The effect of need for cognition as a moderator on network expertise and correct voting

Spierenburg, Julian

Julian Spierenburg, s2864096
BSc Thesis
Department of Political Science, Leiden University
Supervisor: Dr. Joshua Robison
Second reader: Dr. Jonah Schulhofer-Wohl
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Table of contents

Introduction

President John F. Kennedy once said: "The ignorance of one voter in a democracy impairs the security of them all" (Kennedy, 1963). Voters' ability to make competent choices in a democratic political system has been a widely studied topic for many years. After all, these choices are central to the functioning of any democracy. If the results of elections are not representative of the voting population the whole idea behind the democratic system fails, because voters will not be able to hold their politicians responsible for their actions or express their political preferences. To

achieve a healthy democracy, it is thus important that citizens make competent political decisions.

What exactly is meant by competent is hard to define. As there are numerous possible solutions to political problems, there is often not one answer that is clearly superior. Therefore, scholars have found other ways to define what competent behavior is. One example that has been featured prominently in recent years is the concept of correct voting. Lau and Redlawsk (1997) developed this as a notion that operationalizes whether the vote casted by a citizen is in line with their own preferences. The reasoning behind this way of measuring is that it does not attach a value judgement to political positions or counts a vote as correct just because it was cast based on free will. Instead, it tests if citizens are able to accurately reflect their own preferences and values in their voting behavior. This is at the basis of the representativeness of democracy.

For a long time, the logical and dominant reasoning was that voters need high levels of political knowledge and motivation to make competent decisions in politics. However, research suggests most citizens are lacking in both political sophistication and efficacy (Converse, 1964; Gilens, 2001; Barabas et al., 2014). So, is democracy doomed then? The literature actually suggests the opposite. Although, scholars have found that political knowledge and motivation increase one's ability to cast a correct vote (Lau et al., 2008; Lau et al., 2013), even with subpar levels of political knowledge and motivation most people still seem to vote correctly (Lau & Redlawsk, 1997).

To explain this puzzle, scholars' attention has shifted to other mechanisms voters might use to make competent decisions. One example that has come up frequently is the influence of social networks. Even though it is possible to keep all political thoughts purely to oneself, for most people politics are a social topic that they discuss with others to at least some extent. Therefore, the influence of social networks on political decision-making cannot be neglected. Political expertise in social networks or 'network expertise' might help citizens compensate for their lack of political knowledge in two ways. First, citizens might learn more about politics from discussion with knowledgeable discussants in their social networks. In turn, they can use this knowledge to make more competent political decisions. Second,

individuals might use political experts in their social networks as an information cue. For example, when an individual discusses politics with a political expert and they infer that their preferences match or do not match with the discussant's, they might use this as a cue for who to vote or not to vote on. This makes the decision of casting a vote less hard. A study by Lupia (1994) finds that uninformed voters tend to emulate the behavior of informed voters when they are able to infer that their own preferences align with those of the other party. In the study by Lupia (1994), learning from discussion with the political experts is not the focus. Instead, uninformed voters use the behavior of informed voters as an information cue. In line with these theories, some studies have found that network expertise can effectively help voters make a correct decision, such as Richey (2008) and Ryan (2011). However, findings are mixed, since not all studies have found network expertise to not be an effective predictor of correct voting (Sokhey & McClurg, 2012).

One possible answer to this debate is that network expertise is more effective in certain contexts and to some individuals rather than others. Several scholars have explored this possibility by looking at various individual characteristics, like political sophistication, partisanship, and gender, that may influence the ability to use of network expertise effectively (Krupnikov et al., 2019; Ryan, 2011; Djupe & Sokhey, 2013). However, the effect of cognitive traits has gained relatively little attention. Mondak et al. (2010) show the importance of the interactions between individual traits and the environment, and the effect of these characteristics on for example political participation, motivation, and engagement. Therefore, we might also expect that traits influence the use of network expertise. One example of a cognitive trait often studied in relation to information processing and cue taking mechanisms is need for cognition. In short, this concept measures one's disposition to think about information in their environment. Network expertise might be more useful to individuals that like to think and carefully study information than to citizens that like to 'keep it simple', or to individuals that make more use of information cues. Need for cognition has been associated with effortful cognitive processing, openness, and at low levels with increased use of cues (Cacioppo & Patty, 1982; Furnham & Thorne, 2013). As mentioned earlier, network expertise

might increase correct voting for citizens because they can learn from the discussion with knowledgeable individuals or use the political experts in social networks as a cue. Therefore, need for cognition may be part of the solution to the puzzle of when and for who network expertise is effective. This thesis will focus on the question: "Is network expertise more helpful to individuals with a high need for cognition in making a correct voting decision?"

Using two logistic regression analyses of the 2000 American National Election Survey this study examines the relationship between network expertise and correct voting. In one of these models, the cross-interaction between network expertise and need for cognition is tested. Using this analysis, it is concluded that the relationship between network expertise and correct voting is not significantly moderated by the need for cognition trait at high or low levels. These findings do not complete the puzzle of in what context network expertise is most useful for increasing correct voting. Several normative and academic implications arise from these results which will be discussed in the conclusion.

Theory

Correct voting

According to most scholars, citizens lack both political knowledge and motivation. (Converse, 1964; Gilens, 2001; Barabas et al., 2014). In addition to that, most individuals seem to be limited in their ability to effectively process information and do not spend a lot of time on politics. (Fiske and Taylor, 1991) These characteristics do not seem ideal when participating in politics. However, these individuals do have to make decisions about politics in democratic systems on a regular basis. Based on this, one might expect democracies to fail frequently. Nevertheless, the opposite seems to be true, democratic systems function fine most of the time. One important subject to consider here is the question of how citizens make their political decisions, considering they are often lacking in both knowledge and motivation. A logical follow-up question would then be: How competent are these political decisions? Both questions are of importance in the current study.

