The Origins of Confidence in Political Knowledge and Judgment:
An experimental study on the role of information accessibility and relevance

Seonghui Lee
Aarhus University
slee@ps.au.dk

Abstract

Understanding the origins of confidence is important because confidence affects whether people translate their beliefs into behaviors (Gill, Swann, and Silvera 1998). One might project that confidence in knowledge might be tightly associated with the accuracy of information – i.e., people are more likely to be confident about what they know when they actually have correct information. However, a large strand of psychological literature found that the correlation between accuracy and confidence is marginal at best. If confidence does not necessarily arise from the possession of accurate information, from where does it arise? Drawing upon psychology literature, this study tests whether exposure to information relevant to the domain in question (which, however, does not directly help getting an answer correct) enhances individuals' confidence in political knowledge and judgments, regardless of the correctness. Using an experiment in which the amount of relevant and irrelevant information is manipulated, I test the argument focusing on two types of confidence: confidence in knowledge about world facts (Study 1) and in perceptions about other person's political traits (perceptual confidence) (Study 2). This pilot study finds that the exposure to the relevant information fosters confidence in factual knowledge. Regarding the perceptual confidence, having information relevant to the political trait in question also boosted the perceptual confidence. However, a larger amount of information about the target question (including both relevant and irrelevant information to the trait) did not particularly strengthen the confidence in perceptions of others' political traits. I conclude with implications and suggestions for future research.

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Introduction

The strength of beliefs in what we think we know affects whether we translate our beliefs into behaviors (Gill, Swann, and Silvera 1998). When people have strong beliefs in what they know is correct, rational, and reasonable, they are more likely to act on the basis of such beliefs. This confidence in knowledge is also an important dimension identifying different types of political informedness or political knowledge as Kuklinski et al. (2000) defined the misinformed as those who hold strong beliefs that happen to be wrong, whereas the uninformed are those who merely do not hold factual beliefs at all. In political science, it is well documented that misinformation or misperception is prevalent (Alvarez and Franklin 1994; Kuklinski et al. 2000), that its effect is more detrimental (than the mere lack of correct information) because it misleads preferences and subsequent political, and that such a strong belief in incorrect knowledge is difficult to correct (Hochschild and Einstein 2015; Lewandowsky et al. 2012).

Despite its important behavioral and conceptual implications, confidence in knowledge itself has not received much scholarly attention in political science. Even in the previous studies on political misinformation, confidence is not fully integrated into its concept and measurement[1] but rather remains as an issue for future improvement (e.g., Flynn, Reifler, and Nyhan 2016). The theory of partisan motivated reasoning, one of the most prominent explanations on political information processing and misinformation, speaks only remotely and indirectly about origins and consequences of confidence given that not all politics-relevant information and judgments are processed with partisan motivations.

Why are some people more confident about their knowledge than others? Does confidence itself have an independent effect on a range of behavioral and attitudinal consequences? Although little is known about these confidence in knowledge in political arena, in other disciplines regard confidence as an important psychological aspect that helps prediction and

[1] Many previous studies on political misinformation or misperception do not distinguish the misinformed from the mere ignorance (conceptually and empirically). Even when they do, the measurements do not clearly distinguish the substance of knowledge (accuracy) and the strength of

understanding of various aspects of behaviors (e.g., Stankov et al. 2012). Psychologists find that confidence in knowledge (aka "subjective knowledge" "feeling of knowing" or "perceived knowledge") is a way to express that specific piece of information is available in memory (e.g., Schacter 1983), a proxy for (or predictor of) expertise and competency (Fischer and Budescu 2005), and one of the best predictors of academic performances (Morony et al. 2013). More interestingly, the correlation between accuracy and confidence widely vary upon type of tasks and is marginal at best (Ellen 1994; Moorman et al. 2004; Radecki and Jaccard 1995).

