in Europe: VAAs have been found to succeed better in countries with a higher degree of proportional representation as opposed to two-ballot systems or low proportionate representation. Since the proportionate representation systems foster multi-party landscape, users are keener on seeking guidance to finding their political match in a party or candidate (Garzia, 2010) and hence to use VAAs.

The micro-level explanation for the differing user rates across Europe Garzia sees in the individualization of politics, that leads individuals to make their political decisions independently from social group or party cues but from individualized choice, or issue-voting (2010). As partisan attitudes decline, citizens need to reassess their party preference for every election based on topical issues. Garzia argues that the increasing issue-centric decision-making of the voter leads to the use of issue-centered application such as VAAs (2010).

3.2 The impact of VAAs on turnout

With VAAs being increasingly introduced to countries worldwide, the question arises to what extent VAAs influence the political system and processes that they are published in. From initial micro-level research on their function, design, users and as data sources, the research has expanded to areas such as their effects on political actors and democracy itself (Garzia and Marschall, 2016). A majority of the 'integrated research' on VAAs' effects focus on the 'effects of VAAs on the micro-level of the individual voters' (Garzia and Marschall, 2016). The demographic research of VAA users has been reflected from mainly two comparative perspectives, namely the demography of online traffic of a given country and the demographic in turnout by longitudinal election studies. As revisiting the existing research on the impact of VAAs extensively is beyond the scope of this thesis, a narrower field of research is revisited that is relevant to the research question: The impact of VAAs on turnout.

The research of the mobilizing effect of VAAs has shown that VAAs indeed have a positive effect: In Germany, the use of Wahl-O-Mat in the federal elections 2005 resulted with 8 percent of respondents to be more motivated to vote than before the use of VAA (Marschall, 2009, Dinas, Trechsel and Vassil, 2014) and the result was similar in the 2009 federal elections with 7 percent indicating higher motivation. Ruusuvirta and Rosema found using the Dutch Election Study 2006 that the increase on turnout is around three percent (2009, Dinas, Trechsel and Vassil, 2014). In Switzerland, Ladner and Pianzola found that 40 percent of VAA users attached importance or slight influence to the use of VAA on the impact of motivation to go to the poll (2010) and Fivaz and Nadig, based on the previous findings, ascertaining that the overall Swiss turnout was likely to have been six percent lower if no VAA had been used (2010).

Most of the studies mentioned before provided estimates that are not comparable and relied on opt-in surveys rather than aggregate-level analysis. Garzia, Angelis and Pianzola conducted a multivariate analysis that included estimates on the causal impact of VAA usage and and its aggregate contribution to the electoral turnout by using standardized cross-national measures (2014). This allowed for comparable effects for the effect of mobilization through the use of VAAs in multiple countries and more meaningful conclusions on the effect VAAs have on the voter turnout on the aggregate-level. The results showed a positive relationship between the use of VAAs on the aggregate-level turnout for all countries included. The effect also increased by 1 percent for every three to four years that a VAA had been available, meaning that older VAAs were more prone to influence the success of a VAA to mobilize its users.