To assess the quality of political choices it is necessary to define what exactly is a 'good' decision. Several measurements of democratic competence have been used throughout the literature but one that has gained traction in recent years is the notion of correct voting. Lau and Redlawsk (1997) first introduced this concept. Because politics are complicated and political problems can have numerous potential solutions the authors argue that it is impossible to define what is 'good' in a universal manner for different political stances. On the other hand, they also reason that a vote should not be accepted as correct, just because it was casted freely by a citizen. Instead, Lau and Redlawsk (1997, p. 586) explain that the correctness of a vote should be based on whether it is cast in alignment with the individual preferences and values of a citizen. Thus, Lau and Redlawsk (1997) define a correct vote as "one that is the same as the choice which would have been made under conditions of full information" (p. 586). In this definition the authors assume that when a citizen is fully informed, they would always cast a vote in alignment with their personal preferences and values.

This concept is widely used throughout the literature for several reasons. First, the definition makes it so that political ideology and stances of study authors do not have any influence on the perceived correctness of a vote. A vote is correct if it is in line with one's attitudes, no matter if these attitudes are conservative or progressive. Second, the measurement can be conducted in both surveys and experiments. This leads to the concept of correct voting being suitable to measure democratic competence in a wide range of studies. The concept of correct voting has been used in a wide range of studies considering what individual characteristics influence the competence of citizens (e.g.: Lau et al., 2013; Ha & Lau, 2015; McClurg, 2006; Dassonneville et al., 2020). For these reasons, this operationalization of citizen competence is suitable for this research.

Considering the established lack of political knowledge and motivation, it may be surprising that most studies using the concept of correct voting find that most citizens do cast a correct vote. In their original article, Lau and Redlawsk (1997) find that American vote correctly about 75% of the time. Several studies have since found that most citizens do indeed cast a correct vote, both in- and outside of the

United States (Lau et al., 2013; Sokhey & McClurg, 2012; Milic, 2012). In an article by Lau et al. (2013) elections throughout a range of democracies are studied. All but one election is found to have at least 50% of votes counted as correct. One might think that 50% or close to that might not be a very high score. However, countries with a multiparty system might have many parties to pick from. In this case, around 50% might be a better score than one might think, because if citizens were voting randomly this percentage would be expected to be much lower. The relatively high share of correct votes leads to an interesting puzzle. If citizens are lacking in political sophistication and motivation, *how* do they still manage to vote correctly most of the time?

Correct voting might vary for several reasons. In some contexts, voting might be harder. For example, Lau et al. (2013) find that when the number of candidates is higher, the probability of a correct vote decreases. Scholars have identified several individual characteristics that influence the chance of a correct vote. These influences can be cast into three categories. First, some characteristics might influence one's ability to cast a correct vote. Political knowledge is one feature that is often mentioned in the literature. Many scholars find that a higher level of political sophistication increases the probability of a correct vote (Sokhey & McClurg, 2012, Lau et al., 2013; Ryan, 2011). This might be because citizens with a higher level of political knowledge might be able to better distinguish the differences between candidates and infer how the attitudes of candidates relate to their own. Furthermore, these individuals will be more aware of other contextual factors like the performance of the incumbent. This makes it easier for citizens with a high level of political sophistication to make a correct voting choice, compared to less knowledgeable individuals. Another example that might positively influence individual ability to cast a correct vote is political experience (Lau et al., 2013; McClurg, 2006; Richey, 2008), which is often operationalized as age. Citizens that have experienced more elections might find it easier to make a correct voting choice, because they are able to compare past and present, and might know better how to digest political information. Second, some characteristics might influence an individual's motivation to cast a correct vote. Higher levels of political motivation

and interest are often found to be positively associated with the probability of a correct vote (Lau et al., 2013; Richey, 2008; McClurg, 2006). This finding can be explained simply, individuals that have more motivation to make a correct choice will put more effort into voting and are thus more likely to cast a correct vote, as proposed by Lau et al. (2008). Finally, some characteristics might make it easier for citizens to infer what candidate best matches their preferences. For example, a high level of partisanship increases an individual's chance of casting a correct vote (Sokhey & McClurg, 2012; McClurg, 2006). This might be because a high level of partisanship provides a clear cue on what candidate to vote for. For example, if an American citizen strongly identifies with the Democratic party, they are more likely to share their stances and vote for a candidate that is also associated with the Democrats. While these findings can be intuitively explained, some other interesting impactful traits have been identified. For example, Lau et al. (2008) find that non-white citizens are significantly more likely to cast a correct vote. While the authors did not expect this effect, they theorize that non-white citizens might have stronger group cues, which could make it easier for them to pick the correct candidate. Ha and Lau (2015) find that certain personality traits are also found to influence the ability citizens hold to make competent political decisions. They theorize several mechanisms for different traits. For example, Openness to Experience might be positively associated with correct voting, because this increases the receptiveness to novel information and ideas. This might increase individual ability to use information to cast a correct vote. This finding also implies that voting behavior may be influenced by more complex and dispositional characteristics than just the seemingly direct influence of political knowledge and motivation.

Social networks

The lack of political knowledge and motivation for most citizens has led scholars to shift attention to other mechanisms that people may use to make political decisions. Politics could possibly be something that individuals keep completely to themselves. However, for most citizens politics are a social topic that they discuss with others to at least some extend. Therefore, the influence of social networks

cannot be neglected when trying to understand voting behavior. Social networks can be defined as the composition of people an individual encounters on a regular basis. Examples include coworkers, friends, family, and neighbors (Huckfeldt, 2013). In the field of political psychology and for the scope of this study the part of one's social network that individuals discuss politics with are of particular interest. Networks can vary in several characteristics, such as size, level of expertise, and agreement.