If confidence in knowledge does not necessarily originate from accuracy of information or beliefs, where does it come from? This study aims to understand the sources of confidence in "political" information and judgment, drawing on the accessibility theory of feeling of knowing in cognitive psychology. The review of the literature in the following section suggests several different sources of confidence. Among others, this study focuses on testing whether exposure to information relevant to the topic in question enhances confidence in knowledge. Unlike other determinants of confidence (such as personality traits and other psychological and demographic factors) that are almost impossible to change, the amount and relevance of information is situational and contextual, allowing us to test the causal effect in an experimental setting.

The effects of the volume and the relevance of information are tested with an experiment to control for confounding effects stemming from homegrown knowledge and the use of political cues that might affect confidence by enhancing accuracy in the experimental tasks. This pilot study focuses on confidence in two types of knowledge and judgment: 1) non-contentious and non-partisan factual knowledge, and 2) judgment or perception about other persons' political traits (perceptual confidence). The experiment incorporates these two studies. In both studies, participants were first exposed to treatment conditions in which the amount and relevance of information is manipulated, and then asked to answer a set of target questions. The outcome variable is participants' confidence ratings on a 0-100 scale about how confident they are that their answer is correct. This pilot survey experiment is

carried out in a laboratory setting with undergraduate and master program students at Aarhus University.

The study finds that the exposure to relevant information (which however does not necessarily increase the accuracy of political knowledge) enhances the confidence in factual knowledge. When it comes to perceptual confidence, the study finds that the participants are more confident when provided with a set of information relevant (than irrelevant) to the political trait about which they are requested to make inferences. Moreover, the relevance of information only matters for confidence when they make judgments about others' "political" traits but not about non-political traits. However, this pilot study only provides an inconclusive evidence about the question whether the relevance of information would hold the positive effect when the same set of relevant information is embedded in a larger amount of information about the target individual (including irrelevant information).

The final section is saved for the discussion of the implication of the study for the research on political knowledge, misinformation, and information processing behavior. Potential limitations of this study and suggestions for future research agenda are also discussed.

The scope of the study: Retrospective confidence in factual knowledge and in perception of others

Confidence in knowledge is studied in various subfields in psychology, including studies on judgments, predictions, logical reasoning, decision-making, and education. Broadly, there are two types of confidence (Busey et al. 2000): Prospective and retrospective confidence. The former refers to the confidence that one *will* correctly recognize the stimulus (aka judgments of learning), and the latter is the confidence that one *has made* the correct recognition or decision (aka feeling of knowing). It should be acknowledged that this study is about "retrospective" confidence, and the review of past research is constrained to studies on retrospective confidence.[2]

[2] The review also excludes longitudinal studies and studies where social interactions, discussions, and deliberations are promoted in experimental settings.

This study focuses on two types of political information and judgment: 1) confidence in factual knowledge and 2) confidence in perceptions or judgments about other person (aka perceptual confidence). Citizens use various types of factual information to make inferences, predictions, evaluations, and judgments about politics and political figures. Factual political knowledge serves as the fundamental ingredients to shape political attitudes and decision-making. Exploring the sources of the confidence in such knowledge will help us understand patterns of political information processing, particularly in the era of post-factual politics and the flood of fake news, by providing an explanation why some people have a strong belief in seemingly-factual information.

The second type is confidence about impression, perception, or judgment we make about others, so-called perceptual confidence (Catterson, Naumann, and John 2015). Perceptual confidence is present in our daily life: We make perceptions about people around us (e.g., friends and colleagues), individuals we first meet, and even strangers with whom we do not have any personal interaction. Confidence judgment in such impressions about others almost always occurs naturally – e.g., "I'm confident that she must be a very open-minded in this matter" or "I'm not sure if she will be interested in this project." Such perceptual confidence is likely to change our decisions and attitudes toward the person.