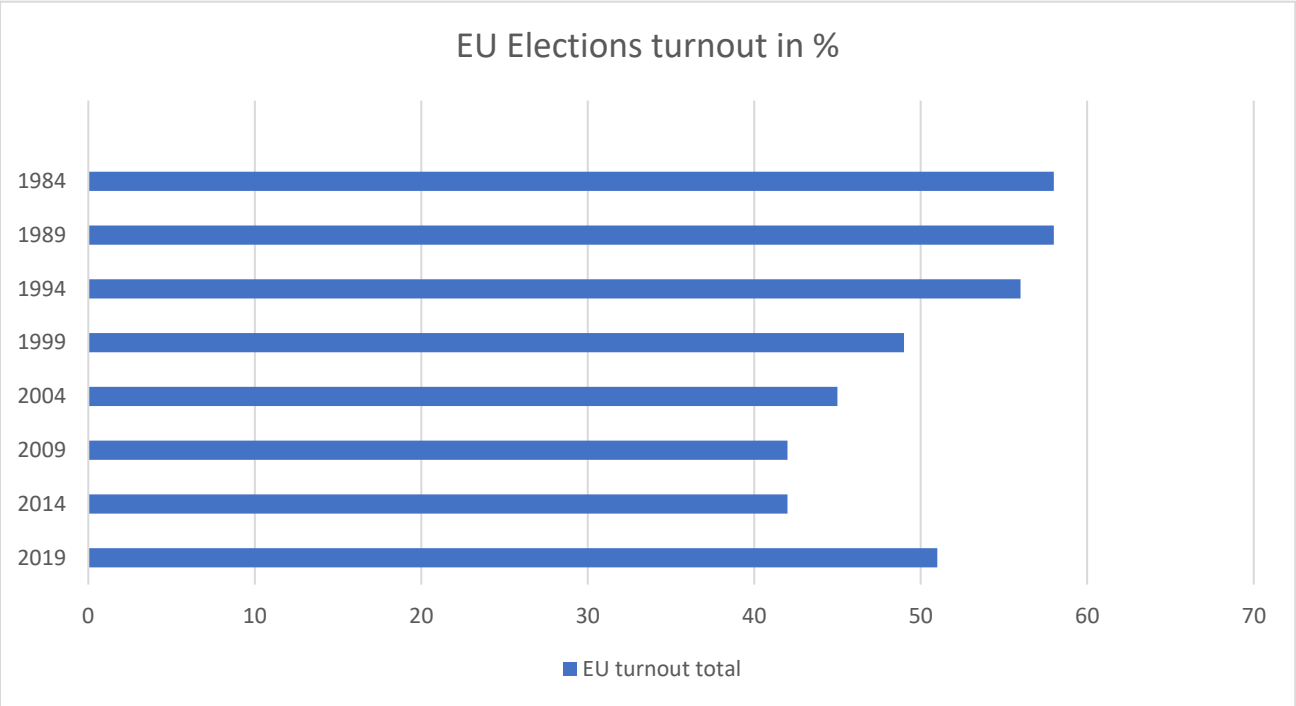

Table1: TNS/Scyt in cooperation with the European Parliament (2019)

3.3 The second-order phenomenon

The phenomenon of regional, national and supranational elections having differing salience to voters has been researched under the name 'first- and second-order elections'. The first-order elections being the more salient elections to the voter, are national elections that provide the voter the opportunity to select its government. Depending on the political system, these can be either parliamentary or presidential elections. The second-order elections on the other hand are a competition for less salient offices "such as regional, municipal and local officials in parliamentary systems, and legislative representatives in presidential systems" (Norris, 1997, p. 109). Following this, European Parliamentary Elections are considered second-order elections (Reif and Schmitt, 1997) as the European Council with the heads of each member state chairing remains the most powerful body of the European Union.

Lower levels of voting participation are consistently exhibited as voters consider the European Parliamentary Elections less salient in comparison to first-order elections: From 45.5 percent in 2004, to 43 percent in both 2009 and 2014 to 51 percent in 2019 (see table 1, European Parliament, 2019), voter turnout in European Parliamentary Elections is consistently lower compared to over 70 percent turnout in national elections of established European democracies and over 55 percent in post-communist countries in Europe in 2015 (IDEA, 2016). The theory of second-order phenomenon will be used in the research to explain the less salient character of the European Parliamentary Elections of 2009, that is the setting of the analysis.

3.4 VAAs in second-order elections

VAAs have been employed in EU elections as early as 2004 with the EU-Votematch introduced (Garzia and Marschall, 2016) and in 2009 a second VAA being launched. The VAA euandi was available in 22 languages across the European Union and several previously national VAAs launched a European Election version of their application. The German VAA Wahl-O-Mat's European version was used 1.5 million times in 2009, 4 million times in 2014 and over 9 million times in 2019 (BPB, 2018). For the Dutch Stemwijzer, nearly 1 million users were recorded in the European Parliamentary Elections 2014 and nearly 1.7 million users were recorded in 2019 (ProDemos, 2019).

The VAAs in the European Parliament elections follow the similar concept as VAAs in national elections, however research on them remains scarce (van de Pol et. al., 2019). Heinsohn et. al. found

that the use of VAA indeed did have an effect in the context of EU elections 2014 for users to indicate intention to vote, however the research was susceptible to over-reporting of vote-intention with three in four claiming to have voted while the European Parliamentary elections turnout averaged at 48% (2016). Another study conducted an analysis of VAA use in multiple second-order elections in the Dutch context and found that the user typology of the VAA user plays a significant role in the intent to vote and differs starkly between first- and second-order elections.

