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Enhancing Voting Advice Applications: Politicians' Perspectives on Additional Contextual Information and AI Integration

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Abstract

Despite the popularity of voting advice applications (VAAs), users often struggle to fully understand the political statements. Since users rarely resolve these comprehension issues by searching for information outside the tool, one promising solution is to enrich VAAs with additional contextual information, either through clickable explanations in a so-called VAA+, or through a conversational agent VAA with an integrated chatbot. Responding to user-centric and normative calls for additional information in VAAs, the current study investigates how to add this information in a neutral and ethically sound way. In 20 semi-structured interviews with local politicians from two large Dutch municipalities, we explored (a) perceived acceptability and feasibility of four different types of contextual information—semantic clarifications, status quo descriptions, summaries of arguments in the political debate, and party positions—and (b) how AI could be used to disseminate this information. Discussions addressed appropriate resources, language use, and ethical concerns such as the risk of political bias. Findings show broad support for the addition of all four types of information, including summaries of pro and con arguments. Roughly half of the politicians emphasised that VAA developers should not evaluate the quality of arguments but could instead summarise the arguments as given by political parties to create concise and balanced overviews. Most politicians emphasised that implementation of AI is possible to some extent, but information must be accurate, politically neutral, and transparently sourced. This article reflects on the implications for theory and practice of future VAA development.

Keywords

artificial intelligence; ethical concerns; local politicians; voting advice applications

1. Introduction

Voting advice applications (VAAs) are online tools wherein users receive a voting advice based on their answers to a set of political attitude statements. These tools originated in the Netherlands as pencil-and-paper tools for high school students in 1989 and went digital in 1994 (De Graaf, 2010). Since then, they have become widely used across multi-party democracies (Garzia & Marschall, 2012). For example, the Dutch StemWijzer was used 9.1 million times during the 2023 parliamentary elections ("Recordaantal gebruikers voor StemWijzer," 2023), and Germany's Wahl-O-Mat saw 26 million uses ahead of the 2025 elections (Bundeszentrale für politische Bildung, 2025). While not all visits reflect unique users, these figures nevertheless show that VAAs reach a broad audience.

VAA brands work independently from political parties, and the tools are designed to be politically neutral (Garzia & Marschall, 2012). They aim to improve civic education, understood as the development of beliefs, skills, behaviours, and commitments for informed participation in society (Crittenden & Levine, 2018). Civic education involves more than developing policy preferences; it also includes fostering an understanding of why certain issues matter and how they relate to broader societal dynamics (Fossen & Anderson, 2014). To support this broader educational goal, some VAA brands include supplementary information alongside political attitude statements. This may involve definitions of key terms, contextual information about political issues, or explanations of party positions. Additionally, academics have started to explore information provision through the inclusion of chatbots using AI to deliver additional content (e.g., Kamoen & Liebrecht, 2022; Kamoen et al., 2024). The positive user evaluations of these enhanced tools indicate the need for additional contextual information in VAAs. Also, from a normative perspective, scholars explore the possibility of an effective VAA design with additional contextual information that encourages opinion reflection (Fossen & Anderson, 2014).

While supplementary information can foster civic education (Fossen & Anderson, 2014) and improve users' understanding (Kamoen & Holleman, 2017), it also raises key questions: What types of information are ethically appropriate to include? And what role might AI play in generating and presenting this content? The current article explores these questions through interviews with local Dutch politicians. Although VAA providers operate independently, political parties are closely involved in the development of municipal VAAs. In StemWijzer, parties help select political statements and write their party positions; in KiesKompas, they direct developers to sources where official positions can be found (Gemenis & Van Ham, 2014). As such, politicians are key stakeholders in discussions about information provision and the potential role of AI in VAAs.

2. Theoretical Framework

2.1. Information Provision in VAAs

VAAs seek to enhance civic education in three ways: first, by procuring information about parties' positions on policy issues; second, by analysing this information as to how well it fits with the users' preferences; and third, by assisting voters in reviewing this information by providing matches with party stances at the end (Garzia, 2010). Empirical studies show that VAAs indeed positively affect outcome measures related to civic education, as they increase users' perceived political knowledge (Van de Pol, 2016) and factual political

knowledge (Schultze, 2014), especially regarding parties' issue positions (Munzert et al., 2021). In addition, VAAs have been shown to boost voter turnout, although not consistently across studies and varying per research design and statistical method used for analysis (Munzert & Ramirez-Ruiz, 2021). Finally, VAAs affect vote choice, but the effect depends on the alignment with voters' existing party preferences (Enyedi, 2016), as well as on user characteristics such as degree of political interest (Tromborg & Albertsen, 2023).

Although VAAs contribute to civic education to some extent, there are also concerns about their effectiveness. One critique is that VAAs primarily respond to users applying an issue voting strategy when determining which political party to vote for (Fossen & Anderson, 2014; Fossen & Van den Brink, 2015). Issue voting (Downs, 1957) refers to voters making decisions by comparing their policy preferences to those of political parties, rather than basing their choice on party loyalty or other aspects unrelated to policy. VAAs are explicitly designed around this model of issue voting, as users are asked to express their opinions on a predefined set of issues and are then matched with the party that most closely reflects those views (for a more elaborate discussion see Fossen & Anderson, 2014).