Political discussion within social networks can influence citizens in several ways. The resulting effects can be casted into two broad categories according to Huckfeldt (2013, p. 673): Influence and information effects. Influence occurs when a subject forms or changes an opinion as a consequence of political discussion with others. Information effects are when an individual acquires new knowledge or competence in some other from as a result of political discussion.

Political discussion in social networks can reduce information costs and may therefore be used by citizens in their political decision-making. One way in which information costs might be reduced trough discussion is via information diffusion. In this case, citizens do not have to spend time and effort to gather information themselves, but rather can learn information in a much more efficient manner from social discussion. Cues that are given of by social networks might also decrease information costs. If discussants in social networks infer that their preferences either match or do not match, they can use this as information cue on how to behave. Discussion itself might not even be necessary in this process. The reduction of information costs is particularly relevant when discussing social network political expertise.

Network expertise

Network expertise is the level of political knowledge of the discussion partners in one's social network. A high level of network expertise might reduce information costs in several ways. First, citizens might use political experts in their social network as an information cue. This might be the case when citizens perceive a discussion partner as politically knowledgeable and then infer how their preferences align with eachother. Based on this information, individuals can use this

as a cue to infer who to vote or not to vote for. Lupia (1994) exemplifies this mechanism. The author finds that when less-informed citizens perceive the other discussant as well-informed and find that their preferences are alike, they might emulate the behavior of the well-informed discussant. This might lead to more competent political behavior because individuals that lack political knowledge can in this way act the same as knowledgeable individuals that are similar to them in terms of political preferences. In this case, agreeable networks are more effective as information shortcuts (Sokhey & McClurg, 2012), because they provide non-conflicting information about how people like oneself 'should' vote, which can increase voter competence (Downs, 1957). Discussion with politically knowledgeable individuals can also help citizens learn more about politics, and in this way, help make more competent political decisions. Druckman et al. (2018) describe the two-step communication flow. In short, this is the process where opinion leaders learn from the media or other sources. Subsequently, the less-informed individuals in the opinion leaders' social network then learn from the discussion with the opinion leaders. This might help increase voter competence by providing less knowledgeable citizens with information. If the provided evidence is in line with their own vies, they might then use this information to strengthen their believes, which in this way promotes competence. However, disagreement within social networks can also be useful in promoting competent political behavior (Sokhey & McClurg, 2012). Learning opinions that do not align with one's own might increase the ability to differentiate between political alternatives and although not relevant for this specific research but normatively important, increase tolerance between groups. Huckfeldt (2001) shows that citizens can distinguish knowledgeable individuals and can in turn learn from them. The discussed theory in this section suggests network expertise might help citizens to behave more competent in the political sphere. However, in the literature there are mixed results on the effectiveness of network expertise as a predictor of correct voting.

Several studies show that network expertise can be effective at helping citizens make a correct voting decision (Ryan, 2011; Richey, 2008). Considering the theory discussed in the previous paragraph, this would be the logical conclusion.

However, Sokhey and McClurg (2012) find that network expertise does not significantly induce correct voting. A possible explanation for the variance in findings could be that network expertise might not be equally effective in every situation and to every individual.

To try and solve the debate on network expertise, scholars have looked at several individual characteristics that may impact the effect network expertise has on correct voting. First, network expertise may not be equally available to everyone. Djupe and Sokhey (2012) find that the presence of political expertise in one's social network is influenced by several characteristics. One's own political knowledge, motivation, and competence influence the ability to maintain relationships with knowledgeable individuals. But even when political expertise is available, it is not equally effective to everyone. For example, Ryan (2011) finds that network expertise is a stronger predictor of correct voting for politically knowledgeable individuals. This might be because these individuals are better able to process and place the information and cues they receive from their discussion partners in the political context. Furthermore, Ryan (2011) theorizes a higher level of partisanship decreases the effect network expertise has on correct voting because strong partisans will process the information and cues they learn from knowledgeable individuals in their social network in a biased manner. Finally, Krupnikov et al. (2019) find that network expertise increases the probability of a correct vote more for women than for men. The authors theorize this may be because women are on average more open to novel information and may therefore process evidence learned from knowledgeable discussion partners more effectively. These findings suggest individual differences might impact how citizens process and use information and cues provided by network expertise. Individuals' cognitive traits that are often studied in relation to information-processing. Cognitive traits influence how an individual processes and learns from information and cues. This type of characteristic may therefore have a significant impact on the effect of network expertise.

Need for cognition

One cognitive trait that has been featured frequently in political psychology research is the 'need for cognition' (NFC). This notion was first introduced by Cacioppo and Petty (1982). The concept measures one's disposition to think about information in their environment (Leeper, 2014). Slight variations in definition and wording exist throughout different studies, but the general notion stays mostly the same. Need for cognition is not so much one's *ability* to think, but rather one's *motivation* to do so. Individuals that score high on need for cognition are more likely to engage in effortful cognitive processing, where information is carefully considered and used or discarded (Cacioppo & Petty, 1982; Furnham & Thorne, 2013). Additionally, NFC is positively correlated to the trait of openness. This trait might increase an individual's willingness to process novel information. On the other hand, low NFC is associated with an increased use of information cues and shortcuts. These effects might be particularly relevant when studying the relationship between network expertise and correct voting.