Similarly, confidence in our perception about others' "political" traits is also not uncommon, and may lead to differential political consequences by influencing the type and the pattern of information processed by individuals. First, perceptual confidence may influence our reception of political information by influencing the credibility of others as sources of political information. In contemporary democracies, most citizens receive political information in mediated forms via mass media, political elites, and interaction with other individuals (e.g., Mutz 1992). And the decision whether to take or reject the information is largely dependent upon the credibility of sources (Berinsky 2015; Sundar, Knobloch-Westerwick, and Hastall 2007). Perceptual confidence can play an important role in assessing the credibility of the information sources and determining whether to receive or

reject the information.[3] Second, there are occasions when confidence in perceptions about public figures (e.g., candidates for public offices) may become of more importance than how accurate such judgments are. For example, when a candidate is a first-time runner in an election and/or is not affiliated with any political party, we often lack the common partisan cue with which we can make relatively credible judgment about the candidate. In such low-information contexts, citizens have to make judgments based on a small amount of information and it is often very expensive and far to reach to obtain credible validation whether their perceptions are accurate or not. Under these circumstances, an individual who is very confident about her perception of the candidate may make a different decision than a person whose perceptual confidence is very low.

The following sections discuss previous studies pertaining to the scope of this study: Retrospective confidence in factual knowledge and judgment about others.

Determinants of confidence in knowledge: The accessibility model

What are the determinants of confidence in political knowledge and judgment? What are the conditions under which individuals become more confident about their knowledge and political judgment? One may expect that people will be more confident when they indeed have correct information through prior knowledge or experiences. This is, however, only partially true. Previous research found that confidence and accuracy are only loosely related and they are influenced or mediated by different factors (Ellen 1994; Moorman et al. 2004; Radecki and Jaccard 1995; Shynkaruk and Thompson 2006). That is, factors that increase accuracy do not necessarily increase confidence (and vice versa) and accuracy is not the sole basis for confidence in knowledge.

Psychologists find confidence in knowledge (aka feeling of knowing) as an indicator of what is stored in memory especially when the retrieval of a memory item is temporarily

[3] This includes the congruence in political views and preferences between the perceiver and the target person (who provides the information), such that an individual will more likely to accept and strongly believe the information from a target person who is perceived as having political view that is very similar to the perceiver herself.

unsuccessful or interrupted (e.g., Koriat 1993). That is, a higher level of confidence in knowledge may indicate the availability of target information in memory. An accessibility model of feeling of knowing represents this view (Koriat 1993; Nelson, Gerler, and Narens 1984). The accessibility model argues that people retrieve information from memory through a search process and use whatever they retrieve as the basis for their confidence rating (Busey et al. 2000; Koriat 1993, 1995). An analogy is the process we search computer files stored on a computer disk: If we want to check whether a specific file exists on the disk, we only need to look up the directory, without having to access the content of the file itself (Koriat 1993). Since the judgment about confidence occurs before we attempt to retrieve the target information, confidence in knowledge rests on a process that is independent of the process required to retrieve the target information itself. Recognizing the presence of (even inaccurate) information derived from this search process "gives the illusion of expertise in the absence of any real knowledge, inflating confidence and producing a dissociation between confidence and accuracy" (Busey et al. 2000).

This understanding of confidence postulates the accessibility or familiarity of relevant information as the main source. Previous studies examined this argument by studying the role of the amount of information, the integration of information (i.e., the usefulness of cues/priming coalescing information in a relevant way), the ease of access to information, and some combination of these factors. These studies found that more information often increases confidence even when the accuracy is not achieved (e.g., Hall, Ariss, and Todorov 2007; Koriat, Lichtenstein, and Fischhoff 1980; Swann and Gill 1997; Tsai, Klayman, and Hastie 2008), and that exposure to relevant (and pseudo-relevant) information fosters confidence (Gill, Swann, and Silvera 1998).

Following this line of thought, I expect that *the exposure to information relevant to the domain of information solicited will increase confidence in factual political information* (H1: exposure to relevant information). This hypothesis will be tested in Study 1 in the experiment with non-contentious, non-partisan information as the target information – the current unemployment rate. Although this target information is not completely political, it is well documented in the economic voting literature that the state of the economy is often the basis of citizens'

evaluation of the government's competency and influences vote choices (e.g., Alesina and Rosenthal 1995; Duch and Stevenson 2008; Lewis-Beck and Stegmaier 2000). The unemployment rate is one of the fundamental facts used to form such evaluations (CSES Module 4 Planning Committee 2011). Another reason for using non-partisan information is to prevent potential biases stemming from motivated reasoning.[4] Particularly, the economic indicator in the US is remote enough for our participants (citizens of Denmark) and under no effect of their political preferences in Denmark.