Issue voting is closely related to a social choice view of democracy (Arrow, 1963). Social choice theory views democratic decision-making as a process of aggregating individual preferences into collective policies. Fossen and Anderson (2014) challenge this view, arguing that democracy is more complex than aggregating voters' preferences into collective policies. They advocate for a deliberative view of democracy, in which a "good" democracy is not defined by the translation of preferences into votes, but by the extent to which voters are encouraged to reflect on and possibly reconsider their preferences through new information. From this perspective, civic education entails more than the formation of policy preferences; it requires an understanding of why certain issues matter and how they relate to a broader societal context. As Fossen and Anderson (2014) argue, enriching VAAs with general background information and information about the arguments used in the debate would support such deliberation.

User-centric studies support the idea that it may be beneficial to include additional information in VAAs. In a think-aloud study among 60 voters, Kamoen and Holleman (2017) showed that, when no additional information is included, VAA users frequently struggle to interpret VAA statements due to a lack of semantic knowledge (word meaning), pragmatic knowledge (status quo), and argumentative knowledge (arguments pro and con to the statement). For instance, when evaluating a VAA statement such as "Income tax should be increased," some users may not know what income tax is (semantic knowledge), how high it currently is (pragmatic knowledge), or why such a policy might be proposed (argumentative knowledge). While users could, in principle, open a new tab to seek and find the required information, users rarely make this effort. Instead, they resort to satisficing strategies (Krosnick, 1991), disproportionately frequently picking a middle-response or no-opinion answer, which in turn undermines the validity of the voting advice.

Not only do user-centric studies indicate that comprehension problems occur when no additional information is included in a VAA, they also show that including information is beneficial, as this leads to higher political knowledge scores and better tool evaluations (Kamoen & Liebrecht, 2022; Kamoen et al., 2024; Van Zanten & Boumans, 2023). Taken together, both theoretical arguments (Fossen & Anderson, 2014) and empirical findings (Kamoen & Liebrecht, 2022; Kamoen et al., 2024; Van Zanten & Boumans, 2023) suggest that enriching VAAs with semantic, pragmatic, and argumentative information could improve their value as a tool for civic education.

2.2. The (Potential) Role of AI

In the Dutch context, some VAA brands incorporate additional content into their tool. In StemWijzer, for example, users can click on specific terms within VAA statements to access semantic explanations of difficult words. Additionally, users can click a button called "Know more" to access contextual information about the statement topic. We will refer to a tool like the Dutch Stemwijzer as a VAA+: a VAA with additional information in the web environment. In a VAA+, a limited amount of extra information can be included, with the advantage of the information being the same for every user and allowing control over the information presented.

An alternative approach is to connect a chatbot to a VAA. A so-called conversational agent voting advice application (CAVAA) allows users to ask numerous questions about the political issues presented in the tool, to which the chatbot provides a tailored response. CAVAAs have been tested in a series of recent scientific studies (Dieing, 2025; Hankel et al., 2025; Kamoen & Liebrecht, 2022; Van Zanten & Boumans, 2023; Zhu et al., 2025), but to the best of our knowledge, have not been launched in real-life elections. Benefits of information provision via a conversational agent (CA) include the ability to provide an unlimited amount of information on-demand, that is, tailored to user preferences (Gemenis, 2024).

Kamoen and Liebrecht (2022) and Kamoen et al. (2024) demonstrate experimentally that CAVAAs have advantages over VAAs without additional information, as they lead to higher political knowledge and tool evaluation scores. In their study, the chatbot had both predefined buttons where users could click on, as well as an open chat field. To be able to respond to questions typed via the open chat, a manually trained model based on open-source software categorised common user queries and triggered pre-formulated responses from a database; researchers then manually wrote the responses. While this setup allowed for controlling the information provided, it also has some limitations, also reflected by Dieing (2025): (a) creating human-written responses is time-consuming and resource-intensive; (b) the chatbot relies on fixed rules and intents, which means it can only handle the topics and phrasings it was explicitly programmed for; and (c) to make intent recognition work accurately, developers must manually gather a wide range of keywords and phrasings for each possible question.

To address these drawbacks, Dieing (2025) developed two CAVAAs, both powered by a large language model (LLM). LLMs, such as ChatGPT, are AI systems trained on a large amount of data to understand and generate natural language responses to free-text user messages (Yigci et al., 2025). Dieing's first CAVAA was an open-domain CAVAA, with unrestricted use of an LLM for text generation and intent recognition. Second, in the semi-open-domain CAVAA, Dieing (2025) applied three restrictions by adding filter layers that blocked user queries (prompts) that contained rude language, that requested the CAVAA's political opinion, and that asked for a vote recommendation, to which the CAVAA then responded with a predefined answer. Next to technical testing of both chatbots, the semi-open CAVAA was also evaluated by an expert survey of German VAA creators. Both the open and semi-open CAVAAs were able to answer questions about semantics, the status quo of statements, summaries of arguments, and party positions. While the expert survey indicated the potential for LLMs in CAVAAs, implementing effective filter layers requires further refinement.

While Dieing (2025) assessed the effectiveness through technical testing and expert evaluations, Zhu et al. (2025) assessed an LLM-based CAVAA's effectiveness among 331 users in the run-up to the 2024 German European Parliament elections. Zhu et al. (2025) used an LLM-based open-domain CAVAA, developed with

GPT-4o, meaning that an LLM was used without restrictions for both intent recognition and generative purposes. Results show that users valued the conciseness and personalisation of the chatbot's answers in explaining complex political issues. Moreover, participants felt motivated to actively reflect on their perspectives and understanding of the statements, as the chatbot invited participants to engage in an open-ended discussion, although some participants felt overwhelmed by this option. Furthermore, participants seemed to have an awareness of risks related to GPT-4o's black box nature and neutrality of its answers. The greater part of participants did not mind this, as long as the answers were written neatly, while some indicated a preference for seeing references in the chatbot's answers.