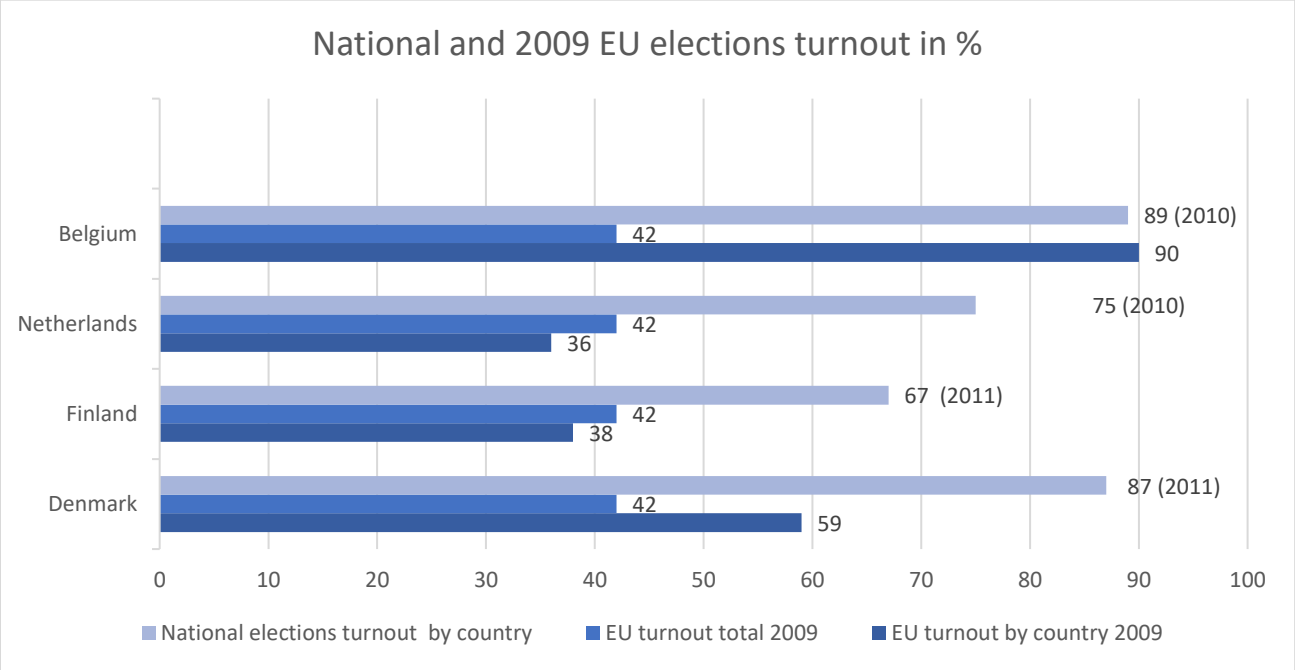

Table 2: Election guide (2021) / *TNS/Scyt in cooperation with the European Parliament (2019)*

3.5 Typology of VAA users in first-order elections

Research regarding the type of VAA users has found, that young, male, higher educated and politically interested people are over-represented in the user demographics of VAAs (Boogers and Voerman, 2003, Marschall 2014). As to gain more insight into the users and their motivations to use VAAs the users have been categorized into their motivation to use the tool (Ruusuvirta and Rosema, 2009, p. 6). An extensive study to the typology was conducted by Van de Pol et. al. (2014) who distinguished between three types of VAA users prior to national elections: checkers, who are politically interested and certain which party they will chose prior to the use of VAA, seekers, who are uncertain about their vote, have some political positions but little political interests and doubters, who are characterized by uncertainty of their vote and low political interest (Van de Pol et. al., 2014). 58 percent of the users in their study were checkers, 32 percent seekers and 10 percent doubters (Van de Pol et. al., 2014). These proportions of user types are relevant to this thesis, as they indicate the potential mobilization rates: Primarily seekers, and to a limited extent doubters, are considered to be the most likely mobilized group of VAA users, as checkers have already set their mind to vote for specific candidates (Van de Pol. et. al, 2014).

Table 3: *VAA user typology according to Van de Pol et. al. (2014 and 2019)*

	Checkers	Seekers	Doubters
Characteristics	Politically interested and certain which party they will chose prior to the use of VAA	Uncertain about their vote, have some political positions but little political interest	Uncertain about their vote and low political interest
Prevalence in national elections	58%	32%	10%
Prevalence in EU elections 2014	48%	41%	11%
Mobilized by VAAs	Not likely to be mobilized by VAAs	Considered to be most likely to be mobilized by VAAs	Considered to a limited extent to be likely to be mobilized by VAAs

Table 4*: Socio-demographic Characteristics for Each User Type according to van de Pol et. al. (2014)*

	Checkers	Seekers	Doubters	Total
Education				
Low education	5.8%	8.4%	11.6%	7.1%
Middle education	25.8%	34.2%	34.1%	29.1%
High education	68.5%	57.4%	54.3%	63.8%
Sex				
Male	74.1%	57.2%	72.1%	68.5%
Female	25.9%	42.8%	27.9%	31.5%

3.6 Typology of VAA users in second-order elections

Whether this typology applied to second-order elections has been researched by Van de Pol. et. al. in a recent study (2019) that examined five second-order elections in the Dutch context of which one was the European Parliamentary election in 2014: The proportions of seekers and doubters was expected to be larger in second-order elections as compared to the first-order elections. Their results show that the proportion of seekers and doubters was higher in four out of five studied elections and hence the VAAs in second-order elections are used for informational needs (Van de Pol et. al., 2019). The proportion of Checkers in VAAs dropped by 10% as compared to the first-order election VAAs and the number of Seekers increased by 9% to 42% of the total VAA users. Since the Seekers are most likely to be mobilized through the use of VAAs and Checkers are less likely to do so (see table 3), we can reasonably expect that the mobilizing effect of VAAs will be at least as high as in first-order elections, if not higher. Ascertaining the effect of voter mobilization in the context of second-order elections could hence form a valuable contribution to the theory that the mobilization rates are higher in the second-order elections compared to first-order elections.

3.7 Formulation of hypothesis

Building upon the finding that VAAs have an impact on the voter turnout both at national and EU-level elections, but the effect has not been ascertained for second-order elections and according to van de Pol et. al. can be expected to be larger in European Parliamentary Elections, we derive the following hypothesis:

H1*: "Citizens that use Voter Advice Applications prior to the European Parliamentary Elections 2009 are more likely to turnout compared to citizens that did not use VAAs prior to the elections."*

H2: "*Citizens that are moderately interested in politics are more likely to be influenced to turnout in European Parliamentary Elections than citizens that are highly interested in politics."*

H3: *"Citizens that have little interest in politics are less likely to turnout at the European Parliamentary Elections than citizens with high political interest."*

3.8 Confounding variables explaining voter turnout

Smets and Ham (2013) conducted a meta-analysis of research on voter turnout categorizing their finds under six theoretical models: resource, mobilization, socialization, rational choice, psychological and political-institutional model. Within each of these models, a set of variables was analyzed to the extent of their predicting value on voter turnout. This sub-chapter will briefly discuss what considerations were made when selecting the model and its variables to serve as confounding variables in the proposed research.