Interaction between need for cognition and network expertise

The effects of need for cognition may help an individual use network expertise to make more competent political decisions in several ways. First, by engaging in more effortful cognitive information processing, individuals that score high on NFC might be able to process the information provided by social networks more effectively. This may lead to an increased effect of network expertise on correct voting. Furthermore, the increased trait of openness of individuals that score high on NFC might make them more willing to learn from others' opinions. They might therefore also learn more from socially supplied political expertise in their social networks because they are more willing to accept novel socially supplied information. However, need for cognition can also be theorized to have the reverse effect on the strength of network expertise as a predictor of correct voting. As discussed earlier, network expertise might not only be used as an information learning mechanism, but also as a cue taking mechanism, as exemplified by Lupia (1994). While individuals scoring high on NFC seem to have an increased ability to

process the information provided by network expertise, people that score low NFC make more use of information cues and shortcuts. If network expertise is in this way more effectively used as a source that provides cues, this might lead us to believe network expertise is more effective for individuals scoring low on need for cognition. In addition, individuals that score low on need for cognition might be less inclined to process the information provided by network expertise in a motivated way because they tend to think less about information in their environment. This might increase the effectiveness of network expertise. To account for both possible directional effects, two competing hypotheses are proposed.

H1: Network expertise is a stronger predictor of correct voting for individuals that score high on need for cognition that those scoring low on need for cognition.

H2: Network expertise is a stronger predictor of correct voting to individuals that score low on need for cognition than those scoring high on need for cognition

Research design

Data

The hypotheses will be studied by analyzing data from the 2000 American National Election Survey. The data was gathered around the time of the 2000 US presidential election among a nationally representative sample of 1,807 Americans. The interviews were conducted face-to-face or via telephone. The respondents were asked a series of questions on two separate points in time. One set before and one set after the elections. Examples of topics these questions touch upon are political participation, voting behavior, opinions, social networks and many more. Because the sample is nationally representative, any inferences that can be made using this data set may to a certain extent be generalizable to the entire population of the USA. The 2000 ANES is the best available dataset for the purpose of this study for several reasons. As mentioned before, the concept of correct voting was developed in a way that allows it to be measured by surveys like the ANES (Lau & Redlawsk, 1997). The ANES itself was even used in the seminal study by Lau and Redlawsk to construct

the measure of correct voting. More importantly, this version of the ANES is the only edition to include questions on social networks, the need for cognition, and the questions needed to construct the correct voting measure along with questions needed to construct control variables in the examined mechanism. The control variables used are political expertise, motivation, experience, race, income, level of education, and gender. The ANES 2000 dataset has been used by several past studies investigating the relationship between network expertise and correct voting (e.g.: Sokhey & McClurg, 2012; Richey, 2008).

Measuring correct voting

The measurement of correct voting is based on the original definition by Lau and Redlawsk (1997). A vote is counted as correct if the candidate that the vote was cast on best matches the preferences of the respondent. Lau, one of the authors that originally introduced the concept of correct voting, has a pre-coded measure of the notion on his website (Lau, 2010). We will use this operationalization in the current study because it includes a wide range of questions measuring the correctness of a vote and stays close to the original definition of correct voting provided by Lau and Redlawsk (1997). The measurement of this concept is complex. To summarize, several political factors are accounted for: Policy stances, partisanship, view on salient groups, ideology, candidate personality, and evaluation of incumbent's performance. One difficulty in the process of operationalizing correct voting is determining voters' candidate preferences based on their political stances. Namely because this requires an estimate of what positions candidates have on political issues. Lau and Redlawsk operationalize it so that the most politically knowledgeable respondents determine the candidate's 'objective' stands on these various considerations. This method has been proven to be accurate by scholars in the past (Richey, 2008). The weighted mean of all these considerations of a voter is matched with the candidate he or she voted for. The weight that is used here is assigned by the level of importance the voter assigns to each of these factors. The normative naïve expectation is then what candidate a voter should prefer considering his preferences. If the candidate that the respondent ended up voting on

was the same as the candidate the respondent should have preferred the vote was counted as correct (coded as 1), if not the vote was seen as incorrect (coded 0). Respondents that did not vote, or voted for a minor candidate were coded as missing (9). In this specific year about 83.8% of votes was seen as correct.