As partially discussed by Dieing (2025) and Zhu et al. (2025), implementing an LLM—albeit an open-domain system or one with restrictions—raises several ethical and technical concerns, such as concerns about the correctness of information, political bias, controllability of the system, user privacy, transparency, and the effort related to training a model. First, using an LLM raises the question as to whether the information that the system provides is factually correct, as LLMs are known to hallucinate (Jin et al., 2025). Second, LLMs have been shown to exhibit systematic political biases, often towards left-wing or pro-environmental ideologies (Dieing, 2025; Hartmann et al., 2023). Given that VAAs are designed to be politically neutral, such biases could pose serious issues. Third, LLMs such as OpenAI's GPT-4o are "black boxes" because their training data are kept private, making it difficult to understand how the models form their answers and to have control over the data (OpenAI, 2023). A fourth concern is the lack of verifiability of the information through sources, either because a non-existent source is given with the answer, or no source at all (Safdar et al., 2024; Zhu et al., 2025). Lastly, the issue of user privacy is a concern. Users may unknowingly disclose sensitive personal information while interacting with an LLM, which may be stored in the LLM's memory (Wang et al., 2025).

All in all, considering these earlier studies, we may conclude that current CAVAA research leans toward two opposing ends of the spectrum: either generative AI is entirely excluded from the development of chatbot content (Kamoen & Liebrecht, 2022), or it is utilised in real-time interactions with end users (Zhu et al., 2025). Yet, a compelling alternative remains underexplored: a human-in-the-loop approach wherein an LLM is used, but humans have control over the data that the system is trained on and give to the user (Mosqueira-Rey et al., 2023). In such a hybrid model, AI can support human contributors in multiple ways, for instance, by drafting initial versions of texts based on a select collection of sources or summarising arguments directly from political parties' party programmes—while preserving human judgment as a critical checkpoint in the process. In the present study, politicians will reflect on these different ways of implementing AI in a VAA context, as well as on the possible biases this may trigger.

3. Method

3.1. Design

To assess what politicians consider relevant additional information provision in VAAs and how AI can be used for this purpose, 20 semi-structured interviews were conducted from the 3rd of December 2024 to the 28th of January 2025. By choosing a semi-structured interview method, there is a clear framework around the main themes, while allowing flexibility to go more in-depth into specific topics as they emerge in the interviews. The Ethics Committee of Tilburg University approved the study (REDC2024.76).

3.2. Interviewees

We invited all political parties represented in two municipal councils in the Netherlands to participate, as well as both municipal registrars. Of all 25 political parties invited, 18 were both willing and able to participate in the interview. The municipal registrars of both municipalities agreed to participate in an interview as well. In total, 20 interviews were conducted in which 26 interviewees were interviewed, as some political parties sent two representatives.

Regarding the background and experience of the interview candidates, 18 (69%) had more than five years of experience in politics, five between three and five years (19%), and three between one and two years (12%). The most mentioned roles were municipal councillor ($N = 12$), faction leader ($N = 5$), or a combination of both ($N = 5$). Fourteen interviews included interviewees with experience in the development of VAAs, either in the form of crafting party stances or by participating in the statement selection process.

3.3. Material and Procedure

Interviews were conducted in person at the town halls of the municipalities. Our team contained four interviewers in total, of whom a minimum of two were present in each interview. The interviews were recorded with the permission of the party members. The shortest interview was 50 minutes, and the longest interview was 108 minutes, with a mean interview time of 68 minutes ($SD = 14.77$).

We started the interviews by reading an information letter. After the interviewees provided consent, the recording was started, and we asked demographic questions. The interviews were conducted following a predefined interview protocol. The interview protocol was designed based on two main topics: (a) information provision in VAAs and (b) the (potential) role of AI in VAAs.

3.3.1. Information Provision in VAAs

Within the topic of information provision, the four commonly used information types from previous (CA)VAA research were discussed: semantic information about word meaning; pragmatic information about the status quo; party stances for each party; and summaries of arguments pro and con without party reference. Visual tools were used to illustrate all four types of information. Visual tools facilitate the generation of ideas about topics for which there is not yet a common ground between two conversation partners (Glegg, 2019).

To explore how politicians feel about including semantic information, party members were presented with an example VAA statement: "All enforcers in the municipality should wear a bodycam." Enforcer—in Dutch known as the abbreviation "BOA"—was specified by the interviewers as a potentially difficult word for users. Interviewers asked interviewees how they would explain this term to a VAA user who might not understand it, and what elements would make their explanation useful.

Pragmatic information was introduced using two additional VAA statements that are relevant in a municipal context—one about a referendum and another about a car-free city. Party members were asked to explain the status quo of the issue in their municipality, assuming that a user might request this background information. Again, they had to specify what made their explanations useful.

Next, politicians reflected on including party stances in the VAA. Party stances are already commonly included in Dutch VAAs; depending on the VAA brand, political parties either formulate their own stance texts (StemWijzer), or provide justifications derived from verifiable sources such as party manifestos (KiesKompas). Another key difference is the placement of party stances: KiesKompas displays them alongside the results page with the voting advice, while StemWijzer presents them alongside each statement. Interviewees reflected on these approaches.

