Voting Advice Applications in Europe - A comparison between users in different countries

Bachelor Thesis in European Studies

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Abstract

With an increasing popularity and usage of Voting Advice Applications in Europe, the aim of this study is to determine what social categories of the population make use of Voting Advice Applications and if the use differs with regard to seven selected European countries Belgium, Estonia, Germany, Ireland, Italy, Netherlands and Switzerland. With different hypotheses, the usage of the Voting Advice Applications will be compared concerning the following variables: gender, age, level of education and political interest. This will be done by a literature review and meta-analysis. In short, the outcome of this paper shows that there are differences between the defined social categories, so they do not make use of the Voting Advice Applications in equal numbers. Further, these differences are found in all countries, so there are patterns in the usage, as well as in the differences and there is a profile of the typical VAA user.

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1. Introduction

The popularity and the usage of Voting Advice Applications (hereafter: VAAs) have increased greatly in many European countries in the last years (Fivaz & Nadig, 2011). With the help of those applications, people can find out with which party they match the most concerning the different points on the political agenda. This often works as follows: the secretaries from the different parties are asked to fill in questionnaires in which they agree or disagree to different political statements. Those answers are filled in the VAAs, so that the parties can be positioned along the political scale. The users are then asked to answer the same questions, which have also been answered by the secretaries. Afterwards, users can choose the parties they want to compare their results with. An algorithm computes the distances between the answers of the parties and those of the user, and can thereby determine how well the chosen parties match with the user and give a "voting advice" (Garzia, 2010; Garzia & Marschall, 2012). For this reason, VAAs mainly exist in countries with a multi-party system and with independent and free media (Walgrave, van Aelst & Nuytemans, 2008, p. 52).

VAAs are regarded as a simple tool, which can be used by everybody with an internet access, to receive important political information on the verge of elections. This is also one reason why their popularity expands (Ladner, Felder & Fivaz, 2010). Further, it seems that voters often follow the advices given by VAAs, especially if they have already seriously considered this party beforehand (Wall, Krouwel & Vitiello, 2012). That is why VAAs could help democracies in their struggle against decreasing voter turnouts. Thus, VAAs can contribute to forming a political will and with that, great potential for civic and political education can be found in VAAs.

But there are problems and disadvantages as well. First, VAAs only provide basic information about the agenda points, so the user can only see whether a party agrees or disagrees with a certain point, but he cannot see why (not) or how the party wants to tackle a problem (Wagner & Ruusuvirta, 2009). This can cause the users to look for further information on their own, especially on topics which are urgent and debated heavily and which can therefore be found in the programmes of most parties. However, the user might get disappointed if he expects to find all necessary information in the VAAs and therefore he might stop using this application. Second, VAAs cannot capture any feelings, so VAAs might recommend a party, which matches really well with the user, but the user does not want to vote for the party, because he thinks its candidate is too inexperienced (Wagner & Ruusuvirta, 2009). Third, other research shows that VAAs are only helpful if the user already has a stable

and well-informed political attitude (Ramonaitë, 2009). Therefore, voters should not use VAAs as a first source of information, but rather as a last one, when they have already gained knowledge and have formed an opinion. But if they consult VAAs first, they might make an informed choice and the recommendations are then misleading instead of helpful (Ramonaitë, 2009).

Although, VAAs are used in many different European countries, there is research which indicates that only a certain type makes use of them, which are the young, male and highly educated ones (Ladner & Pianzola, 2010; Wall, Sudulich, Costello & Leon, 2009). But if this is true, this is against the original idea of VAAs offering "simple access to information and allow comparisons of own opinions to those of the political class, independent of knowledge, social or financial status, and personal network" (Ladner & Pianzola, 2010, p. 213). That is why it is useful to bring together the existing studies on different countries and check to what extent the individual outcomes are repeated and if there are patterns to be found for the different categories throughout seven different European countries. A comparison not only between demographic categories, but also between countries, can demonstrate, whether differences, if they exist, are a problem for more countries. Thereby one can to some extent make sure that this is a more overall problem and not due to the characteristics of one country. That is why it is important to check the socio-demographic categories as well as to check within the countries themselves and make a comparison between those.

1.1 The Research Question

With the problem described above, the research question will investigate, what demographic categories do make use of VAAs in the seven selected countries Belgium, Estonia, Germany, Ireland, Italy, Netherlands and Switzerland. That is why, the research question will be: *"In what way does the usage of Voting Advice Applications by citizens vary*
1) Between socio-demographic categories and
2) How big are these differences across seven European countries?" In order to answer this research question, four hypotheses will be tested. These will be laid out after the theory has been explained.

2. Theory and Hypotheses

The theory will provide the necessary background for understanding the topic of VAAs and for formulating proper hypotheses, which will help answering the research question. The

theory section contains four subsections. First, general findings about the user and use of the internet will be presented. The second point is political factors and political participation. Third, electoral participation will be discussed. Fourth and last, some facts about the user of VAAs will be presented, which also help to compare the findings of this paper with the findings of other research in the end.

2.1 The use and the user of the Internet

Since the VAAs are an internet-based tool, having internet-access and using it is a requirement for actually using VAAs. This makes it interesting to know how many people actually have internet access and to what extent the users of the internet are similar to the users of VAAs. In June 2012, 518,512,109 people within Europe had internet access, which is about 63.2% of the entire European population (Miniwatts Marketing Group, 2013). In the seven selected countries, the average internet access is 78.9%, with the Dutch population having the highest access rate with 92.9% and the Italian one with the lowest rate of 58.4% (Miniwatts Marketing Group, 2013). Thus, it can be said, that a high proportion of the population of the studied countries has internet access and uses it. According to Papacharissi & Rubin (2000), there are five motivational factors for using the internet: interpersonal utility, pass time, information seeking, convenience and entertainment (Papacharissi & Rubin, 2000, p. 185), whereby information seeking is especially relevant for this thesis. Another study shows that using the internet for exchanging information has a positive impact on civic and political engagement, as people then feel informed and get curious for more information (Shah, Kwak & Lance Holber, 2001). Generally, the internet has become much of a political tool. Communication on the internet is now an important manner for political participation and information can be found more easily. However, there is no direct connection between the use of the internet and the public political behaviour. But the internet can sure improve and facilitate information exchange in many ways (Bimber, 1998).