If the exposure to relevant information turns out to increase confidence in factual knowledge, this will imply that a significant portion of misinformed citizens are likely active (than passive) consumers of political information, which is in line with recent empirical findings that demonstrate individuals who are politically interested and more frequently discuss about politics are more likely to be misinformed (than mere ignorant) (Flynn 2016; Lee and Matsuo 2016). The evidence from this particular study will extend our understanding of information processing to citizens who do not have strong partisan motivations or to non-contentious factual political knowledge.

Determinants of perceptual confidence

The same accessibility model applies to perceptual confidence, but some additional clarification and adjustments are necessary to formulate theoretical expectations. The accessibility model highlights the role of the amount and relevance of information in fostering confidence. Given this, we may expect with perceptual confidence that people will be more confident when they have been exposed to "more information" about a target person (e.g., a new colleague) and the information is "more relevant" to the target persons' trait in question (e.g., the new colleague's view on the government's role in reducing income inequality).

[4] Motivated individuals are likely to have high degrees of self-confidence (Nadeau and Niemi 1995, 326). If this is the case, when individuals are motivated by partisan motivation – a type of directional motivations – it is likely that they are more confident about the information they processed.

This expectation, however, needs more elaboration for two reasons. First, there is no clear and straightforward way to define the "relevance" of information that individual perceivers can think of (e.g., what are the types of relevant information to one's view on the government's role?). Nevertheless, socially developed cues and stereotyping can serve as a general rule to identify relevant and irrelevant type of information to specific target information in question. In the above example, suppose that there exists a common perception in the society that people who are ideologically leftist and highly educated tend to support a more active role of the government in reducing inequality. In this context, the information about the new colleagues' ideological view and her educational attainment can be perceived as the information relevant to the perception of the target political attitude (i.e., the view on the government's role).[5] I reflect this aspect when identifying relevant and irrelevant information in Study 2 of the experiment, where I expect that *individuals will be more confident about their judgment of a target person's political trait when they are exposed to relevant information than exposed to irrelevant information* (H2: relevance of information).

Second, a large amount of information about *a target person* may not necessarily include the information relevant to a *target question* (i.e., a specific trait of the target person). For example, compare a situation A where we only have two pieces of information that are relevant to the trait we want to make inference about the new colleague (i.e., her view on the government's role), with another situation B where we have two additional pieces of information that are, however, irrelevant to the target question. Apparently, we have more accessible information about the new colleague in the latter case than the former. However, the amount of "relevant" information is the same for both cases, and the proportion of the "relevant" information is even lower in the latter case. The question is then: In which of the two situations do we feel more confident about our perception of the new colleague's view on the government's role?

[5] Again, stereotyping and the use of social cues do not enhance the accuracy of the perception of others. As discussed earlier, the confidence a person feels about her perception about others is not substantially related to the accuracy of the perception (Ames et al. 2010; Gill, Swann, and Silvera 1998; Swann and Gill 1997). Much of the discussion in this section is irrelevant to the accuracy of perceptions itself, but has something to do with the *perceived* accuracy (i.e., perceptual confidence, aka feeling of knowing).

If we find a higher level of confidence in the latter case (i.e., a larger amount of information about a target individual enhances confidence), it will be the evidence supporting the argument that the perceiver's familiarity with the target individual *in general* matters for confidence in the perception about *a certain aspect* of the target individual. If this is the case, we can expect that *individuals will be more confident about their judgment of a target person's political trait when they are exposed to a larger amount of information about the target individual than to a lesser amount of information* (H3a: amount of information).