To the best of our knowledge, summaries of pro and con arguments without party reference are not included in current Dutch VAAs. In a study by Kamoen et al. (2024), this information was created by selecting the two to three most common arguments from party stances, without mentioning party names. In the interviews, we discussed this type of information by showing interviewees a printed screenshot of Kamoen et al.'s (2024) operationalisation. Interviewees reflected on whether such information should be included and how the arguments should be selected and presented.

3.3.2. AI in VAAs

The topic of AI was structured around the various possible ways of using AI in VAAs. First, we asked questions related to the human-in-the-loop approach: using AI for searching within party programmes for party stances and arguments in the debate, instead of manually composing them. Second, questions around AI for text generation and intent recognition were asked, based around six general ethical considerations: (a) correctness of information (Jin et al., 2025); (b) political bias (Dieing, 2025; Hartmann et al., 2023); (c) verifiability of the system's training data (OpenAI, 2023); (d) verifiability of information through sources (Safdar et al., 2024; Zhu et al., 2025); (e) user privacy (Wang et al., 2025); and (f) the costs in terms of time and money when manually developing an AI model versus using a pre-existing LLM—and the options in between. Lastly, we examined the extent to which party members supported the implementation of five variations of CAVAAs that differ in their use of AI: a CAVAA with button-based interactions only; a CAVAA with intent recognition and pre-formulated responses; an LLM-CAVAA that generates combinations of prewritten answers; an LLM-CAVAA that draws exclusively from a predefined collection of sources; and an LLM-CAVAA with full AI-based text generation. The full interview protocol can be accessed in Dataverse (https://doi.org/10.34894/WDCCQG).

3.4. Coding Scheme and Coding Procedure

The interviews were recorded with a recorder and through Microsoft Teams for backup. Afterwards, they were manually transcribed and then coded by two of this article's authors. Since some interviews included more than one interviewee, the unit of analysis used in the remainder of this article will be the interview, rather than the individual interviewee. Interviews were coded in an iterative manner. We constructed an initial coding scheme based on the interview protocol. We test-coded the first interview separately and discussed codes afterwards to refine the coding scheme. Subsequently, we separately coded a set of four interviews in the same manner. This process was repeated for the remaining interviews, meaning three more iterative rounds of (separate) coding of four interviews and discussions were conducted, until the final coding scheme was completed. Lastly, we once more checked all interviews for codes that did not match, discussed codes, and collaboratively developed final codes. This elaborate coding process allowed for continuous improvement of the codebook, which developed inductively throughout the iterative process.

Supplementary File 1 shows the full coding scheme, including a description and example per category. Via Dataverse, an example of a coded interview is provided (https://doi.org/10.34894/WDCCQG). For most interview topics, we coded whether interviewees were either positive, negative, or mixed about the inclusion of a certain type of information or some specific usage of AI. Moreover, a separate code was provided if the category was not discussed. Each code was accompanied by a written explanation provided by the coder, explicitly referencing the segment of the interview on which the code was based.

4. Results

4.1. Information Provision in VAAs

4.1.1. Semantic and Pragmatic Information

For both semantic and pragmatic information, interviewees frequently emphasised the importance of tailoring content. This emerged in two main ways: adapting descriptions to the local context and adjusting the language level to ensure accessibility for a broad and diverse audience.

In the interviews, interviewees reflected on general semantic and pragmatic explanations that were based on government websites. However, a preference was shown for explanations tailored to the local context of municipal elections or the municipality, rather than a general definition found online. Specifically, it was indicated in 15 interviews (75%) that a general definition for a word is often inadequate for political topics in the context of a municipal VAA. This is exemplified in the following quote: "[The concept] needs to be translated to how it works in a municipality and to a text that you think is understandable for the majority of the people you come across on the street" (I1).

Relatedly, in the majority of interviews, it was expressed that using a general definition might lead to verbose text, possibly including governmental jargon, which might cause users to drop out: "People will drop out [of the tool] if there is this much information in the text….The more information you provide, the more people will drop out" (I9). Hence, for both reasons of correctness and clarity, it was highlighted that local resources should be used as a baseline for both semantic and pragmatic information in the tool.

Second, it was stressed that—in general—clear language is essential. In the majority of the interviews, party members expressed that explanations should not introduce new concepts, real-world examples should be provided, and visual elements like a map or picture can help to clarify information about specific concepts or areas. The following quote illustrates this:

> Adding a map could help. I also think this would be good for people who are less skilled at reading, that they see a map and think: ah, this is the ring of the city, and everything within this ring is the inner part of the city. (I19)

For checking whether explanations are written at a language level that is understandable for the general user group, it was recommended to check a Dutch website designed to examine whether a text complies with the basic B1 level of the Dutch language. If a text is labelled as too difficult, tips are provided for simplification.

4.1.2. Party Stances

A preference for implementing party stances alongside each statement was mentioned in 14 interviews (70%). Several party members note that presenting the stances alongside the statements is advantageous for delivering the information when it is needed, rather than presenting the stances at the end, when the opportunity has passed and users may no longer recall the original statement. Moreover, party members indicated that party stances help users to interpret the VAA statements "from a certain political party's angle" (I3), to check "if a political party is trying to talk its way into a popular stance" (I14), and to compare different party stances "[if] you are doubting between some other parties" (I10). In some interviews, the advantages for politicians were also highlighted "because you can tell your story in a way, and it actually provides the opportunity to campaign a little" (I12).

In four interviews (20%), differing viewpoints were discussed. Regarding displaying party stances with the statements, interviewees stress that this makes the VAA more accessible for users: "This is far more accessible than an overview at the end" (I1). On the other hand, interviewees highlight that this can steer users in a certain political direction: "You will fill it in based on the party you already want to vote for beforehand" (I9).