The average internet-user is about 35 years old (Marschall & Schmidt, 2010; de Rosa, 2010), which is below the average age of about 41 years of the European population (European Commission, 2013). Yet, this means that younger people use the internet more than older people. And mostly, people between 12-20 and 20-29 years old are overrepresented as internet-users (Kaye & Johnson, 2004). Another important factor for determining the use of the internet is gender, whereas level of education does not have a significant influence. Men use the internet twice as much as women do and also their time periods spend on the internet are longer. In addition, men use the internet for information seeking whereas women tend to

use it for social-networking (Kaye & Johnson, 2004). It is more complicated to find a correlation between internet use and the fourth factor of political interest. Politically interested people make use of the internet for gathering information, but using the internet for political activities is more popular among the older users (Kaye & Johnson, 2004). However, the use of the internet can lead to more political participation, also among the young users (Calenda & Meijer, 2009). Concluding, there is no "typical" internet user, but since the internet offers so many different possibilities for employing it, there is also a great variety of people who uses it.

2.2 Political Interest and Political Participation

While political participation includes actions such as signing petitions or being a member of a political party, political interest is more difficult to define. In general, both are regarded as a precondition for democracies to work properly (van Deth & Elff, 2001). But individuals with an interest in politics might be more likely to use information tools such as VAAs, as these persons want to collect information from different sources in order to have different points of view. Thereby, the usage of VAAs might lead to political participation. Therefore it is relevant to test the variable of political interest and see whether it has a significant influence. According to Brady, Verba & Schlozman (1995), there are three resources determining political participation: time, money and civic skills. These skills, in turn, define to a large extent the socioeconomic status of a person, which makes clear why the socioeconomic status is a powerful tool in explaining political participation. Yet, without the factor of political interest, none of the other factors can explain why people would participate in politics (Brady et al., 1995). In general, men are more likely to be interested in politics and to take part in politics than women are (Verba, Burns & Schlozman, 1997) and men also take part in collective types of actions and are members of political parties (Coffé & Bolzendahl, 2010). Young people are interested in politics however they have other approaches towards politics than the older generations. Whereas young people tend to participate in politics and show their interest via the internet and especially social networks, the older ones are more likely to participate directly through signing petitions or elections campaigns (Calenda & Meijer, 2009). In addition, people with a high level of education show more interest in politics and also in political participation, since a high education provides more knowledge for politics (Brady et al., 1995).

These political factors can have influence on the question of who will make use of VAAs. But there are also studies, which show that the VAAs can increase political

participation, as people, who use the VAAs seem to be more likely to show interest in other political activities as well. However, the direct casual effect is hard to prove (Ruusuvirta & Rosema, 2009). The group, which is most likely to participate in politics and also shows the highest interest, are the young individuals with higher income, educational attainment, sense of political efficacy and positive attitudes toward politics in general. This is also the group which is most likely to be influenced by online politics on their participation (Vassil, 2011a). In turn, it can be said that people, who participate in politics have a higher chance of using VAAs as an additional source of information. Concluding on the studies found on political participation and interest, the following hypothesis can be stated:

"People, who are interested in politics, consult the Voting Advice Applications in higher numbers than people, who are not interested in politics, do."

2.3 Electoral Participation

VAAs have been designed to help eligible voters getting informed and thereby making a decision on what party to vote. Thus the idea behind that is that well informed eligible voters are more likely to vote in the actual election. Thereby, low voter turnout could be combated. So, it is relevant to know, what type of person takes part in the election and whether this is coherent with the clusters of people found in the other sections. According to van Egmond, de Graaf, and van der Eijk (1998), two groups of factors influence electoral participation, namely facilitative and motivational factors. Facilitative factors describe the level of difficulty the voter has to overcome to take part in the elections, which can be cognitive skills or if voting by mail is available. Motivational factors describe the motivation of people to take part in the elections. These can be things such as the importance of the election or political interest (van Egmond et al., 1998). Political interest is a very motivational factor such as level of education, as these provide the cognitive skills necessary for overcoming problems concerning the elections. Thus, people with a high level of education and/or who are highly interested in politics also have a higher tendency to vote. Gender as well is an important factor, as women have a higher tendency to vote than men (van Egmond et al., 1998). Concerning age, opinions are divided. Many researchers, such as Achim Goerres (2007), state, that age is a very influential factor, as older people vote more often than young people do. Others like Kai Arzheimer (2006) claim that not age, but the membership to a certain cohort group makes the difference. Here as well, people belonging to an older cohort group vote more often than those in the younger cohort groups (Arzheimer, 2006). Thus, the critical factor in this case might be the time periods people have been exposed to politics. However, none of these factors can

fully predict electoral behaviour or electoral participation, although they sure have some influence (van Egmond et al., 1998).

In general, VAAs can increase the awareness for upcoming elections, which might lead to an additional number of voters (Fivaz & Nadig, 2011). But according to some studies in Switzerland, VAAs do as well have the potential to influence civic education and electoral participation. In these studies, 40 per cent of the participants were encouraged by the use of the Swiss VAA "smartvote" to take part in the elections, whereof a high number of young voters, who are normally underrepresented at elections (Fivaz & Nadig, 2011; Ladner & Pianzola, 2010). There are other studies as well which show that VAAs can increase electoral participation, although the influences are only modest (Ruusuvirta & Rosema, 2009). However, undecided voters seem to be notably attracted by the advices of the VAAs. There are studies which demonstrate that undecided voters took part in the elections after they had received an advice from a VAA and many also followed the advice given (Ruusuvirta & Rosema, 2009). Although these studies have revealed the influence of VAAs on electoral participation, the direct connection is hard to prove. Next to VAAs, there can be many different factors, why people decide to vote in elections and VAAs might have a marginal influence only. However, what is quite likely is that people, who use VAAs, are at least interested in the elections, as they would otherwise not use VAAs to collect information.