The resource model assumes, that citizens propensity to vote is dependent on resources such as skills, money, and time (Verba and Nie, 1972). Subsequently, citizens with higher resources have larger influence in society and hence higher stakes in the elections and this leads to a high motivation to vote (Smets and van Ham, 2013). The predicting values of the chosen variables education was estimated to have an effect size of 0.72 (rav), indicating that for each standard deviation change in education level the turnout increases with roughly 0.72 standard deviation units (Smets and van Ham, 2013, p. 349). For gender (male) the effect was found to be at -.19 (rav) and significant (Smets and van Ham, 2013, p. 349). Additionally, socio-economic status is considered to have an impact on outcome with an effect of 0.67 (rav) (Smets and van Ham, 2013, p.349). Moreover, political interest was included, as its effect on voter turnout is estimated at 0.80 and significant (rav).

4. Data and method of the analysis

In this chapter the method for answering the research question is discussed. This chapter will first describe the dataset chosen to conduct the analysis, discuss the operationalization of the measured variables, and lastly describe the procedure for the data analysis.

The context for the analysis, the European Parliamentary Elections 2009, was chosen as to have a recent electoral event considered second-order in nature, with VAAs being introduced more widely and user surveys being conducted with questions asking whether the user voted included. The European Parliamentary Elections in 2014 and 2019 did not yet produce as sufficiently data surveys in the context of VAAs that they could be included in the study.

4.1 Data

The sampling frame of this research is the European Parliament Election Study 2009 that focusses on the voter by Egmond, Brug, Hobolt, Franklin and Sapir (2017). Due to the time and resource limitations, conducting own surveys with VAA users was not possible within the time frame of the research. The choice for the selected datasets was motivated by public accessibility of the data and the sample size in addition to the included questions that could be used as predictors. As discussed in chapter 6, the dichotomous character of the dependent variable requires a logistic regression analysis that in return requires large sample size. The dataset was compiled by conducting telephone interviews (in part Computer-assisted telephone interviewing) and oral interviews with standardized interview questionnaires (Egmond et. al, 2017). The respondents were households sampled using random digit dial, where the phone number is constructed randomly. The respondent within the household was selected with the last-birthday method. The survey contains n=27.000 responses with each 1000 responses to the 27 member states at the time. It contains 275 different variables ranging from electoral behavior, general political positions, use of media, social values, and demographic factors. The survey was levied between 5.6.2009 and 9.7.2009, which falls into the range of the European Parliament

elections 2009, that were held on 4th to 7th of June 2009. Relevant to the research is that from the four cases studied, only the Netherlands elected the European Parliament before the beginning of the survey (4th of June 2009).

4.2 Countries included in analysis

To establish an indicator of whether the use of VAA leads to voting, this research included cases for four countries, in which the usage of VAAs was larger than 9% of the population. The rationale behind the decision to use a cut-off point was to ensure, that countries with a higher familiarity with VAAs are included. Since the familiarity of the public with VAAs leads to higher user numbers, a more diverse and proportionate type of users can be included in the analysis. By running a simple Crosstabs analysis by commanding countries and VAA users, we find that four countries meet the threshold of 9%: Belgium (9,9%, N=960), Denmark (9.1%, N=961), Finland (16%, N=961) and the Netherlands (21.8%, N=962) (see Appendix A). The indicated turnout in the dataset is 93.6% for Belgium, 89.8% for Denmark, 70.1% for Finland and 70.2% for Netherlands. With the exception of Belgium, the turnout rates seem to be subjected to over-reporting as per Bernstein et. al. (2001) due to pressure to conform to social norms. The over-reporting of voter turnout becomes evident when the rates of the dataset are compared to the results reported by the European Parliament (see table 2).

4.3. Operationalization of Vote in Election

The independent variable 'vote' was sampled from a interview question. Whether interviewees did vote in the European Parliament election was asked in the question 24 (q24). The question was phrased as follows: "A lot of people abstained in the European Parliament elections of June 4, while others voted. Did you cast your vote?". The responses were coded as yes (1), no (2), REF meaning refused (7) and DK meaning Don't Know (8).

The operationalization of the variables was conducted under the premise of the turnout of an election being a dichotomous outcome: the citizen either did turn out to cast a ballot on election day or they did not turn out to cast a ballot on election day. The existing variable q24 was recoded into a dichotomous variable voteep that assumed values from "yes, I voted" (1) and "no, I did not vote" (0). The responses REF (7) and DK (8) were omitted.

[voteep]

1	Yes, I voted
0	No, I did not vote

Table 5*: Recoded independent variable* voteep

4.4. Operationalization of VAA use

The dependent variable VAAUse was sampled from another interview question. Whether interviewees had used VAAs in the weeks before the election, was asked in the question 22 (q22). The question was phrased as follows: "There are websites offering advice on how to vote in the European Parliament elections on the basis of your ideas, values and policy preferences. In the weeks before the European Parliament elections, did you visit such a website?". The responses of the survey were coded as yes (1), no (2), REF meaning refused (7) and DK meaning Don't Know (8). For the analysis, the responses were recoded as Yes, I used VAA = 1 and No, I did not use VAA = 0. The missing values were omitted.