Measuring network expertise

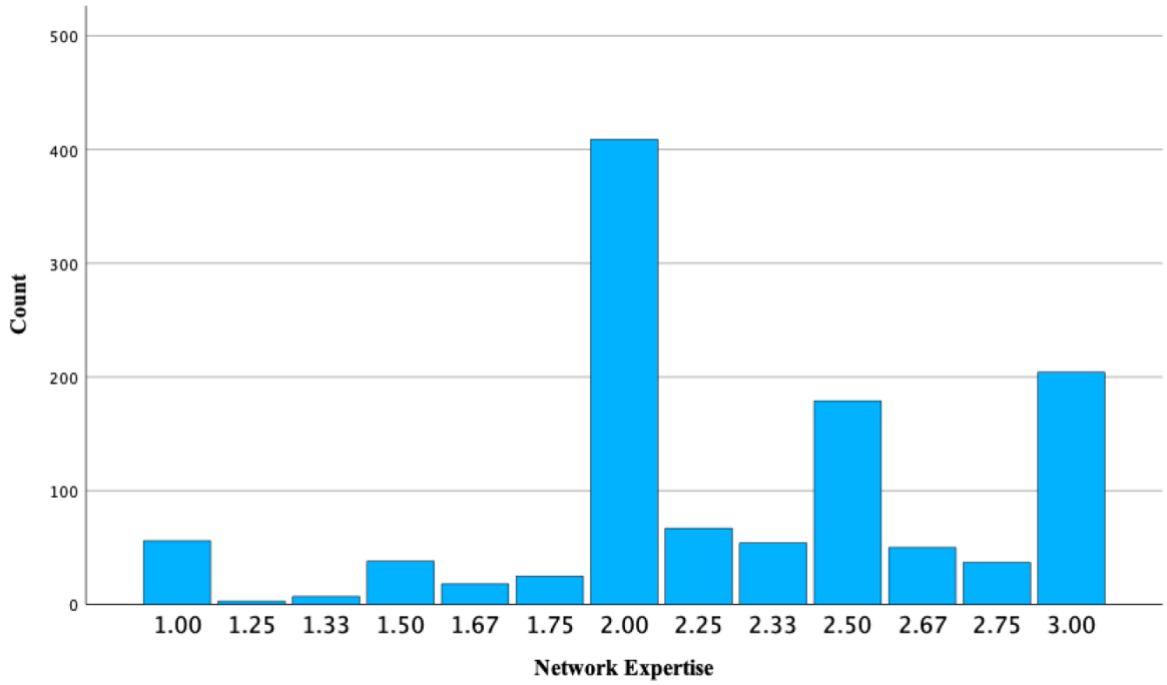
In past studies, social networks are often measured in the form of surveys or experiments. In an experimental setting, researchers can control and objectively measure all possible characteristics of a network, something that is hard to validate when using self-reporting in surveys. This increases the internal validity of these studies. However, analyzing the influence of social networks via surveys is useful because the networks used are based in reality. An experimental setting may not be able to reconstruct all factors that influence network discussion in real life. Therefore, the external validity of studies using this way of measurement is higher. We use the latter way because of two reasons. First, the 2000 ANES used in the current study includes a set of questions measuring the composition and characteristics of social networks. The ANES was widely used by scholars examining the influence of social networks on correct voting in the past (La Due Lake & Huckfeldt, 199; Ryan, 2010; McClurg, 2006; Djupe & Sokhey, 2013). Second, the purpose of this study is to examine the effect of network expertise on correct voting. In an experimental setting, it is close to impossible to fully recreate all factors influencing political discussion in social networks and the process of voting in real-life. By using the data from the ANES survey, which was gathered at the time of a real life election, we account for all these influences, which assures the normative relevance of this study.

An important note here is addressing the critique of selection biases when studying the effects of social networks by analyzing surveys. An individual may surround himself with likeminded people because of his preferences. This may lead to a bias in results where it looks like an individual is influenced by his surroundings, but a citizen may be surrounded by these discussants *because* they are alike. However, several studies find that individuals do not pick their social

networks based on attitudes in politics. Political opinions seem to be a rather unimportant factor for the initial formation of relationship (Sprague & Huckfeldt, 1988; Lazer et al., 2010).

The ANES 2000 measures social networks by asking respondents to name up to four discussion patterns with which they discuss politics in the post-election survey wave. Subsequently, several characteristics of the named discussants were asked. Among is a question about the perceived level of political knowledge of the discussion partner. The respondent is asked to rate each person in the social network as knowing either not much (1), average (2), or a great deal (3) about politics. This is what is used to create the measure of network expertise. This is done by using the mean of the perceived political knowledge of all network discussants. Individuals that named no discussion partners are scored as having no network expertise. When respondents refused to answer the question they are treated as missing cases. The disadvantage of using the mean in this case is that it does not account for network size. A higher number of knowledgeable discussion partners might have more impact than a single discussion partner. However, this operationalization is still used for two reasons. First, this vulnerability is at least partly prevented by controlling for frequency of discussion in the model. This way, we control for the possibility that individuals that discuss more often with knowledgeable discussion partners may benefit more from network expertise. Second, if one would use the sum of the perceived level of political knowledge of each discussion partner, one very knowledgeable discussion partner would be treated the same as several less informed discussion partners. This way of measuring would therefore not provide a realistic picture of the level of network expertise for all cases. The mean network expertise in the dataset is 2.25, with a standard deviation of 0.51. In Graph 1 one can see the distribution of this variable. While a lot of cases seem to be around the mode, some significant variance does exist, especially for higher scores.

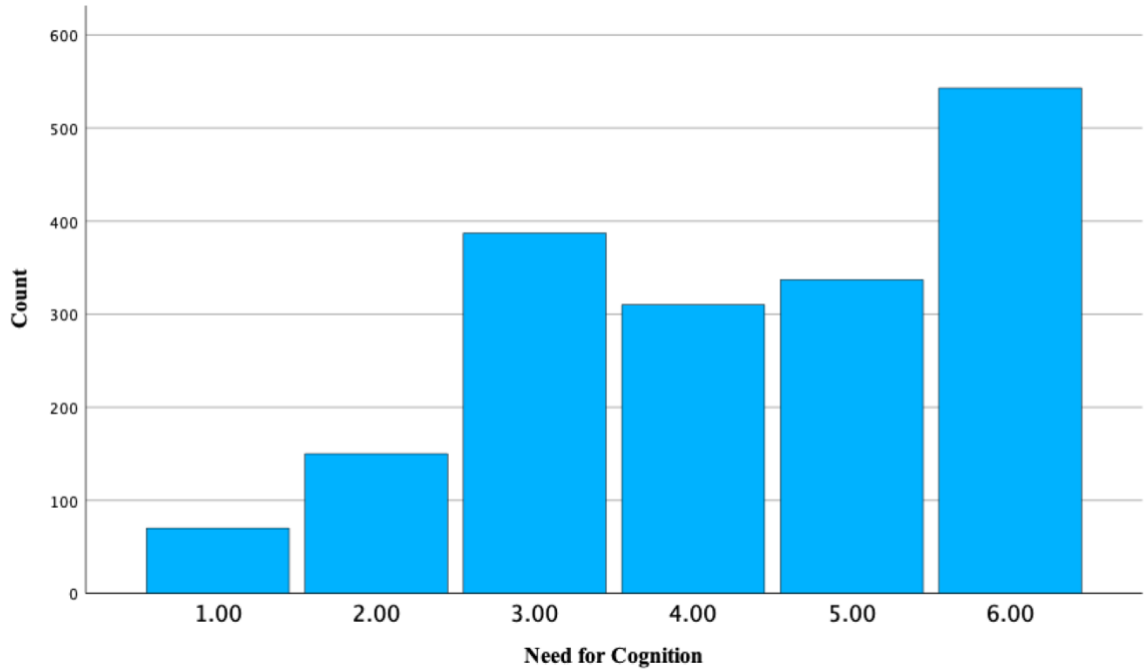
Graph 1. Frequency distribution of Network Expertise