2.4 The User of VAAs

In this last section, the information presented earlier, will be put together so that hypotheses can be presented. In order to derive hypotheses and to know in which direction they lead, it is important to know what indications other research presents on the user of VAAs. Some existing research shows, that the average user of VAAs is male, young, highly educated and shows at least some general interest in politics (Ladner & Pianzola, 2010; Hooghe and Teepe, 2007 as cited in Walgrave et al., 2008; Wall et al., 2009). Especially young people, who are also often first-time voters and want to vote, but do not know for which party, seem to find VAAs attractive, as they provide easy access to information (Ladner et al., 2010).

By summarizing the information from the three parts; first, the internet is used more frequently by younger people and the reasons why the internet is used differ, especially with regard to gender and age. Second, political interest and political participation are highest among the highly educated and male and the higher the interest in politics, the more likely people will participate in political activities. Third, people who are interested in politics are

more likely to vote and often take part in other activities as well. However, women and the elder are more likely to vote. The last section has shown that the young, male and highly educated are more likely to use VAAs according to some previous research. This theory provides the background for the following hypotheses:

"Men consult the Voting Advice Applications in higher numbers than women do."

"The higher the level of education, the more likely is the usage of VAAs."

"The younger a person, the more likely is the usage of VAAs."

"People, who are interested in politics, consult the Voting Advice Applications in higher numbers than people, who are not interested in politics, do."

3. Methodology

In this section, the methodological background and aims will be explained. First, the used research design will be presented. In the second part the methods of case selection and sampling will be laid out. Afterwards, a short operationalisation of the different variables will be presented. At the end, there will also be an explanation on the data collection method.

3.1 Research Design

This thesis will be based on a meta-analysis, which is a review and comparison of the existing literature and studies designed by other researchers. This is mainly done, because these researchers had more time and supplies for their studies and collecting own data from different countries, through surveys or interviews, would take more time than what is available for the entire paper. The researchers have gathered their data through surveys, which users of the VAAs have been asked to fill in at the end of the VAAs, and personal interviews. Filling in the surveys, as well as participating in the interviews, was voluntarily and the data have been processed anonymously. In the case of Estonia, users could make their own profiles in order to save to results, so they could compare their results on a later point in time. The dependent variable is the usage of the VAAs, and the independent variables are age, sex, level of education and political interest, which will be tested independently. If there is no difference between the socio-demographic factors, than the usage of the VAAs must be the same for all analyzed variables and countries. In contrast, if there are differences to be found between the factors within the countries, than there must be differences in the usage of VAAs as well.

3.2 Case Selection and Sampling

The research sample contains seven European countries, Switzerland, Ireland, Belgium, the Netherlands, Germany, Italy and Estonia, in which VAAs are used and about which the necessary data can be found. In these studies, the samples were people, who volunteered to fill in a survey or to take part in the interviews. Thus, the samples have not been chosen by the researchers, but they had to rely on users, who were willing to answer their questions. Actually, there are more European countries in which VAAs are used, but not for all of them, are data available. This means, not all in countries is research to be found, either because VAAs are too new or the interest is not big enough for research (yet). But by having seven countries, a cross-country analysis is possible and thereby a good overview of the current situation is reached. All studies have been conducted in a period from 2000 to 2012, as elections took place during this period, and the usage of VAAs was probably higher during this period. This framework therefore provides a good amount of data for the selected countries.

Although, some of the selected studies are more intensive than others, as they, for example, provide specific information about income, all studies have investigated the variables gender and age. Further, all countries, except for Ireland, provide data on the level of education of the users. However, only a few studies, namely those on Germany, Italy and Switzerland have explored the factor of political interest in combination with the usage of VAAs.

3.3 Operationalisation

The operationalisation helps to specify the chosen variables gender, education, age and political interest into their categories, which can then be tested. This section gives a short overview on the operationalisation, but a more extensive explanation can be found in the section of the data analysis, where the specific operationalisation is explained before testing each hypothesis. The operationalisation of gender is rather easy, as this contains only the attributes male and female.

Also the factor of level of education is clear, since the data either has already been categorized as low, medium and high, or they are put in categories such as basic education, which is used as low for this thesis, secondary education, which is medium and higher/university education, which then counts as high level of education.

However, the categorization of age differs, which makes an operationalisation of these data more difficult. As there is no independent distribution for every age but only categories, except for Estonia and Belgium, these categories will be put together so that an even number of ages can be found for every country in the categories young, medium and old. That is why the operationalisation differs here and is made separately for each country. A few data might be distributed into different categories, which could alter the percentages and thereby hinders the comparison. Yet, the categorization is necessary for testing the hypothesis as the data cannot be compared for every age individually in this case. This cannot be done because, there are no percentages given for every age individually, so it is not clear how old exactly every user is. For this reason, the percentages then needed to be estimated, which is quite difficult and this would also influence the comparison heavily, since the outcome could change with different estimations.

The fourth variable of political interest contains a second problem. Not only are there only three countries, namely Germany, Italy and Switzerland, providing information on the level of political interest of the users, but they also follow two different approaches in order to operationalize and present their data. But in order to compare the data, the data have been "re-categorized" so that the same approach can be used and an actual comparison can be made.

Last, sometimes the data add up to more than 100 per cent, but in other cases the sum can also be less than 100 per cent. But in order to make these data comparable and get a sum of 100 per cent, the unknown data have been distributed in such a way that the differences between the attributes remain the same. Where the data add up to more than 100 per cent, calculations have been made with the given data on how the distribution would be, if the data added up to 100 per cent. This has been done by adding up the existing percentages for the categories of one variable. Then the given percentage for one category is divided by the calculated sum of all categories. This new value is then used for the further analysis.

3.4 Data Collection

As it has already been said, the data will be collected from studies, which have been carried out by other researchers. The necessary data is available in percentages relative to the clusters of people which have been studied. For this study, the percentages of users for one category will be compared with category's actual share in each country. The data on the user of VAAs, used within the framework of this thesis, can be found in the following articles:

- Belgium: Hooghe & Teepe, 2007, p. 13.
- Estonia: Vassil, 2011b, pp. 6-8.