4.1.3. Pro and Con Arguments

In 13 interviews (65%), party members felt positive about the implementation of argumentative information. The most frequently mentioned reasons were about the positive aspect of the absence of party names: "It gives users more interpretation per statement, without steering them based on what you think you should find important" (I2), and "It often is a matter of knowing enough about a certain political topic to really understand the pros and cons, and only then can you make a substantive decision" (I20).

One of the downsides mentioned was that it might be unsuitable to present subjective information such as arguments, because "we live in times of populism where scientific research is also questioned by some. This might cause harm to the [perceived] objectivity of a VAA" (I19).

4.1.3.1. The Source of Pro and Con Arguments

Besides reflecting on the inclusion of arguments, interviewees provided their opinion on how pro and con arguments should be selected and presented. In the majority of interviews (80%), interviewees expressed a preference for basing the arguments on party stances for various reasons, for example about users feeling heard through arguments coming from parties. In a different interview question, interviewees were asked about basing pro and con arguments on independent experts; in only five interviews (25%), interviewees expressed a preference for this, mainly because "I consider a scientist as capable of providing arguments pro and con in a neutral way" (I17).

Party members differed in their stances on how the arguments should be selected from party stances. In more than half of interviews in which it was discussed, interviewees expressed negative sentiments about compiling lists of arguments most frequently mentioned by the parties, because "the most frequently mentioned argument is not necessarily the decisive argument" (I14) and "if it is based on the most mentioned arguments, then you will always end up with the average argument, and an argument from a

more extreme party will never be mentioned" (I2). Moreover, making a selection was seen as presenting a biased overview of arguments to the users that might steer them in a certain political direction:

> To what degree do the arguments you don't show also influence people's voting advice or choice? People are presented with a set of information and decide based on that. The person who determines which information will be shown in the VAA may also indirectly influence vote choices, if that person leaves arguments out that are mentioned by certain parties. (I14)

In the remainder of the interviews, party members were positive towards selecting the most frequently mentioned arguments, because "this allows you to select the main line of reasoning, let's say 80% of the arguments. You make a selection and clarify [to the user] that it is 80% of the mentioned arguments, hence not all the arguments" (I3).

4.1.3.2. Emotional and Factual Arguments

A division was apparent in the interviews over whether to include emotional arguments in the pro and con arguments or not, with interviewees being divided roughly in half around this issue. On the one hand, answers indicate that any argument should be included as an argument, for example based on experiences, because "there might not be a nuisance [in a certain neighbourhood] but people might experience it as such…those are two different things. If parties provide those arguments, you should include them all as arguments" (I18). Moreover, by not including every argument in the list, the situation as depicted in the VAA might not reflect the daily reality of the political landscape: "If you keep it purely factual, then yes, your VAA is factual, but at the moment users get home and turn on the TV, they see party leaders talking based on emotional arguments instead of factual ones" (I11).

In the other half of interviews, however, it is expressed that "including all arguments is not of much use, as then they might also quickly become party-specific again. If an argument for example states [statement], everyone will know who it's from" (I12), and emotional arguments "can be painful for certain groups in society. I would stay out of emotional language. This is not suitable for argumentative information and should remain in the party stances [i.e., with party names present]" (I6).

4.1.3.3. Presentation of Arguments

Once the arguments are selected, how should they be presented in a VAA? In the interviews where this was discussed, half of the participants were positive towards displaying all arguments, and the other half were not, or not without added considerations. The common thread, as shown in the following quote, is that there is a positive tendency towards giving users the opportunity to check all arguments, without presenting them all at once:

> A solution is to, at first glance, show a selection of the most frequent arguments, with an option to click on a dropdown menu to show all arguments. As a user, you want the context, but you don't want to be flooded with information. (I1)

Arguments should not be presented exhaustively, but rather "short and clear. Do not add too much, because then people will not read it" (I16) and, in the case of the dropdown menu, it was recommended to "only add the option of the drop-down menu if the additional arguments really add something to the previous ones and are not just repetitions in slightly different words" (I8).

The above quotes suggest that participants prefer to visually display an equal number of the most frequently mentioned arguments at first glance, while making it optional for users to explore all arguments. In more than half of the interviews where it was discussed, party members indicated that the presentation of an equal number of arguments for and against would be useful to the user, because if users for example see more arguments pro than con for a statement, "they subconsciously have a bias towards 'this is more beneficial to me than it is not' [or vice versa]" (I20). Moreover, to not play into this bias, it was recommended that there should be equal amounts of lines of text as well:

> I notice that in your example, there are three arguments for and against, but there are four versus three lines of text. This alone can visually influence users, and therefore, they might think that there are more arguments for this statement than against. (I4)

In some interviews, it was indicated that the quality of arguments is more important than the number of arguments displayed: "I find it more important that the arguments are based on fact than the number of arguments displayed" (I5), and "not every argument is equal to another [counter]argument" (I13).

4.2. AI in VAAs

4.2.1. Using AI to Search for Party Stances

AI can be used as a "search engine" for party stances in political parties' programmes, instead of parties having to deliver stances to the VAA developer themselves. In 13 interviews (65%), however, party members stress the importance of writing and delivering the party stances themselves, as "not every party has written a stance in their party programme on each political statement [in the VAA], or they might have used different wording for it" (I10). In only four of the 20 interviews (20%), party members indicated that AI could be used for this purpose, as it can save them time in the VAA development process. In some interviews, it was, however, mentioned that "political parties should always have the ability to check whether the information is correct" (I8).