4.5. Operationalization of Education

The dependent variable education was sampled from an open-ended question with precoded answers (q101). The question was worded as follows: "What is the highest level of education you have completed in your education?". For each country, there were a range of education levels coded given the education system. For Belgium there were 13 levels, for Denmark 15 levels, for Finland 9 levels and for Netherlands 13 levels. The responses were coded with consulting of the respondent. In all cases, respondents could refuse (REF=77) or indicate no knowledge (DK=88). The confounding variable 'education' was coded differently for each country. Since the coding of the education levels was not

equally detailed in all four countries, the levels had to be scaled into a new range. This was conducted following the European Commission's scaling in the guide into the *Structure of the European Education Systems* (European Commission, 2018). Following the guide's individual coding of education levels, the existing values were assigned to a new 3-scale of education values (see Appendix B) as seen in table 6, where lower education included education until secondary school, midlevel education includes education from completed secondary school to post-secondary certificates and high school degrees and lastly, higher education included degrees higher than bachelor's degrees. The result is a 3-scale education variable,of which higher education is the reference category.

[education]

0; 1	Lower education
0; 1	Midlevel education
0; 1	Higher education (reference)

Table 6: *Recoded confounding variable* education

4.6. Operationalization of Gender

The gender of the interviewee was levied with the question 102 (q102). The question was worded "Are you…" with interviewees having the response options male (1) and female (2). The response could be refused (REF=7). The variable 'gender" was subsequently recoded to exclude refused responses. The new variable was recoded as male (1) and female (0).

[gender]

1	male
0	female

Table 7*: Recoded confounding variable* gender

4.7. Operationalization of socio-economic status

The confounder socio-economic status was sampled from the questionnaire with pre-coded answers (q114). The respondents were asked, to which social class they would assign themselves to. The answers were coded as working class, lower middle class, middle class, upper middle class, upper class, refused (REF) or indicating no knowledge (DK). The responses were assigned to a new 3-scale of class values, where lower and upper middleclass were grouped with middle class, resulting in working class, middle class and upper class (see Appendix B).

[ses]

0; 1	Working class
0; 1	Middle class
0; 1	Upper class

Table 8*: Recoded confounding variable* socio-economic status

4.8 Operationalization of political interest

The confounder 'political interest' was sampled from the responses to the question, to what extent respondents were interested in politics (q78). Respondents had the options to answer very, somewhat, a little, not at all, refused (REF) and indication of no knowledge (DK). The responses were reassigned to 3-scaled values, where the responses somewhat and a little were grouped together, resulting in values of very, somewhat/a little and not at all.

[polint]

0; 1	Lower political interest
0; 1	Midlevel political interest
0; 1	High political interest

Table 9*: Recoded confounding variable* political interest

4.7 Limitations of the operationalization

One must consider the limitations of the operationalization of the concepts in this research. The largest limitation of this research can be found in the operationalization of education. Since the countries selected have very different education systems, standardized values would not reflect the education level of the interviewee well. For research purposes, the values are only of use if they are comparable, hence the variable needed to be coded. In order to reflect the different education levels, but make distinguishable differences, the range of values in the recoded variable education were limited to as small a scale as possible that would still allow conclusions based on the level of education. However, with the education rescaled, the results permit some comparisons with the user typology by van der Pol that also measured education on a three-point scale (2019).

As the wording of the research question says, the increased electoral turnout in the European Parliamentary Elections 2009 is the dependent variable. The questionnaires were conducted within the election period for Belgium, Denmark and Finland. The sampling frame hence exhibits deficiency to ascertain the amount of responses that were refused or not known in question 24. Since the outcome variable in the research is dichotomous, the responses REF and DK were omitted. By running a frequency table for the three countries on the values on q24 ("Did you cast a vote?"), the percentage of refused responses and "Don't know" -responses were minimal. For Belgium, 0.2% of the population was coded as REF and 0.4% as DK. For Denmark, no REF or DK responses were coded. For Finland, 0.2% DK responses and no REF responses were coded. We can hence be confident, that underreporting due to not applicability of the question is not significant.

The possible under- or overreporting of election surveys on voter turnout have been subject of research, where discrepancies between respondents self-report and government records of turnout in the same election have been examined and ascertained (Bernstein, Chadha and Montjoy, 2001). Interestingly, they found that overreporting occurred more likely in people with higher education scores, more partisan attitudes, and more religious beliefs. As for this research confounding variables are 'education' and 'age', we can assume that for the confounding variable 'education' overreporting limits to an unknown extent the importance of the confounding variable. This effect can be countered by the sampling bias, as the surveys were randomly assigned to household and then their members. The overrepresentation can additionally be expected to be proportionately lower in second-order elections as per van de Pol (2019).