- Germany: Marschall & Schmidt, 2010, pp. 76-80.
- Ireland: Wall, Sudulich, Costello and Leon, 2009, p. 208.
- Italy: De Rosa, 2010, pp. 190-194.
- Netherlands: Ruusuvirta and Rosema, 2009, p. 12.
- Switzerland: Ladner and Pianzola, 2010, pp. 217-219.

Further, the following sample sizes, N, are used for the studies. Although they vary in size, all samples have statistical power and these data give a good overview on the countries.

- Belgium: 85,979
- Estonia: 3,582
- Germany: 10,563
- Ireland: 3,767
- Italy: 1,006
- Netherlands: 892
- Switzerland: 333

The data on the countries themselves have been taken from different websites, which are mostly the national statistical offices. The authors of the studies on Ireland and Belgium provide the data on Ireland and Belgium within their own studies as a matter of comparison and the studies on Italy and Germany do at least partly, with regard to age. The study on Switzerland provides information on political interest of the Swiss voters only. The necessary data on political interest for Germany and Italy have been taken from the Eurobarometer of November 2012. These are the sources the data of the different countries have been taken from:

- Belgium: Hooghe & Teepe, 2007, p. 13.
- Estonia: Indexmundi, 2013a; Statistics Estonia, 2013.
- Germany: European Commission, 2012, p. T5; Statistisches Bundesamt, 2011a; Statistisches Bundesamt, 2011b; Marschall & Schmidt, 2010, p. 78.
- Ireland: Wall, Sudulich, Costello and Leon, 2009, p. 208.
- Italy: De Rosa, 2010, p. 192; Rodríguez-Pose & Tselios, 2007, p. 11; European Commission, 2012, p. T5; Istat, 2012.
- Netherlands: Statistics Netherlands, 2012; Statistics Netherlands, 2013a; Statistics Netherlands, 2013b.
- Switzerland: Federal Statistical Office, 2013; Indexmundi, 2013b; Ladner and Pianzola, 2010, p. 219.

4. Data Analysis

In this section, the research question *"In what way does the usage of Voting Advice Applications by citizens vary between socio-demographic categories and how big are these differences across seven European countries?"* will be answered. For this purpose the percentages of the categories of VAA-users, given in the studies, will be compared with the relevant percentages of inhabitants of each country. The percentages will be put under each other in separate tables, VAAs users first and below that for the countries as a whole, so a direct comparison is possible. Thereby, one can compare the number of users for one category with the specific fraction for the entire country. With that, one can say, whether one of the categories of users is significantly higher or lower than its fraction of the country and thereby check which categories of users make use of them and to what extent the users of VAAs are representative for the entire countries.

These tables also enable a comparison of the differences between the different categories. Therewith one can conclude how big the differences are, if the differences are repeated and if there are any great differences between the individual levels for one or several countries. The differences between the categories are presented in the fourth column of each table. In the case of the variables level of education and age, where more than two categories are used, the biggest differences are displayed in this column and all other differences can be found in the appendix. At the bottom of these tables, an additional row can be found displaying the average values of all categories for the users as well as for the countries. Therewith, it can be easily seen what the general trend and pattern for the different categories is and what can be expected as an outcome for the countries. This gives a good overview on all the percentages and makes explanations more feasible. Last, all percentages presented here are rounded to the nearest integer number in order to facilitate the reading.

4.1 Gender

In this section, the hypothesis on gender will be tested, with regard to the question in what way, alternatively to what extent the usage varies between men and women. The hypothesis, which will be tested, is the following one: *"Men consult the Voting Advice Applications in higher numbers than women do."* The table below shows the percentages for each gender for all countries. The fourth column displays the difference between male and female users as well as the number of men and women for each country.

Table 1: Gender in relation to the use of Voting Advice Applications

	Male	Female	Difference: male - female
Belgium: VAA users	65	35	30
Population	*49*	*51*	*-2*
Estonia: VAA users	48	52	-4
Population	*46*	*54*	*-8*
Germany: VAA users	51	49	2
Population	*49*	*51*	*-2*
Ireland: VAA users	62	38	24
Population	*50*	*50*	*0*
Italy: VAA users	55	45	10
Population	*48*	*52*	*-4*
Netherlands: VAA users	52	48	4
Population	*49*	*51*	*-2*
Switzerland: VAA users	67	33	34
Population	*49*	*51*	*-2*
Mean: VAA users	57	43	14
Population	*49*	*51*	*-2*

(All data in percentages)

If a look is taken at the means of the users and the countries, it can be seen that men make use of VAAs in higher numbers than women do and the differences in the usage vary. However, within most countries, a slight surplus of women can be found. With regard to the usage, two patterns have been identified.

In Belgium, Ireland and Switzerland, almost two-thirds of VAA-users are male. Thus, men are overrepresented as users, while women are heavily underrepresented and therefore men do clearly make use of VAAs in higher numbers than women do.

The second pattern involves Estonia, Germany, Italy and the Netherlands. In these countries as well, men make use of VAAs in higher numbers than women do, but the differences between the sexes are considerably smaller than for the countries of the first

pattern. In Estonia, women make more use of VAAs in relative numbers, but there are more male users than male inhabitants, thus men are overrepresented and chances of using VAAs are higher for men. But for all countries, men are overrepresented as users, whereas women are underrepresented as users, although the differences in usage are rather small.

Concluding, the hypothesis *"Men consult the Voting Advice Applications in higher numbers than women do."* can be confirmed for all seven tested countries and men are overrepresented as users in all countries, although the differences between the genders vary strongly.

4.2 Level of Education

Education is another variable to test, as some research has also shown, that mainly the highly educated make use of VAAs. Since it is expected that the usage increases with the level of education, the following hypothesis is used: *"The higher the level of education, the more likely is the usage of VAAs."*

Unfortunately, the study on Ireland does not provide any data on level of education, so only six countries can be studied. The study on Germany does not provide exact number on the level of education. It only states that three-quarter of the users are highly educated and that a quite low number only has a low level of education (Marschall & Schmidt, 2010). That is why, the number of the lower educated has been estimated from the text and the values presented in the other studies and therefore 3 per cent has been chosen. The medium level of education has then been calculated from the given numbers. Concerning the data on the entire country, one type of school used in the GDR, the "Polytechnische Oberschule", was left out in the calculations as this type has provided access to medium and high levels of education, which makes the data inappropriate for this study. The remaining 15 per cent of the "Polytechnische Oberschule" have been distributed on the three levels of education in their relative numbers.