Measuring the need for cognition

The need for cognition is measured in the 2000 ANES by two questions that were asked in the pre-election wave. In the first the respondent is asked about whether they like or dislike to have responsibility in situations that require a lot of complex thinking. The answers are coded as dislike it a lot (1), dislike it somewhat (2), neither like or dislike it (3) like it somewhat (4), or like it a lot (5). In the second question, respondents are asked whether they like to solve complex (1) or simple problems (0). These two questions are then summed to provide the measure of need for cognition. The mean NFC in the dataset is 4.29 and the standard deviation is 1.49. As can be seen in Graph 2, there exists variance on the need for cognition, but the scores of 1 and 2 are significantly less abundant than the scores of 3 and above. In previous studies, need for cognition is primarily measured by analyzing answers to a questionnaire. In the seminal study on need for cognition by Cacioppo and Petty (1982), the authors develop a way of measuring the need for cognition by proposing a set of questions. The questions used in the ANES 2000 are less plentiful, but still sufficient because they are very directly targeting the respondent's predisposition to think about information in their environment.

Graph 2. Frequency distribution of Need for Cognition



Control variables

Several control variables are included in the analysis. Based on previous studies, factors that impact the probability of a correct vote are identified and used as control variables, along with some standard demographics (Lau et al., 2008; Lau et al., 2013; Sokhey & McClurg, 2012; McClurg, 2006; Richey, 2008; Ryan, 2011). We control for these variables because previous studies have shown that these variables may impact the probability of a correct vote. We might expect this because these characteristics make casting a correct vote easier or increase one's ability or motivation to cast a correct vote in some way. The control variables are: Political knowledge, motivation, experience, partisanship, gender, income, level of education, and race. Political knowledge is operationalized with the question "[respondents] general level of information about politics and public affairs seemed:" with a scale ranging from very low (1) to very high (5). One concern that might be raised here is possibility that this is a mediator of network expertise. This may be possible due to learning effects of socially supplied political knowledge. However, we do not find a problematic level of multicollinearity between these two variables. This would imply

that there is not strong correspondence between these two variables and therefore the likeliness of political knowledge being a mediator in the relationship between network expertise and correct voting is low. Political motivation is based on a question on how interested the respondent was in the election, ranging on a scale from not interested (1), to very much interested (3). Political experience is simply measured as age. Because the older a respondent is, the more experience with politics they will have. Partisanship is based on a question about how the respondent identifies with 0 being independent and 4 being a strong partisan. Furthermore, sex, gender, level of education, and income are operationalized through direct questions in the 2000 ANES. See Appendix A. for an in-depth breakdown of each control variable.

Models

The hypotheses will be tested by doing a logistical regression analysis (N = 612). This model best fits the data because it will allow to test the impact of each independent variable on the dichotomous outcome of the dependent variable (correct voting). Correct voting is the dependent variable. In the first model all the control variables and network expertise variable will be included to test their strength as a predictor of correct voting. In the second model the need for cognition will be included and an interaction term between network expertise and need for cognition is created.

All the assumption tests were met. However, some concerns can be raised about multicollinearity and the number of missing cases. The percentage of missing cases in the analysis is larger than 66%. This can be explained via several reasons. First, a part of respondents that did the pre-election survey did not vote and can therefore not be included in the analysis. Second, some respondents that did the pre-election survey did not do the post-election survey at all and can therefore not be included in the analysis. Third, the survey does not always force the respondent to answer. If this is the case, these cases are marked as missing. Because we include a lot of variables in the model, this leads to a large number of missing cases. While a high degree of multicollinearity is found for need for cognition, network expertise,

and the interaction term in model 2, this is logically explainable. Because the interaction term is created using these two variables, they will inherently be highly correlated with each other. When excluding the interaction term, no problematic multicollinearity is found. However, the high degree of multicollinearity between these three variables does limit the explanatory power of this model.

Analysis

Our hypotheses suggest that need for cognition may moderate the relationship between network expertise and correct voting. Two logistic regressions were conducted, as described in the Models section. The results are presented in Table 1.

Table 1. Binary logistic regression on the effect of network expertise, need for cognition on correct voting

	Model 1	**Model 2**
(Constant)	-1.127	.407
	(1.369)	(2.304)
Network expertise	0.498	-0.020
	(0.284)	(0.913)
Need for cognition		-0.358
		(0.408)
Network expertise x need for cognition		0.119
		(0.190)
Partisanship	0.696***	0.689***
	(0.175)	(0.175)
Political knowledge	0.368*	0.401*
	(0.170)	(0.173)
Political motivation	0.252	0.254
	(0.241)	(0.243)
Age	-0.014	-0.016

	(0.009)	(0.009)
Discussion frequency	-0.019	-0.018
	(0.040)	(0.040)
Education level	0.261*	0.275*
	(0.105)	(0.107)
Income	-0.054	-0.051
	(0.049)	(0.049)
Gender	0.165	0.144
	(0.287)	(0.289)
Non-white	-1.202	-1.273
	(1.044)	(1.048)
-2LL	390.118	388.496
Cox and Snell's R^2	0.077	0.080
Nagelkerke R^2	0.151	0.156
N	612	612

Note: binary logistic regression coefficients with standard errors in brackets.