On the other hand, if we find a higher level of confidence in the former case (i.e., a larger proportion of relevant information enhances confidence), it will imply the presence of distracting (or interfering) effect of the irrelevant information. As the literature in cognitive psychology suggests, large amount of unintegrated information can hamper the ability to answer questions about the requested information (e.g., Gill et al. 1998, 1102), which in turn could depress the feeling of knowing. For this reason, the integration or consistency of information is considered as a factor that increases confidence. If we follow this reasoning, we should expect that *individuals will be more confident about their judgment of a target person's political trait when a set of relevant information is presented in a concise form than when presented with irrelevant information* (H3b: distraction of irrelevant information).

Experimental design

Based on the accessibility model of confidence, I suggested three hypotheses that emphasize the role of the amount and the relevance of information. In the experiment, Study 1 is designed to test the first hypothesis on the confidence in factual political knowledge (H1: exposure to relevant information), in three treatment conditions: 1) provision of information that is not only relevant to the target question but also includes the exact answer for the target question, 2) provision of information that is relevant to the target question but not includes the exact target information, 3) provision of information that is irrelevant to the domain of the target question.

Study 2 tests the three hypotheses for the perceptual confidence (H2: amount of information, H3a: amount of information, and H3b: distraction of irrelevant information), where subjects are assigned to one of the three following conditions: 1) provision of a short profile about a target individual that includes relevant information, 2) provision of a short profile about a target individual that only includes irrelevant information, and 3) provision of a long profile that includes both relevant and irrelevant information (i.e., all information shown in the previous two conditions is presented).

Procedure

In this pilot study, a total of 52 students in Aarhus University (undergrads and post-graduate students) participated in the two-stage study in December 2016. The participants were recruited from the subject pool of the Cognitive and Behavior lab (COBE) at Aarhus University and agreed to complete an online-survey at least 48 hours before coming to the main study at the COBE lab. The participants are all Danish native speakers and the language of the study was English.

The pre-test online survey collected information about the participants' basic demographic information, topic areas of general interest (including sports, music, environment, food, and politics), and news consumption in these topic areas. The pre-test survey also included questions about Left-Right positions about themselves and political parties on the 11-point scale, psychological traits such as self-esteem scale, simple version of big five personality, curiosity and exploration inventory (CEI-II), and need to evaluation).

The main study was implemented via personal computer in the COBE lab. The study is composed of five sections. In Part 1, the participants read two news articles, each of which is followed by a set of simple questions about the participants' subjective ratings on the familiarity with the topic of the news, whether they have read the exact article previously, how enjoyable and easy to read the article. These news articles are the treatments of Study 1 on the confidence in factual knowledge, and randomly shown to the subjects. The outcome

variable (confidence ratings on their answers to the target question) is measured later on in Part 4 of the experiment.

In Part 2, participants were asked to solve as many two-digit addition problems as they can for three minutes. This short session is devised to turn their attention to some irrelevant task so that the content of news articles can be forgotten.

The Study 2 on perceptual confidence is implemented in Part 3. We instructed that they will see short descriptions about seven individuals living in Denmark. After reading each description, participants made a prediction about the person. More specifically, they were asked to guess the answer that the described target individual actually gave to a question. The description about the target individual is shown in the computer screen with a small headshot image[6] that matches to the basic information of the target person. The seven descriptions were shown in random order during the seven rounds, and the treatment conditions were also randomly assigned in each round.

In Part 4, we asked a number of factual questions.[7] The target questions for Study 1 are unobtrusively placed in the questionnaire with other knowledge questions about world-facts, Danish politics, and current political and social events. Each of these questions was followed by a self-assessed confidence rating ('How confidence are you that your answer is correct?'), which is the main outcome variable. The order of these factual questions was randomized, except that the two target questions were always placed 3rd and 5th out of 15 questions.

Part 5 included two questions in order to test the ability to recall information provided in the treatment news articles shown in Part 1 (Study 1). The participants were provided with eight names of organizations, individuals, and concepts and asked to mark all they thought they saw in the article shown in Part 1.