The numbers for Italy do not add up to 100 per cent either, because this survey offered an answer category "still attending school". However, it does not become clear, what type or level of the education these users follow, so these data have been left out and the remaining 8 per cent have been distributed over the other categories. Concerning the Netherlands, the data found only include people, who are between 15 and 65 years old and in addition it was possible to name more than one level of education. Here as well, the data have been re-calculated, so that they sum up to 100 per cent, which makes a comparison easier. The percentages of Switzerland are done by own calculations based on the absolute number of

people and they only include people, who are between 25 and 64 years old. Last, Estonia only provides the numbers of enrolment in the different levels of education for several years. Based on these numbers of enrolment, calculations have been made on what the actual percentage of people for each level of education could be. However, now different data, which means data with a different background, are compared within the same framework, which could decrease external validity. On the other hand, data of the countries are needed for a comparison as otherwise no conclusions can be drawn.

To demonstrate the differences between the categories more clearly, a column which shows the values of the differences between high and low level of education is added to the table. These differences have been chosen because these are the biggest difference and therefore display the most extreme values. This can show how the distribution of level of education between the users is.

Table 2: Level of education in relation to the use of Voting Advice Applications

	Low	Medium	High	Differences: High - Low
Belgium: VAA users	5	57	38	33
Population	*49*	*42*	*9*	*-40*
Estonia: VAA users	7	37	56	49
Population	*60*	*12*	*28*	*-32*
Germany: VAA users	3	22	75	72
Population	*45*	*25*	*30*	*-15*
Italy: VAA users	2	33	65	63
Population	*56*	*35*	*9*	*-47*
Netherlands: VAA users	20	38	42	22
Population	*38*	*27*	*35*	*-3*
Switzerland: VAA users	3	54	43	40
Population	*14*	*50*	*36*	*22*
Mean: VAA users	7	40	53	47
Population	*37*	*32*	*31*	*-19*

(All data in percentages)

On average, users with a high level of education are overrepresented and have the highest share of all users, followed by those with a medium level of education and the lowly educated have the smallest share. Within the countries, lowly educated have the biggest share, followed by the medium-educated and the highly educated have the smallest share. Two patterns can be identified here as well.

The first pattern can be found in five of the six countries, which are Belgium, Estonia, Germany, Italy and Switzerland. In these countries the highly educated are the biggest category of users, followed by the medium- and lowly educated. In all five countries, people with a high level of education are thus overrepresented as users, whereas people with a low level of education are clearly underrepresented as users. In Belgium, Estonia and Switzerland, users with a medium level of education are overrepresented as well, while they are slightly underrepresented in Germany and Italy. Concluding, the highly educated make use of VAAs in higher numbers than the medium- and lowly educated do.

For the Netherlands, a special pattern has been identified. Here the medium-educated users are more strongly represented than the highly educated and therefore they make use of VAAs in the highest number. Although, users with a low level of education are still underrepresented, their share is considerably higher than in the other countries. Further, users with a high level of education are only slightly overrepresented.

It is striking that in almost all countries, the lowly educated account for the biggest proportion of the educated, but they are obviously underrepresented as users. The highly educated form the biggest cluster of users for all countries except the Netherlands, where the medium-educated form the biggest category. Overall, people with a high level of education are overrepresented as users of VAAs. Thus, the hypothesis *"The higher the level of education, the more likely is the usage of VAAs."* can be confirmed for five tested countries and the highly educated make use of VAAs in higher numbers than the medium- and the lowly educated do.

4.3 Age

The third factor to test is age. For this factor, all seven countries can be used, so there is a broader spectrum of information and cases, which can help to answer the following hypothesis: *"The younger a person, the more likely is the usage of VAAs."*

Although it is not directly explained in the studies how age is defined, the researchers have probably collected data on the specific age of the users by offering answer categories such as "from 20 to 29" and so on. The categorisation of age was more complicated than the

categorisation of the other factors. This is due to the fact, that not all researchers used the same distribution of age for presenting their data. Some have used categories, from 20 to 29, whereas others have used categories, which go from 25 to 34. This makes it difficult to compare the usage of different categories of age across the countries, as not all categories contain the same ages throughout all countries. Thus, the age 25 is categorized as young within some studies, whereas in others, 25 is categorized as medium age. Yet, this could influence the outcome of the comparison, if a relatively high percentage of users happen to be 25 and it also makes the data less reliable. But the data have been categorized in such a way, that an even share of data is reached for all categories. Since most countries, except for Belgium and Estonia, offer only categories and no single distribution on age, an individual comparison or a "re-categorisation" are difficult and using this categorization therefore is necessary for comparing the data on age in the best possible manner.

For the individual studies, the following categories are used, which are summarized the following way for this study: Belgium and Estonia offer graphs, so own calculations were made for the categorization. Therefore, from 14 to 29 are categorized as young, 30 to 49 are medium-aged and all ages from 50 years onwards are categorized as old. Germany and Italy use the same categories to present their data on age, so the data just needs to be summarized into the different categories of the variable; 14 to 19 and 20 to 29 are summarized and categorized as young, 30 to 39 and 40 to 49 count as medium-aged and again 50 to 59 and from 60 onwards are categorized as old. Rather different categories are used for the other three studies. For Ireland and Switzerland, the same distribution is used, but they have different starting points. For the study on Ireland, data are collected in categories from 0 to 15 and from 15 to 24, which are then also categorized as young. In Switzerland, the lowest answer category was 18 to 24, which is, together with the category of 25 to 34 categorized as young. For Ireland, 25 to 34 and 35 to 44 count as medium-aged and 45 to 54 and from 55 years onwards are categorized as old. For Switzerland, 35 to 44 and 45 to 54 are medium-aged and 55 to 64, 65 to 74 and 75 and older are categorized as old. The data are not distributed in the same way, because they have different starting points as where to count the age of the users. But if the data were distributed in the same way, there would be only a few data for the category young and a high amount of data on the categories medium-aged and old, thus there would be an uneven share of the data. The study on the Netherlands uses the broadest categories concerning age, which makes a detailed comparison quite tricky. In total, there are four categories, from 18 to 24, from 25 to 39, from 40 to 54 and from 55 onwards.