Lastly, the limited inclusion of socio-demographic, institutional, socio-structural, and individual determinants (Smets and van Ham, 2013) that have been found to have an effect on turnout, limits the results. Therefore the results of this research must be reviewed with utmost caution. Due to time limitations few confounding variables have been included only. However, this research can still contribute valuable findings on the direction and significance of the impact that VAA use has on voter turnout in second-order elections.

Table 10: Frequencies of values by country in percent

	Belgium		Denmark		Finland		Netherlands	
vaause, (yes, no)	9.5	86.6	8.7	87.4	15.4	80.8	21.1	75.1
gender (female, male)	49.8	50.2	48.4	51.6	46.9	53.1	46.9	53.1
ses.low	14.8		15.5		22.2		13.6	
ses.mid	73.8		81.7		75.2		79.7	
ses.high	4.0		2.1		.5		4.1	
education_low	24.4		40.6		16.6		24.1	
education_medium	54.7		12.2		61.6		34.0	
education_high	14.7		33.4		13.7		40.1	
polint_low	12.9		2.7		7.7		4.7	
polint_mid	75.3		70.7		83.7		81.3	
polint_high	11.0		26.6		8.6		14.0	

5. Results and analysis

The analysis will be conducted by using the Logistic Regression analysis method in SPSS. The aim of using this method is to find the best fitting and reasonable model to describe the relationship between our dependent variable turnout and independent variable VAAUse. The analysis will be conducted by running the regression via Binary Logistic Regression command and then using Vote as our dependent variable and VAAUse, Gender and Education as our independent variable. The analysis will be run including the Homer-Lemeshow test and a Confidence Interval for the odds ratio.

Logistic Regression was chosen as a method based on the type of dependent variable: since the turnout is a dichotomous outcome (respondents either vote or do not vote), the logistic regression is in literature considered the most suitable analysis method (Walsh, 1987). Logistic regression offers an alternative to conducting regression-like analysis where the dependent variable is dichotomous rather than measured at different levels. Logistic or logit refers to models where the criterion variable is the log of odds of falling into one category of the dependent variable rather than the other.

The regression line in logistic regressions will exhibit an S-shaped line (sigmoid-line) which reflects the probability to fall into one category or another of the dependent variable. That indicates that there appears to be a threshold defined by the independent variables that increase the probability of turning out on election day. The Logistic Regression output in SPSS can largely be interpreted with the same guides as linear regression analyses (Hosmer and Lemeshow, 2000).

The logistic regression analysis will be conducted first with only the independent variable VAAUse and a second time including the variables education, gender, VAAuse, socio-economic status and political interest. This allows to conclude whether the hypothesized mobilizing effect of the use of VAA is weakened by considering the effects of socio-demographic traits of the citizens.

In the tables below the results of the logistic regression analyses are presented. In this chapter, the results are discussed and evaluated to their applicability to verify or falsify the hypothesis. The aim of the analysis is to answer the research question if the use of VAA in a second-order election such as the European Parliament election 2009 has an impact on the voter turnout and how this impact can differ among citizens of differing political interest levels. Following this condition, the null hypothesis is that the use of VAA has no significant impact on the turnout.

In the first results (see table 11) we see the results for a logistic regression analysis with the VAAUse as the independent variable with each sub-sample having 960 cases. We find that the odds-ratio for

Denmark, Finland and Netherlands are significant with a p<0.05, and for Belgium with a p<.01, indicating that VAA users in Denmark and Finland were 3.4 and 3.6 times more likely to turn out at the elections than non VAA users (our reference category) and for Belgium and Netherlands the effect is even higher at 7 times more likeliness to turnout. However, when looking at the Nagelkerke R^2, as an overall goodness-of-fit measure, we find that the model is quite modest in its explanatory power for Belgium and Denmark at 2% and 1.3%, but a bit higher with 4.9% for Finland and 11.1% for Netherlands. Pseudo-R^2 above 0.2 have been proposed to be used as a threshold for acceptability of the explanatory value of the model (Backhaus et. al. 2003), which indicates that after the addition of the confounding variables our models meet the criteria (see table 8).

Table 11: *Logistic Linear Regression Analysis (N=3840)*

	Belgium (n=960)			Denmark (n=960)			Finland (n=960)			Netherlands (n=960)		
	b	s.e.	Exp(B)	b	s.e.	Exp(B)	b	s.e.	Exp(B)	b.	s.e.	Exp(B)
Constant	2.596	.134	13.417	2.092	.1.08	8.104	.688	.075	3.918	.554	.076	1.741
VAAUse	1.947*	1.014	7.006	1.240**	.597	3.455	1.335**	.262	3.620	1.946**	.271	7.001
Nagelkerke R^2	.020			.013			.049			.111		

*p<0.1; **p<0.05

In the the second analysis (see table 12) we will look at the results for logistic regression analysis including confounding variables that are expected to influence the likelihood to turnout additionally to the use of VAA. This is confirmed as we first glance at the Nagelkerke R^2: The inclusion of confounding variables has at least partially increased the variance that can be explained with the model with the pseudo-R^2 changed minimally for Belgium but increased for Finland from 4.9% to 9.1% and for Netherlands from 11.1% to 14.7%. For Denmark, the increase was 1.3% to 5.5%.