[6] We show the facial images to make an impression that the person described is real. Facial images are selected from the Face Recognition database (by Libor Spacek) and the Yale Face Database.
[7] They (including target questions) are multiple choice questions, except for an open-ended question about the total number of members in the Danish Parliament.

Treatment

Study 1 investigates whether the availability of relevant information enhances confidence in factual knowledge. The treatments are real news articles and formulated in three versions: 1) a news article whose topic is relevant to the target question and that includes the answer for the target question (full version), 2) a news article whose topic is relevant to the target question but that does NOT include the answer for the target question (relevant version), and 3) a news article whose topic is completely irrelevant to the target question (irrelevant version). In the Part 1 of the main experiment, one of these versions was randomly selected and shown to a participant. The participants repeated this task for two rounds in Part 1 and answered for the target questions in Part 4. The exposure to relevant information hypothesis (H1) expects that the group who read relevant news articles (the full or relevant version) will be more confident than the group who read irrelevant news articles (the irrelevant version).

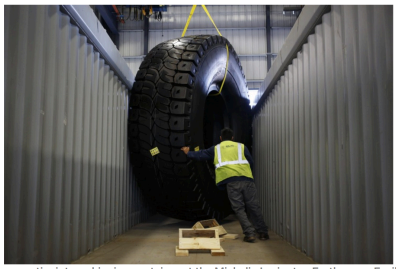
The first target information is the unemployment rate of the USA, and the second is the goal of the Paris Agreement on climate change. For each round, I used two news articles – one for the full and relevant versions, and the other for irrelevant version. Both the full and relevant versions use the same news article, but only one sentence that indicate the target information is excluded in the relevant version. The news article used for irrelevant version is selected to have the similar characteristics to the target news articles in terms length, readability (Flesh-Kincaid grade level), salience of topics, and displayed format.[8] All news articles are not explicitly partisan or ideologically biased and have no explicit partisan or ideological cue.[9] Figure 1 demonstrates three versions of news articles used for the first round.

[8] By the salience criterion, I selected news articles that dealt with the current events (published around the same time) that add new information to receivers (i.e., the articles should not be about repetition of historical events or description about an event that is already well-known). All news articles are displayed in the order of the title, an image with short description, and main texts.
[9] This is to exclude potential confounding effects that, for example, a specific partisan or ideological group might have more knowledge about the target information, which in turn might affect levels of confidence. For this reason, none of the four news articles is about Danish domestic politics.

FIGURE 1: Three conditions for Study 1 on confidence in factual knowledge

A. Full

U.S. economy added 178,000 jobs in November



An employee guides a new tire into a shipping container at the Michelin Lexington Earthmover Facility in Lexington, S.C., last month. (Luke Sharrett/Bloomberg)

The U.S. economy added 178,000 jobs in November, while the unemployment rate fell to 4.6 percent, a level not seen since August 2007, according to government data released Friday morning. The first employment report since voters went to the polls last month shows an economy in strong shape as President-elect Donald Trump prepares to take office.

"It looks like firms are pretty bullish about what they're going to see in 2017 and are continuing their strong hiring of the past few years," said Steve Rick, chief economist at insurance company CUNA Mutual Group. "This is a good tailwind for the new administration."

Democrats seized on the report as evidence that President Obama had cultivated a much more robust economy that Trump would now take over.

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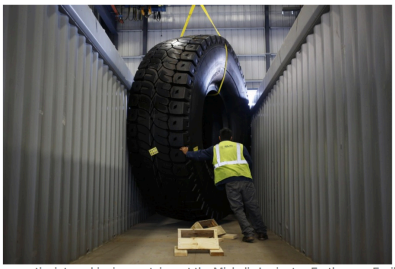
B. Relevant

U.S. economy added 178,000 jobs in November



An employee guides a new tire into a shipping container at the Michelin Lexington Earthmover Facility in Lexington, S.C., last month. (Luke Sharrett/Bloomberg)

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C. Irrelevant

Investigatory Powers Bill officially passes into law, giving Britain the 'most extreme spying powers ever seen'

Surveillance agencies will see new powers to force companies to hack into phones and collect more information on their users than ever before (Getty/iStockphoto)

Britain's intelligence services have officially been given the "most extreme spying powers ever seen".