For this paper 18 to 24 is categorized as young, 25 to 39 as medium-aged and 40 to 54 and +55 are categorized as old.

The data on age for the countries themselves are either categorized within the studies, as it is the case for Germany, Ireland and Italy or, as it is done in Belgium, a single distribution is given, so the percentages of age for the country have been calculated in the same way as it is done on the percentages for the users. Concerning Estonia, the Netherlands, and Switzerland the distribution of age has been found on statistical websites on the internet. On these websites, distributions have been found, which show the number of people for every age. These single ages have been categorized in the same way as it has been done on the studies, so a direct comparison is possible. The percentages for each category have been calculated by adding up the number of people, who belong to a category and dividing it by the actual number of people living the country. Additionally, the extra column shows the differences between young and old, since these differences are the biggest ones for most countries and can give indications on how the distribution of the values is.

Table 3: Age in relation to the use of Voting Advice Applications

	Young	**Medium**	**Old**	**Differences: Young - Old**
Belgium: VAA users	56	32	12	44
Population	*21*	*44*	*35*	*-14*
Estonia: VAA users	43	43	14	29
Population	*28*	*41*	*31*	*-3*
Germany: VAA users	47	37	16	32
Population	*21*	*34*	*45*	*-24*
Ireland: VAA users	20	67	13	7
Population	*35*	*32*	*33*	*2*
Italy: VAA users	50	24	26	24
Population	*19*	*36*	*45*	*-27*
Netherlands: VAA users	40	30	30	10
Population	*43*	*42*	*15*	*28*

Switzerland: VAA users	49	36	15	34
Population	*27*	*44*	*29*	*-2*
Mean: VAA users	44	38	18	26
Population	*28*	*39*	*33*	*-6*

(All data in percentages)

With regard to the mean values, users with a young age have the biggest share of all users, followed by the users with a medium age and old users have the smallest share. Within the countries, people with a medium age form the biggest cluster, followed by old people and the young people have the smallest share.

On detail, two patterns can be found to characterize the countries. The first pattern contains Belgium, Estonia, Germany, Italy, and Switzerland. In these countries, people with a young age have the highest share of the users. In Belgium, Estonia, Germany and Switzerland, the second biggest category are the users with a medium age. Thus, old users are the smallest category, and they are heavily underrepresented as well. In Italy, the second biggest category are the old users and the smallest category are the medium-aged users. Both categories are underrepresented here. Concluding, young users are the biggest category here and they are strongly overrepresented, while old users are considerably underrepresented. Thus, young people are more likely to use VAAs than people with a medium or with an old age do.

Ireland and the Netherlands belong to the second pattern, since these are the countries in which young people are not the biggest category of users. In Ireland, users with a medium age form the biggest cluster of all users, followed by the young users and last the old users. Thus, people with a medium age are overrepresented as users and make use of VAAs in the highest numbers, while people with a young and with an old age are strongly underrepresented. In the Netherlands, users with an old age have the highest share. The young users are the second biggest category, although they are slightly underrepresented, and the medium-aged users form the smallest cluster. Thus, old people make use of VAAs in the highest numbers here.

Young users are generally overrepresented, whereas old users are often strongly underrepresented. The medium-educated are slightly underrepresented. In all countries, except for Ireland and the Netherlands, the young people use VAAs in higher numbers than the medium-aged and old people do. Although there are variations within the countries, young people are overrepresented as users and having the highest share as users in most countries,

thus the hypothesis *"The younger a person, the more likely is the usage of VAAs."* can be verified for five countries with Ireland and the Netherlands being the exceptions.

4.4 Political Interest

In this last section, the following hypothesis on political interest will be tested: *"People, who are interested in politics, consult the Voting Advice Applications in higher numbers than people who are not interested in politics, do."* However, it is not clear how "political interested" is operationalised within the studies. Thus, the answers depend on the estimation of the people questioned, which might, especially if there are different levels for the answer categories, lead to wrong estimations, which in turn alters the data.

Germany, Italy and Switzerland are the only countries offering data on political interest of the users. While Germany and Italy use the same approach and divide the users into "interested" and "not interested", Switzerland offers data on four different levels of political interest. These levels are "high", "rather high", "rather low" and "low". This study also offers a direct comparison, however the type of people, the users are compared with, are the Swiss voters. This narrows the category down to a sample, which could already be biased. But as no other data are available, these data will be used, so a comparison between users and the country is possible.

For categorizing the data, the percentages of people with a rather high and with a high level of political interest have been added in the category of "interested". And the percentages on "rather low" and "low" have been put into the category of "not interested". However, this procedure is not fully correct from a scientific point of view and low interest does not automatically mean "no interest at all". But for this reason, the original distribution of the data will be displayed in a second table, so one can see how the percentages have been calculated. However, as there was no answer category of "not interested in politics" in this survey, participants, who are not interested, might have chosen the categories of low and rather low instead. That is why this hypothesis can still give some indications.

The data of Germany and Italy themselves have been taken from a survey published by the Eurobarometer in autumn 2012. For this survey, 1,000 face-to-face interviews have been conducted in Italy and 1,500 interviews have been done in Germany. Within this survey, the answer categories offered were "strong", "medium", "low" and "not at all". In order to compare these results, the numbers of the categories "strong" and "medium" have been added to "interested" and those of "low" and "not at all" have been put into the category of "not

interested". In order to show how the original distribution of the data was, the data found within the Eurobarometer are put into a separate table as well.