****= $p < 0.001$, ** = $p < 0.01$, * = $p < 0.05$*

In the first model, we find that the coefficient for network expertise was positive. Considering the theory discussed earlier, this is the direction that might be expected. However, the coefficient is not statistically significant (p = 0.08). This result suggests network expertise on its own does not significantly impact the probability of a correct vote. The level of change in the probability of a correct vote being cast is modest when moving across the range of network expertise. For example, respondents that score 1 on network expertise have a predicted probability of approximately 0.93 of casting a correct vote, while individuals that score 6 on network expertise have a predicted probability of 0.99 when keeping all control variables at their mean or modal values. A limitation here is that the proportion of respondents that voted correctly is already very high. Therefore, the magnitude of change may be constricted.

The second model adds the need for cognition and the interaction term between the need for cognition and network expertise as variables. When controlling for these variables, the coefficient for network expertise is now negative, which is not the expected direction. However, the result is statically unsignificant ($p = 0.983$). The standard deviation (0.913) is very high and confidence interval for the odds ratio (0.164-5.866) is wide. This tells that we cannot confidently state that the direction is indeed negative. We can conclude that in this model, network expertise also does not have a significant impact on the probability of a correct vote. The coefficient of need for cognition is negative and statistically not significant. The interaction term between need for cognition and network expertise is positive. In this case, this means that the effect of network expertise will become more less negative as need for cognition decreases. This is the direction that was expected in Hypothesis 2. However, the coefficient for the interaction term is not statistically significant. Therefore, we fail to reject the null hypothesis in this case. In addition, this result is the reverse effect of what was expected in Hypothesis 1. Therefore, we also fail to reject that null hypothesis. To clarify, we can turn to the predicted probabilities. These are presented in Table 2. When keeping all control variables at their mean or modal values, the predicted probability of a correct vote for a respondent that scores low on need for cognition (1) is higher than when an individual scores high on need for cognition (6) for both low and high levels of network expertise. The decrease in predicted probability when moving from low to high probability is very slightly lower for cases scoring low on need for cognition than those scoring high on need for cognition. This is the directional effect expected by Hypothesis 2, although the magnitude of change is very small and not statically significant. Therefore, this interaction seems to not have a sizeable effect on the relationship between network expertise and correct voting.

Table 2. Predicted probabilities of voting correctly for range of scores on need for cognition and network expertise

		Need for cognition	
		Low (1)	High (6)
Network expertise	Low (1)	0.9889	0.9372
	High (3)	0.9885	0.9348

Discussion and Conclusion

This research aims to test the relationship of network expertise and correct voting, and the effect of need for cognition as a mediating variable in this relationship. Different scholars in the past have found mixed results on the influence of network expertise on correct voting. To try and answer this puzzle this study argued that individuals with either a high or low level of need for cognition may benefit more from network expertise when trying to cast a correct vote. This was described in two hypotheses. To test the argument two logistic regression were conducted. In the first model, no support was found for a significant influence of network expertise on correct voting. In the second model, need for cognition was added as a mediating factor. However, the interaction term between network expertise and correct voting was not statically significant. When examining the predicted probabilities of different levels of network expertise and need for cognition, the effect was very small. These findings suggest need for cognition in either direction does not significantly moderate the relationship between network expertise and correct voting. Therefore, this study is unable to reject both null hypotheses. This has both normative and academic implications.

For academics, the results suggest that need for cognition does not add to what context network expertise can effectively help citizens make more competent political decisions. However, theory suggests that other individual characteristics such as political knowledge, partisanship, and gender do influence the effect network expertise has on correct voting (Ryan, 2011; Krupnikov et al, 2019). While need for cognition may not be one of the traits that influences the strength of network expertise as a predictor of correct voting, future work should still explore in

what contexts network expertise may be influential on correct voting to further explore the debate of the significance of network expertise as predictor correct voting. As mentioned before, the probability of a correct vote increases when the motivation or ability to make a competent decision is increased, or when the difficulty of the choice is decreased. Therefore, future studies might focus on the individual or institutional contexts that may influence the extent to which network expertise help increase the likelihood of a correct vote in one of these ways. One example is disagreement in social networks. When political experts that one discusses politics with are knowledgeable and differ from one's own stances, this might increase the distinguishment between candidates for individuals. This would in turn make the decision of who to vote on easier. This might be especially true when network expertise is high because knowledgeable individuals might be able to present a clearer and more complete argument.

Exploring the connection between the variables at hand in this study is normatively important because it can help provide a clearer picture on what increases the political competence of citizens, and individual differences in the use of mechanisms that possibly enable competent behavior. After all, the competence of decisions made by citizens are at the heart of how well democracies function. Citizens need to be able to express their preferences and hold their leaders accountable for democratic systems to function properly. The findings in this study suggest that one's disposition to think about information in their environment does not impact their ability to use socially supplied political expertise as either a cue taking mechanism or a learning source. Therefore, encouraging citizens to think more about information in their environment may not be impactful when trying to support the use of political knowledge in social networks to increase competent political behavior. Therefore, other ways of increasing competent political behavior in the population should be explored.