4.2.2. Using Generative AI

Instead of having humans write the additional information in a (CA)VAA, AI can be used for text generation. However, in 16 interviews (80%), party members indicated not being in favour of using an LLM for generative purposes in a VAA, mainly because of ethical considerations. Most prevalent in parties' scepticism towards generative AI were concerns about the correctness of information. This was explicitly expressed in all interviews, for example, in Interview 5:

> If there is only one wrong answer, you should already ask yourself if this is the right tool to implement, especially because this [the VAA] gives such heavy-handed advice to people…[and thus] people do not

> fact-check information anymore. The [VAA] is an authority; people believe the information in there to be true. Hence you have to take that responsibility into account when developing this tool. (I5)

Another main ethical concern was the transparency regarding sources. In 13 interviews (65%), party members indicated the importance of presenting sources with the system's answers: "I find traceability of sources important, because then people can verify the information for themselves. Verifiability is good for the credibility of the VAA" (I9). Sometimes interviewees expressed more specific ideas about how sources can be integrated: "If an LLM searches the party programmes for the term 'safety,' it provides the passages to the user where safety is explained" (I2). Alternatively, another interviewee suggested providing hyperlinks: "Provide a hyperlink. It needs to be searchable, but not every user should be presented with all this information" (I17).

Moreover, related to the consideration of transparency about sources, is the consideration of the lack of controllability (i.e., black box nature) of LLMs. In eight interviews (40%), party members expressed concerns about a black box system such as GPT and using this for generative purposes:

> By using GPT for text generation, you are dependent on ChatGPT and the sources they used for it. I don't know what sources they used. I do know they are a few years behind. I would find it very risky because you cannot control that. Also, because the servers are in America, a different territory. (I20)

4.2.3. Using AI for Intent Recognition

If (CA)VAA users are allowed to type in their information requests themselves, AI can be used for intent recognition. Interviewees mainly addressed ethical considerations regarding user privacy related to using AI for intent recognition. This was discussed in 16 interviews (80%). In the majority of those interviews, participants indicated not regarding user privacy as an issue: "I do not find user privacy more or less of an issue than in the case of existing VAAs. I assume that it's already being handled well" (I5) and "privacy is not a problem, but as a user, you have to be aware of the information you give to such a system. You should never talk about personal details" (I15). In some interviews, party members suggested providing the user with an opt-in option to decide whether the system trains itself further on their messages.

Moreover, a privacy issue that was explicitly mentioned, not only related to user messages but rather to all data the system contains, was the fear of hacking, data leaks, or misinformation distributed through unreliable sources: "I fear for data leaks. Answers from and about [municipality] can be used by secret services, should they have the intention to stir unrest in [municipality]. The data should remain ours" (I4) and "ChatGPT can be hacked. What if because of this a specific party is always presented as the best-matching party on the voting advice page, since it might be in favour of the hacker? Then you are in trouble" (I10).

4.2.4. Reflections on Specific Types of CAVAAs

The most restricted way in terms of AI implementation is to develop a CAVAA with only buttons, that is, one in which a chatbot is shown but no AI is used to recognise intent or generate texts. Such a CAVAA provides answers written by humans. We see that, in 18 interviews (90%), party members indicate being positive towards a CAVAA with buttons only. In two interviews (10%), party members explicitly indicated

not finding a button-based CAVAA to be sufficient. The following answer shows a positive response to a button-based CAVAA:

> If you place a CA in a VAA, a lot of value is going to be placed on it [the CA]. Hence, you need to limit [the information] to information that is as factual as possible. This means that a CA[VAA] with buttons could work well. (I11)

In several interviews, the theme of correctness of information is again mentioned as an argument for a CAVAA with buttons only, as "with that, you decrease the complexity and limit the chance for mistakes" (I15) and "if you want the information to be trustworthy and controllable, a system with buttons works better. Maybe you should look for other ways to answer open questions" (I9). In some interviews, the use of a button-based chatbot was favoured, "as long as there will be enough additional information available through those buttons, such that it would be an actual improvement onto existing VAAs" (I8).

If the choice is made to let users type in their questions, as is currently the case in most CAVAA research, then the strictest model is to use AI for intent recognition and only provide answers written by humans. In most interviews where it was discussed (70%), party members answered generally positively to a CAVAA where AI is used only for intent recognition: "It can be a flatter system in which AI is used for intent recognition, because verifiability and trustworthiness are very important" (I10) and "The information is trustworthy, so that's good, but it means you can ask fewer questions. Still, I think everything that helps to offer information in a low threshold manner is good" (I9).

In some interviews, however, a system with preformulated responses is criticised as being of little added value to current VAAs: "I can imagine it being useful, but then I wonder if it's not already enough to just write better [static] explanations. 'How big will the added value be?' That's what I'm wondering" (I19).

Instead of static answers prewritten by humans, a different option would be to implement an LLM for (a form of) text generation. This can be done in three ways: a complete implementation of an LLM, like for example ChatGPT; an implementation of an LLM that draws from a predefined collection of sources; or an LLM that is used for making combinations of prewritten texts. From all the interviews, we gather little support for a complete implementation of an LLM. Specifically, in 16 interviews (80%), party members are explicitly against giving full control to an LLM, expressing that "an AI system is not currently possible" (I19), "it is important to remain in control [over the system] ourselves" (I10), and "the correctness of information is too important" (I5).