Table 4: Political Interest in relation to the use of Voting Advice Applications

	Interested	Not Interested	Difference: interested - not
Germany: VAA users	76	24	52
Population	*76*	*24*	*52*
Italy: VAA users	59	41	18
Population	*57*	*43*	*14*
Switzerland: VAA users	78	22	56
Population	*62*	*38*	*24*
Mean: VAA users	71	29	42
Population	*65*	*35*	*30*

(All data in percentages)

Table 4.1 Data on Switzerland from the study

	High Interest	Rather High Interest	Rather Low Interest	Low Interest
Swiss Users	31	47	19	3
Voters	*17*	*45*	*26*	*12*

(All data in percentages)

Table 4.2 Data of the Eurobarometer for the Level of Political Interest

	Strong Interest	Medium Interest	Low Interest	No Interest
Germany: Population	23	53	18	6
Italy: Population	14	43	24	19

(All data in percentages)

With regard to the mean of the data, it is obvious that people who are interested in politics make use of VAAs in higher numbers than people who are not interested in politics do and they are overrepresented as users as well. Also the share of politically interested people within the countries is higher than the share of those who are not interested. The data

show that there are more politically interested users and citizens than users and citizens who are not interested in politics and these differences are quite big.

Since there are only three countries here, one pattern was identified which all of them follow. With regard to Germany, the dispensation of percentages of the users is the same as the dispensation within the country itself. Thus, none category is overrepresented or underrepresented compared to the population. Also in Italy, the percentages are very similar, with politically interested people slightly overrepresented as users compared to the country. Italy has a higher number of citizens, who are not interested in politics and it also has a higher number of users, who are not interested in politics. But still, people who are interested in politics do make use of VAAs in higher numbers. In Switzerland, a greater difference can be found between the data on the users and on the country, but with the same trend that the users, who claim to be interested in politics, make use of VAAs in higher numbers, and are overrepresented compared to their fraction of the country.

Although, there are data available on three countries only, the outcome shows that people who are interested in politics consult VAAs in higher numbers than people who are not interested in politics. However, the differences are not equally big, as Italy has a rather small difference between the users and the country itself. And Switzerland has a much higher share of politically interested users than the country.

5. Answer to the Research Question and Conclusion

After all hypotheses have been tested and the important aspects of the study have been evaluated, the research question will be answered and afterwards a conclusion is drawn in which the study will also be evaluated and further incentives for research will be given. In order to answer the research question *"In what way does the usage of Voting Advice Applications by citizens vary between socio-demographic categories and how big are these differences across seven European countries?"* four different hypotheses have been tested for the four chosen variables, gender, age, level of education and political interest; the seven European countries are: Belgium, Estonia, Germany, Ireland, Italy, the Netherlands, and Switzerland. The data found on the users are compared with the data on the countries themselves and these data are displayed in tables below each other, also showing the means as well as the differences between the categories.

With regard to the first factor, gender, the amount of usage partly varies significantly between men and women and two patterns were identified. In four countries, namely Estonia, Germany, Italy and the Netherlands, the difference between the genders in the usage was

minor only. Yet, in Belgium, Ireland and Switzerland, the number of men using VAAs is almost twice as high as the number of women using it. Thus, three things become clear here. First, men make use of VAAs in higher numbers than women and second, they are overrepresented as users compared to their share of the countries. And third, the sizes of the differences diverge profoundly, thus no conclusion can be drawn on how big these differences are in general, but they clearly exist.

For the second variable, level of education, the hypothesis states that the higher the level of education, the more likely is the usage of VAAs. Here as well, two patterns can be identified. The first pattern found includes Belgium, Estonia, Germany, Italy and Switzerland. In these countries, highly educated users have the biggest share, followed by the medium-educated and last the lowly educated. Thus, the highly educated users are overrepresented and make use of VAAs in the highest numbers. The Netherlands follow their own pattern. It is the only country in which the medium-educated make use of VAAs in higher numbers than the highly and lowly educated. But in all countries, except for the Netherlands, the highly educated make use of VAAs in the highest numbers and they are also overrepresented as users, while the lowly educated are underrepresented as users. People with a medium level of education are slightly overrepresented as users. Thus it can be said, the higher the level of education, the more likely the usage of VAAs.

The next variable tested was age, with the following hypothesis: The younger a person, the more likely is the usage of VAAs. Two patterns are identified here. The first pattern includes Belgium, Estonia, Germany, Italy and Switzerland. In these countries, young users make use of VAAs in higher numbers than users with a medium or with an old age do and young users are strongly overrepresented as well. The second pattern describes Ireland and the Netherlands. In Ireland, users with a medium age make use of VAAs in the highest numbers. In the Netherlands however, old people make use of VAAs in the highest numbers. Young users form the biggest cluster of users in all countries except for Ireland and the Netherlands and, young people are also overrepresented as users. Medium-aged users are only slightly overrepresented and old people are underrepresented as users. But in general, people with a young age are more likely to make use of VAAs than people with a medium and with an old age, but the differences across the countries are big and with huge variations.

Fourth and last, political interest has been tested. Although there are only three countries being tested, they show the same result, namely, that people who are interested in politics do make use of VAAs in higher numbers than people who are not interested in politics do. And people with an interest in politics are also overrepresented as users. The

differences between the categories are obviously big, but more or less equal across the countries.

Concluding, the usage between the socio-demographic categories varies to that extent that there is one category on average, which has a higher number of usage than the other categories: men make more use of VAAs than women, people with a high level of education use VAAs more than those with a low or a medium level of education, the young people more than the old people and those with a medium age and those with an interest in politics also use VAAs in higher numbers than those with no interest in politics do. This is also represented by the calculated means, which display the pattern described above. Although there are variations in the trend, most countries follow the patterns of usage described above. Also the differences between the categories are similar in most countries, display the same trend and lead to the same direction. However, the categories of some countries have unique features and follow a pattern, which cannot be found anywhere else, for example with regard to the Netherlands. All in all, the outcomes of this paper are similar to the outcomes explained in the theory and the typical user of VAAs is male, young, highly educated and politically interested and this can, with some variations, be found across the seven tested countries.

Yet, the question remains why there are these differences and what could be done against them. As it has already been said, some differences might be due to a biased sample, so no scientific explanation can be found for explaining this. Sometimes, cultural, historical or political reasons might offer an explanation as well, so a difference or a pattern might just be typical for one country.