For the most detailed insight into the model accuracy, we look at the odds-ratio (Exp(B)) in the second table. The highest odds of turning out in the elections with if VAAs had been used were logged for Belgium with 6.2, with a p<0.1, whereas the log odds for Netherlands with 6.1 were significant with p<.05. From the results we can conclude that the use of VAA in the Dutch context leads to 6.1 times higher likelihood to turnout at the European Parliament Elections 2009. Denmark and Finland also showed significant effects, but the log-odds were lower at 3.1 respectively. This confirms our first hypothesis and we can conclude that even when taking into account the effect education, gender, political interest and socio-economic status have on voter turnout, the likelihood to turnout at the European Elections in 2009 was at least three times higher if the citizen had used a VAA before. Also, expectedly, the effect on the turnout decreased when controlling for socio-demographic variables, but what remains interesting is that the decrease was rather low. This could be due to the limited number of confounding variables that were included.

For education only Finland and Netherlands showed significant effects on the likelihood to turnout, whereas for Belgium and Denmark no such significant effects could be found. The values can be interpreted as follow: Values between 0 and 1 indicate the probability to fall into the target group is smaller than falling into the reference group. In this case, in Finland, a midlevel educated respondent's likelihood to turnout was 1.3 times higher as compared to a highly educated respondent. For Netherlands, this effect was even stronger, with a midlevel educated person's likelihood to turnout being 1.7 times higher as compared to a highly educated respondent. The difference between likelihood to turnout between lowly educated and highly educated was larger, although marginally. We can therefore conclude that higher education, i.e. bachelor's degree or higher, did not have a higher mobilizing effect on the respondents in the case of Netherlands and Finland as compared to lower degrees. The findings are not in line with the study by Smets and van Ham (2013), that found that for every increase in education, the likelihood to turnout increases by 0.74 points. We can hence not confirm the positive direction of a relationship between education and voter turnout in second-order elections.

For gender Denmark and Finland showed a significant effect at Danish men being 0.6 times less likely to turnout than Danish women. For Finland, the same effect lied at 0.76. For all other countries, no

significant effect could be found. Although this is close to the effect ascertained by Smets and van Ham (2013) and significant, no such effect could be found to be significant for Netherlands and Belgium.

The political interest of respondents showed the highest significance on the likelihood to turnout across all countries: For Belgium the odds-ratio of 1.017 indicates, that a politically disinterested citizen is 0.9 times less likely to turnout when compared to a highly interested citizen. In Finland a citizen with low level of political interest was the least likely to turnout with an odds-ratio of .062, indicating that they were 1.6 times less likely to turnout when compared to politically highly interested citizens. This could confirm our third hypothesis. For the second hypothesis, only Finland showed significant effects: Moderately politically interested citizens in Finland were three times less likely to turnout when compared to highly politically interested citizens. This confirms our second hypothesis; however, the three other sub-samples do not show such an effect.

Table 12*: Logistic Linear Regression Analysis (N=3884)*

	Belgium (n=960)			Denmark (n=961)			Finland (n=961)			Netherlands (n=962)		
	b	s.e.	Exp(B)	b	s.e.	Exp(B)	b	s.e.	Exp(B)	b.	s.e.	Exp(B)
VAAUse	1.828*	1.017	6.224	1.139*	.605	3.124	1.147**	.270	3.150	1.822**	.276	6.187
Gender	.097	.269	1.002	.472**	.221	1.603	.268*	.153	1.308	-.220	.153	.803
ses.low	-.151	.659	.859	-.167	.667	.846	-1.004*	.557	.366	-.945**	.385	.389
ses.mid	-.693	.542	.500	.349	.632	1.418	-.565	.544	.569	-.358	.342	.699
education_low	-.017	.428	1.017	-.087	.239	.917	-.277*	.271	.758	-.128	.204	.880
education_medium	-.049	.369	1.050	-.095	.353	.909	-.628**	.214	.534	-.536**	.179	.585
polint_low	-1.505**	.658	.222	-1.590**	.508	.204	-2.779**	.443	.062	-1.743**	.398	.175
polint_mid	-.711	.612	.491	-.440	.281	.644	-1.111**	.368	.329	-3.66	.249	.693
Constant	3.878	.777	48.350	2.075	.653	7.965	2.872	.666	17.675	1.750	.398	5.756
Nagelkerke R^2	.049			.055			.091			.147		

*p<0.1; **p<0.05

6. Conclusion

The aim of this thesis was to ascertain whether citizens were more likely to turnout if they used VAAs prior to the election in a second-order context of the European Parliamentary Elections 2009. The expectation of this study was that there would be a significant effect and indeed this effect could be found in the results. For all countries there was a positive effect that was significant with values ranging from 3.1 to as high as 6.2 higher likelihood to turnout after having consulted a VAA. The hypothesis could therefore be verified.

The results of the analysis seem to confirm van de Pol et. al.'s (2019) study that indicated that higher turnout rates should be expected among citizens that used VAAs in the context of second-order elections and this thesis was successful in ascertaining the effect that their theory expected. Although this research was not able to ascertain the user typology as in the research by van de Pol (2019), it can be considered whether the differing prevalence of checkers, seekers and doubters is the driving factor to an increase in mobilizing effect of VAAs. With seeker's being the most likely type of VAA users to be mobilized through the consulting of VAAs and their 9% increased prevalence among VAA users in second-order elections, it can be considered that the mobilizing effect is higher in second-order elections compared to first-order elections. The confounders political interest in citizens did not confirm conclusively whether politically higher interested citizens were more likely to turnout.