The second means of implementing an LLM—letting it draw from a preselected collection of sources—received positive responses in most interviews in which it was discussed. According to the interviewees, "it is possible to develop a good chatbot if you train it on political parties' opinions and council members, party programmes, motions, and policy reports" (I5), and "this ensures that the system does not just hallucinate something" (I6). In the remaining interviews, party members expressed that "when you develop a chatbot like this, it will probably go well in most cases. But I'm worried about the last 5% of the cases in which it does not…as that will gain attention" (I20).

Lastly, in roughly half of the interviews, party members are positive towards allowing an LLM to make combinations from predefined texts to better tailor the answers to the users' questions: "I think this is a

good system. It seems more efficient, and answers do not contain that much information. The system should be able to answer as many questions as concisely as possible" (I7). In the other half of the interviews, party members expressed mostly negative views towards this implementation, such as: "It is hard to check if the combinations of the predefined texts are made correctly by the system. This way, you gather your information from a controlled environment, but is it then still accurate?" (I4)

5. Discussion and Conclusion

Adding supplementary information to a VAA can support civic education (Fossen & Anderson, 2014; Gemenis, 2024) and may increase users' understanding of the political issues behind the statements (Kamoen & Liebrecht, 2022). Our interview study offers insights into which types of information are acceptable to include according to politicians and explores the potential role of AI in generating and writing this additional information.

5.1. Semantic and Pragmatic Information

Interviewees made similar remarks on including semantic information about word meaning and pragmatic information describing the status quo: Writing such information requires customisation, in terms of content as well as language level. Interview candidates recommend focusing on local sources to write descriptions for municipal VAAs and to adjust the language level in descriptions to the B1 level of the Dutch language. The suggestion for accessible language use is also made in the expert evaluations of the LLM-based CAVAA in Dieing (2025). Interestingly, VAA brands already spend considerable effort in employing accessible language, for example with the help of linguists (ProDemos, 2025). However, a balance has to be established between using accessible language and ensuring the accuracy of information that conveys the complexity behind political decisions, which sometimes means that difficult words cannot be avoided. This nuance is also reflected in the answers of interviewees, who express a sense of disconnect between themselves and voters. Interviewees thus expressed a desire to create awareness among voters about what lies behind political decisions, while also wanting the VAA to be an accessible tool for all voters.

5.2. Party Stances

In real-life VAAs, the party stances on political statements are often either placed alongside each statement or alongside the results page with the voting advice. Most interviewees preferred displaying the party stances alongside the statements.

5.3. Pro and Con Arguments

Pro and con arguments are not included in current Dutch VAAs. Interviewees feel positively about the addition of this type of information. There is, however, no unanimous view on how to select and present the arguments. First, interviewees differed as to whether emotional arguments should be included in the arguments. On the one hand, it is seen as important to select only objective facts as arguments, as emotional arguments can hurt groups in society. On the other hand, emotional arguments are experienced by part of the electorate, and it would be unethical to keep this information from users.

Second, the interviews highlighted a discussion about the extent to which information that is (not) included in the arguments influences VAA users, as a certain selection of arguments may affect users' opinions on what arguments are important. Additionally, it was highlighted that arguments are subjective, and a selection made by researchers from a list of arguments is also subjective, even if this selection is based on a list of substantiated quality criteria for assessing arguments. Interviewees indicated that if arguments are selected based on criteria, these should be communicated to VAA users.

For presentation of the argumentative information, the results show a preference for a combination of two layouts. Specifically, the presentation of an equal number of arguments for and against at first glance, with the possibility for an exhaustive list of arguments to click on through a dropdown menu. This combination reduces the visual bias that might quickly steer users more towards one answer or the other, a phenomenon that has been extensively researched in dual-processing theories such as the Elaboration Likelihood Model (Petty & Cacioppo, 1984). Petty and Cacioppo (1984) showed that the number of arguments for a message can function as a simple cue to accept the message, especially when people are not very involved in the message content.

To the best of our knowledge, pro and con arguments are not yet used in practice but have been researched in previous CAVAA research (Kamoen et al., 2024; Zhu et al., 2025). Kamoen et al. (2024), presenting the pros and cons with a button in their CAVAA, show that this information was requested relatively often compared to the other three information types, especially by university-educated participants. On the other hand, Zhu et al. (2025) encouraged users to engage in discussion by inviting them to ask any questions in the open text field about possible uncertainties regarding the elections. While some participants felt encouraged to reflect on their perspectives and were introduced to unfamiliar topics, other participants felt overwhelmed and did not know what to ask the chatbot.

Hence, we can argue that showing VAA users relevant political arguments aligns VAAs more closely with a deliberative view of democracy, prompting reflection on political issues (Fossen & Anderson, 2014). Moreover, providing such arguments increases users' awareness of the complexity of political issues. However, this information should be presented in a structured manner, possibly with buttons, to guide users towards relevant contextual information and to reduce unawareness of their political knowledge gaps. It might encourage users to reflect on their perspectives while minimising cognitive effort, compared to having to think of relevant questions or arguments by themselves (Zhu et al., 2025).

5.4. AI in VAAs

5.4.1. AI as a Search Engine for Party Programs

Most politicians prefer not to automate the process of writing party stances. While understandable from the parties' perspectives, this may disadvantage VAA users. Research shows that party positions sometimes fail to reflect parties' actual voting behaviour during a previously served term (Škop, 2010). Moreover, discrepancies often occur between parties' answers and their corresponding positions, specifically when a neutral response masks a clear stance in the corresponding positions (Dieing & Siefken, 2025). Since politicians still typically write their own party stances, both VAA developers and users should be cautious of the accuracy of parties' positions.