The current study has several limitations. First, multiple statistical limitations result from the data, operationalization, and study design that were used. the operationalization of this study relies on several questions that use self-reporting. This may lead to biases. For example, network expertise is based on the mean of the

perceived level of political knowledge of discussion partners. However, a self-reporting bias may exist when answering this question and the objective level of knowledge might thus be higher or lower then reported. These biases may influence respondents for several reasons, like social desirability (Ezzati et al. ,2006). Another limitation in terms of measurement is the relatively short question battery the 2000 ANES has available for several variables. For example, the need for cognition is only measured by two questions. Bakker and Lelkes (2018) find that need for cognition and other traits are in some cases more influential when larger question batteries are employed. Therefore, if the 2000 ANES had a longer battery to measure NFC this could lead to the variable having a stronger association with correct voting or increased moderation in the relationship between network expertise and correct voting. These biases and imperfections in measurement influence the results of this study. Furthermore, among the variables of need for cognition, network expertise, and their interaction term a high multicollinearity is found (See Appendix B). While this finding can be explained, a high level of multicollinearity could impact the ability of a model to find a statistically significant results. For an interaction term to be effective, a large number of cases is needed to find statically meaningful results. This limitation could be resolved by adding more cases to the analysis. However, this is not possible with the current dataset. In the current the study the number of cases is limited to 612.

Finally, some notes one the geographical and timeframe of this study are necessary. The ANES 2000 is used in this research. One obvious note here is the year this survey was conducted. Since 2000 many things have changed in relation to the political landscape and decision-making process such as the rise of social media. This may have consequences for the normative viability of the current research. Other time periods may have a different context, which may impact the relationship between network expertise and correct voting. In addition, since only data from the USA was used this might limit the generalizability of these results throughout the world. Different cultures may have different impacts on the political decision-making process and therefore vary in results relating to democratic competence. If

the data was collected in a different country or at a different time, the results of a similar study may be different.

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Appendices

Appendix A.

This appendix will go into further depth on the operationalization of control variables.

Partisanship: Rescaled from 1 to 3. Based on a summary of three questions about party identification which ranged from Strong Democrat (0), Weak Democrat (1), Independent-Democrat (2), Independent (3), Independent-Republican (4), Weak Republican (5), to Strong Republican (6). Strong identifiers are coded as 3, weak identifiers as 2, and independents as 1 (mean = 2.10 and SD = 0.82).

Political knowledge: Based on a question to the interviewer about how knowledgeable the respondent seemed to be about politics. Recoded to range from 1 (very low), 2 (fairly low), 3 (moderate), 4 (fairly high), to 5 (very high) (mean = 3.16 and SD = 1.09).

Political motivation: Based on a question to the respondent about how interested they were in following the political campaign that year. Coded as 1 (not much interested), 2 (somewhat interested), 3 (very much interested) (mean = 1.27 and SD = 0.70).

Age: Based on the respondents self-reported birthdate (mean = 47.21 and SD = 16.96)

Discussion frequency: In the social network battery, for each discussion partner the respondent named they were asked how often they discuss politics with each other. The responses were recoded as 1 (almost never), 2 (rarely), 3 (sometimes), to 4 (often). If they the respondent did not name any discussion partner, they are treated as 0. Therefore, even when a respondent reports never discussing politics with another discussant the value is treated as on. This way we differentiate having no discussion partner from having at least one. The four variables asking about

frequency of discussion with each person are then summed and this is used as the discussion frequency variable (mean = 7.58 and SD = 3.75).

Education level: Based on summary variable of a battery asking about the highest level of education the respondent finished. Coded as 1 (8 grades or less, no diploma), 2 (9-11 grades, no further schooling), 3 (high school diploma or equivalent), 4 (more than 12 years of schooling), 5 (junior or community college level degree), 6 (BA level degree), 7 (Advanced degree) (mean = 4.29 and SD = 1.62)

Income: Based on a summary variable from a question battery asking respondents about their total income pre-taxes. Ranged from 1 (none to $4,999) to 21 ($200,000 and over) (mean = 4.44 and SD = 2.98).

Gender: Based on a question to the interviewer about the gender of the respondent. Coded as 0 'Male' and 1 'female'

Non-white: Based on a summary variable of a question battery asking whether the respondent named any minority ethnic groups or other nationalities. Coded as 0 'Did not name' and 1 'did name'.

Appendix B.

This appendix will go over the assumption checks for logistic regression. First the assumption that the dependent variable is dichotomous is not violated since the variable of correct voting is either correct or incorrect. The other assumptions will be presented in the next sections.

Multicollinearity

The VIF values for each variable are presented in Table 3. As can be seen, the values for network expertise, need for cognition are problematic. However, this can be explained because of the interaction term. Because the interaction term is based on these two variables, they will inherently have a high degree of multicollinearity. If we exclude the interaction term in the test the VIF value for network expertise = 1.135 and for need for cognition = 1.240, while all other VIF values remain

unproblematic. Therefore, there is not violation of multicollinearity. However, the high degree of multicollinearity between the interaction term and need for cognition and network expertise limits the explanatory power of these variables.

Table 3. VIF values

Model 2	**VIF**
Network expertise	12.081
Need for cognition	21.383
Network expertise x Need for cognition	37.409
Partisanship	1.058
Political knowledge	1.401
Political motivation	1.228
Age	1.131
Discussion frequency	1.189
Education level	1.375
Income	1.306
Gender	1.172
Non-white	1.031

Influential outliers

To test for influential outliers, we use Cook's distance. The results of this test are presented in Table 4. Only one case has a problematic value of < 1.

Table 4. Cook's distance

	Cook's distance greater than 1
Frequency	1
Percentage	0.2%
N	612

Linearity of the Logit (only continuous variables)

As can be seen in Table 5, the LN of Age is significantly interacted with the regular variable of age. Since this is the only continuous variable in our model, this assumption is not violated. All other variables are either discrete or nominal variables.

Table 5. Binary logistic regression table with LN interactions

Variable	**Sig.**
Constant	0.229
Age x LN age	**0.038**
Network expertise	0.975
Need for cognition	0.362
Network expertise X need for cognition	0.512
Political knowledge	0.042
Political motivation	0.219
Age	0.045
Discussion frequency	0.527
Education level	0.006
Income	0.135
Gender	0.765
Non-white	0.215