Garzia, Angelis and Pianzola conducted a multivariate analysis of the use of VAAs effect on turnout, including 13 socio-demographic confounding variables (2014). Since the inclusion of the confounding variables expectedly decreases the effect attributed to the use of VAAs, the results cannot be directly compared with the results of this thesis. However, to provide a small overview of the matching countries, Garzia, Angelis and Pianzola found that for Finland the VAA usage had a significant effect

of 0.527 increase on odds to turnout in the national elections in 2007 whereas for the Netherlands the significant odds to turnout in the national elections in 2010 was 0.591. Despite the wide range of confounding variables, the effects of this thesis show much larger effects for second-order elections.

To draw back on the results found by Marschall and Schultze (2012), their reported odds of VAA usage leading to turnout in German national elections 2009 was reported at a significant value of 2.6 with five confounding variables included. In the European Election context, the effect of VAA use has been studied by Heinsohn et. al. (2016), where the researchers ascertained a significant effect of 0.35 odds of turning out at the European Parliamentary Elections 2014 after having used the European version of the Wahl-O-Mat. The research included three other variables related to media consumption. This result contrasted with the results of this thesis shows a large discrepancy among the estimated odds.

To be able to compare the results of existing studies with the results of this thesis, more confounding variable need to be included to meet the number of confounders other studies have used. Additionally, the VAA usage in later European Parliamentary Elections need to be analyzed as the development of VAAs and the degree of familiarity across members states of the EU have risen since 2009 potentially allowing to include more countries in the analysis that have equivalent user rates. This requires more voter studies to be developed that include questions on the respondent's use VAAs prior to the elections.

The results of this thesis need to be interpreted with caution, since the over-reporting among users proved notable when comparing with turnout rates provided by the European Union (see table 2). The issue of over-reporting in the context of voter studies limit the validity of the results of VAA use but also for the impact of education on voter turnout. Since citizens with a bachelor's degree or higher have found to feel higher pressure to conform to the social norm in their milieu to cast a vote, over-reporting is more likely to occur among higher-educated users of VAAs (Bernstein et. al. 2001). In the dataset used in the analysis, the percentage of higher educated respondents was 40% in Netherlands and 38% in Denmark, which indicates that the over-reporting might inflate the odds-ratio for the said countries (see appendix A). For Finland and Belgium the proportion was modest at 14 and 15% and hence the results can be considered more robust when considering the over-reporting among higher educated respondents.

The model constructed for this study neither includes as many confounding variables as similar studies, which further limit the validity of the results to answer the research question. The inclusion of only four confounders can be considered the largest threat to the validity of the results, especially if conclusions are drawn on the comparison of this research with similar studies. Following Garzia, Angelis and Pianzola's approach to produce a comparable mobilizing effect (2014) and the findings of this thesis the following suggestions for further research are given in order to achieve meaningful interpretation of mobilizing effects.

Firstly, the user rates and the age of VAAs in the included countries should be considered when comparing the mobilization effects. The longer the VAA has been available to the public, the higher user rates and diversity of the socio-demographic profiles of the user are achieved, since VAAs after their launch are initially used by more highly educated citizens and only at later stages also citizens with mid-level and low-level education join in the using the VAAs (van de Pol, 2014). Due to this, education needs to be controlled for, but also other socio-demographic factors such as age, gender, interest in politics and media consumption. Additionally, the type of data seems to play a role when over-reporting of vote-indication occurs. Since some VAAs conduct the interviews or surveys immediately after the use of VAA and not immediately prior or after the election, the questions phrased in some VAA studies rely on indication by the user on his future voten-intention of the respective election (Marschall and Schmidt, 2008). This can further inflate the over-reporting of vote-intention (Walgrave, van Aelst, and Nuytemands, 2008). Although no definite mobilizing effect can be ascertained with surveys, the inclusion of exit-polls including questions of VAA use or surveys conducted after the election can counter the effect of over-reporting.

Furthermore, the election year and type can be expected to play a role, with European Parliament Elections having experienced a jump of nearly 10% in turnout between 2014 and 2019 (see table 1). With the future publication of election studies for the 2019 European Parliamentary Elections a comparative analysis of the VAA use on mobilizing effect in that year and previous elections is possible.

With the higher turnout of over 50% in the European Parliamentary Elections, the second-order nature of the elections can be debated. It can be considered interesting to ascertain whether the user typology deviates from the elections in 2009 and 2014 and hence conclusions on the mobilizing effect of VAAs is changed. A study with the inclusion of the three elections of 2009, 2014 and 2019 could ascertain the differences when analyzing the prevalence for the user types of checkers, seekers, and doubters (van de Pol. et. al. 2014 and 2019) and subsequently comparing the mobilizing effect with the expectation stemming from the prevalence of the three user types. This could produce meaningful, longitudinal insight on the mobilizing effect for VAAs in the context of European Parliamentary Elections and the potential shifts in the user types and their characteristics.

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