5.4.2. Ethical Considerations Surrounding AI

Regarding the use of AI for information provision in VAAs, correctness of information was the most extensively discussed ethical consideration. Politicians underscored the responsibility of developing and distributing information in a VAA, as this tool is used to inform the majority of the electorate before voting. Results of the expert evaluations of the LLM-based CAVAA researched in Dieing's (2025) study support this finding, showing that most experts find it important that information in political advisory tools is correct. In the case of Dieing's (2025) study, this meant that the chatbot did not express its own opinion about statements or parties and stimulated the participants to think for themselves about voting choices. In light of the current study, the importance of correctness of information was expressed through suggestions that all information disseminated through a VAA should undergo a human review. Information should be factually correct, verifiable and politically unbiased; at the very least, there should be a human-in-the-loop that examines the information provided by the system before it is disseminated to the users.

To underscore the importance of this finding, the results of Zhu et al.'s (2025) study on an LLM-based CAVAA tested among users indicated that even though users are aware of the limitations LLMs such as GPT-4o might bring, the majority of the participants still trusted the chatbot's answers to be correct. The majority of the users did not question or check the CAVAAs' answers, which, according to them, described various perspectives accurately, partly because the chatbot maintained a professional tone and communicated appropriately. It can be argued that these findings emphasise the importance of correctness of information, because it implies that users might take a chatbot's answers at face value if it merely seems appropriate and neutral, in the sense that attention is given to various perspectives. This might cause users to wrongly assess factually incorrect information as true.

Another important ethical consideration that was discussed in most interviews is transparency in the system and in terms of sources communicated to the user. This is also seen to be of importance among VAA users (Zhu et al., 2025) as well as in expert evaluations (Dieing, 2025). Implementing a transparent system also ensures user privacy. Politicians did not evaluate user privacy as a big concern, and there are two possible explanations for that. First, the focus of the question about user privacy was on whether the system would train itself further on user input and not for example on the possibilities of data leaks of information in the case of hacking. Had the focus been on the latter issue, it might have been perceived as more of a concern. Second, politicians emphasised the importance of the VAA having a database which the developers are in full control of, hence it should not be linked to an LLM such as ChatGPT, for example. Because politicians might have had this type of system in mind when reflecting on the question about user privacy, they might not have perceived user privacy as such a significant issue.

Taking into account all considerations about implementing AI in VAAs, it is better to be safe than sorry when developing a CAVAA. A great deal of importance lies in the correctness and controllability of the VAA. Although an LLM-based CAVAA is technically feasible (Dieing, 2025; Zhu et al., 2025) and evaluated positively by users (Zhu et al., 2025), a fully LLM-based CAVAA still displays errors, for example in terms of political bias in its answers (Dieing, 2025). In addition, it is important that information in a VAA is factually true, because users are inclined to assess information as true if it is communicated appropriately (Zhu et al., 2025). Politicians assess a more limited CAVAA system with preformulated answers as the most suitable option currently.

Therefore, the conclusion of this interview study is to ethically provide additional information in a VAA and develop a CAVAA with limited capabilities in terms of LLM usage. This means that a CAVAA with preformulated answers could work appropriately, similar to previously developed and researched CAVAAs (e.g., Hankel et al., 2025; Kamoen & Liebrecht, 2022; Kamoen et al., 2024; Van Zanten & Boumans, 2023). Argumentative information is seen as valuable to add but should be implemented in a structured manner to provide users with the knowledge needed to reflect on their political perspectives. This structured way of additional information provision in VAAs that encourages reflection more closely aligns a VAA with the notion of a deliberative democracy (Fossen & Anderson, 2014) and, consequently, better improves civic education among users.

5.5. Limitations and Suggestions for Future Research

Although the current study revealed valuable insights on politicians' views and considerations on information provision and the usage of AI in VAAs, it should be noted that only local politicians from two Dutch municipalities participated. The results should therefore be viewed within this context and might differ between municipalities or other levels of government in the Netherlands—and even beyond the Netherlands. Additional research is needed for national or international elections to assess if results are applicable in a broader context in which the role of politicians in the development of VAAs may differ, and, furthermore, could involve other stakeholders.

A next step after this interview study would be to apply the results from the current study in an experimental context, to assess how users would evaluate the suggestions highlighted by politicians. For example, the influence of visual cues by displaying different quantities of arguments, pro and con, can be examined, as well as the provision of sources alongside the additional information. Additionally, it is relevant for future research to study how information provision in VAAs should be realised: via a CAVAA or a VAA+.

Lastly, given the rapid developments of LLMs, it is important to realise that LLM-based VAAs are being used in practice (Otto, 2023) and that users often seem to trust LLM-based CAVAAs (Zhu et al., 2025), while there are many ethical considerations at play for implementations of such LLM-based tools in practice. It is imperative to remain aware of these developments and the ethical considerations associated with them; people should know not to blindly trust in LLMs, and VAAs should continue to be considered as reliable information sources by the average voter. Simultaneously, VAA brands and researchers should continue to collaborate in experimenting with LLM implementations in VAAs, to prevent being outpaced by opportunistic actors whose values may not align with those guiding the development of VAAs.

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Data Availability

The interview guide, coding scheme, an example of a coded interview, and the examples used in the interviews are available via https://doi.org/10.34894/WDCCQG

LLMs Disclosure

The authors used GPT-4o solely to rephrase sentences for conciseness and grammatical correctness.

Supplementary Material

Supplementary material for this article is available online in the format provided by the authors (unedited).

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