But also "targeted advertisements" aiming at a specific category of people, as it has been done in the case of Belgium, can contribute to a difference in the usage. In this case, advertisements are created to reach the biggest possible cluster of customers and to reach those, who will the most likely make use of this product. By doing so, sellers of a product can ensure that their product reaches a market, where many people are likely to buy it. This in turn, can increase the profit, enlarge the market and ensure some success of the product (Bergemann & Bonatti, 2011; Galeotti & Moraga-Gonzalez, 2003). Researchers/designers of VAAs can use this principle to target their application at the category, they think, will use it the most likely. Thereby, they might rely on earlier research, and thus aim their VAA at a certain type of people, who have already been identified as users. VAAs will then reach a high number of visitors/users, which in turn can be used to prove the success of VAAs. But in doing so, the chances of current non-users to use VAAs are likely to decrease even more. Therefore, it is difficult to say whether VAAs can be called a success, if their scope is limited.

The differences in usage might also be due to the design of the VAAs. Though, this is hard to test and further, the design and the usage are already kept simple and quite straight forward, and many people from the samples claimed that they had fun while using VAAs and they liked the design of it (Marschall & Schmidt, 2010; de Rosa, 2010). Further, with seven countries only, external validity is not that high, thus the study should be repeated with more (European) countries and new samples and longitudinal studies should be used. By doing so, researchers could also test for the importance of different elections. Further, research should control for possible third variables, such as different political and election systems, cultural and ethnical backgrounds of the users and the history of the countries. Another problem is that by taking over the numbers conducted by other researchers, mistakes in the research might be taken over in this study as well which in turn can influence the results of the comparisons here.

In addition, it would be interesting to know the distribution of some categories within other categories, for example how much of the medium-educated within one country are women. This could reveal additional information on the users, the patterns of usage and might offer a starting point for additional research. Of course, the distribution is to some extent similar to the profile of the average user. Nevertheless, it is interesting to know about the actual distribution, since it is then possible to draw further conclusion on the socio-demographic categories. Further, a comparison with the non-users, instead of entire countries, can give reasons why some people use VAAs and others do not and thereby might give suggestions for improvements. These non-users could be detected by first asking people, whether they are aware of VAAs. And then second, by dividing them into whether they use or do not use VAAs. Also the non-users should then be divided into socio-demographic categories and they have to be asked for reasons why they do not use VAAs, so improvements on VAAs can be possible. Right now, users are counted double in the comparisons, since they are part of the numbers on the countries as well, which also hinders a statistical analysis.

But despite some, mostly methodological, challenges this study has brought together different studies and has demonstrated patterns between the different countries, but has also shown unique features. Further, by making comparisons with the countries as a whole, attention has been brought to the differences within the socio-demographic categories and thereby shows a clear trend on how the typical user looks like in most cases. The findings of this study can be the basis for further research on different factors as well as on the design of VAAs. In general, the chances are high that VAAs can contribute to and influence political and electoral participation and that their popularity, and therefore usage, will probably

increase with the coming years (Ladner & Pianzola, 2010). But therefore, VAAs should be brought more to the attention of different categories of people, since right now, the people who probably need them the least, seem to make the most use of it; and these are the male, young, highly educated and politically interested.

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7. Appendix

Table 2.1: Difference between the medium and lowly educated

	Difference: Medium - Low
Belgium: VAA users	52
Population	*-7*
Estonia: VAA users	30
Population	*-49*
Germany: VAA users	19
Population	*-20*
Italy: VAA users	31
Population	*-21*
Netherlands: VAA users	18
Population	*-11*
Switzerland: VAA users	51
Population	*36*
Mean: VAA users	34
Population	*-12*

(All data in percentages)

Table 2.2: Difference between highly and medium educated

	Difference: High - Medium
Belgium: VAA users	-19
Population	*-33*
Estonia: VAA users	19
Population	*17*
Germany: VAA users	53
Population	*5*

Italy: VAA users	32
Population	*-26*
Netherlands: VAA users	3
Population	*8*
Switzerland: VAA users	-11
Population	*-14*
Mean: VAA users	13
Population	*-7*

(All data in percentages)

Table 2.3: Difference between highly and lowly educated

	Difference: High - Low
Belgium: VAA users	33
Population	*-40*
Estonia: VAA users	49
Population	*-32*
Germany: VAA users	72
Population	*-15*
Italy: VAA users	63
Population	*-47*
Netherlands: VAA users	22
Population	*-3*
Switzerland: VAA users	40
Population	*23*
Mean: VAA users	47
Population	*-19*

(All data in percentages)

Table 3.1: Difference between young age and medium age

	Difference: Young - Medium
Belgium: VAA users	24
Population	*-23*
Estonia: VAA users	0
Population	*-13*
Germany: VAA users	11
Population	*-12*
Ireland: VAA users	-47
Population	*3*
Italy: VAA users	26
Population	*-17*
Netherlands: VAA users	10
Population	*2*
Switzerland: VAA users	13
Population	*-17*
Mean: VAA users	5
Population	*-11*

(All data in percentages)

Table 3.2: Difference between medium age and old age

	Difference: Medium - Old
Belgium: VAA users	20
Population	*9*
Estonia: VAA users	29
Population	*10*
Germany: VAA users	21
Population	*-11*

Ireland: VAA users	54
Population	*-1*
Italy: VAA users	-2
Population	*-9*
Netherlands: VAA users	0
Population	*27*
Switzerland: VAA users	21
Population	*15*
Mean: VAA users	20
Population	*6*

(All data in percentages)

Table 3.3: Difference between young age and old age

	Difference: Young - Old
Belgium: VAA users	44
Population	*-14*
Estonia: VAA users	29
Population	*-3*
Germany: VAA users	32
Population	*-24*
Ireland: VAA users	7
Population	*2*
Italy: VAA users	24
Population	*-27*
Netherlands: VAA users	9
Population	*28*

Switzerland: VAA users	34
Population	*-2*
Mean: VAA users	26
Population	*-6*

(All data in percentages)