The Investigatory Powers Act has now been given royal assent, meaning that those surveillance rules will pass into law. The bill was officially unveiled a year ago and passed through the House of Lords earlier this month, but the act of being signed off means that those powers now go into effect.

It adds new surveillance powers including rules that force internet providers to keep complete records of every website that all of their customers visit. Those will be available to a wide range of agencies, which includes the Department for Work and Pensions as well as the Food Standards Agency.

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Note: The first sentence of the full version includes target information (current unemployment rate in the US) in "[…] while the unemployment rate fell to 4.6 percent, a level not seen since August 2007 […]." The same sentence is displayed in the relevant version as following: "[…] while the unemployment rate decreased to a level not seen since August 2007 […]."
The irrelevant version is a story completely irrelevant to the topic of the US economy, but is equivalent to the other article in terms of length (ca. 510 words), readability (Flesch-Kincaid Grade level 12), displayed form, and so forth.

Study 2 is composed of seven rounds in which participants read the target person's profile and to guess how the target person would have answered to a target question based on the description in the profile. The amount and relevance of information is manipulated with three versions of profiles that are randomly shown to the participants in addition to essential information regarding the target person. First, the short-relevant version is composed of three pieces of information that includes relevant information to the topic of the target question; second, the short-irrelevant version includes four pieces of information that

appears irrelevant; and lastly, the long version includes all seven pieces of information from the relevant and irrelevant versions. In each round, participants saw one profile randomly selected from the three versions, and answered one target question for each target person.

All information used to describe target persons is retrieved from the most current dataset of the European Social Survey (round 7, fieldwork carried out in 2014 for Denmark). The data generation process is as follows. First, I pre-defined very basic demographics of the seven target persons – age and the gender – and the four politics-relevant target information and three non-political target information by random draw from a list of variables available in the dataset. Table 1 lists the resulting basic profile (gender and age) and the target information for the seven target individuals.

TABLE 1: Target individuals and target information for Study 2 on perceptual confidence

Target person	Target information[10]	
A. Male in 20s	Non-political (sleep restless)	how many nights of the past week has he not sleep well
B. Female in 20s	Political (govt's role in income inequality)	agree/disagree "the government should take measures to reduce differences in income levels"
C. Male in 20s	Political (political interest)	how interested in politics
D. Male in 30s	Non-political (health condition)	general health condition
E. Female in 30s	Political (party attachment)	if she feels closer to one particular political party over others
F. Male in 40s	Non-political (meeting socially)	how often he meets socially with friends, relatives, or colleagues
G. Female in 50s	Political (satisfaction with the economy)	how satisfied she is with the present state of the economy in Denmark

[10] In selecting the target information, I excluded the questions to which the responses are highly homogeneous and easy to predict in order to avoid the inflation of the confidence ratings due to the high probability of correct guessing. For example, 84% of the respondents answered that they voted in the last national election. If we use this question as the target information, subjects might be very confident with their prediction of the target person's participation in the last election because the chance is very high that their prediction would be correct given the high electoral turnout in Denmark.

Second, I defined the essential information that will be provided to all three conditions as default to help participants better picture the described person. The essential information includes: age, gender, highest educational attainment, occupation, family composition, residence (e.g., countryside, small town, big city), and total household income. Third, I constructed two versions of profiles for each target individual – one with relevant information, the other with irrelevant information. The relevance is defined based on correlation analysis.[11] In the end, there are three different types of treatment profiles: 1) a profile that include two pieces of relevant information (S1: short-relevant version), 2) a profile that does not include relevant information (S2: short-irrelevant version), 3) a long version of profile that include information from both the relevant and irrelevant versions (L: long version).[12] Lastly, seven individuals from the ESS Danish survey whose profile fit to the pre-defined age and gender conditions were selected. Their real responses to the ESS survey were retrieved to fill the value of the variables in the profiles. A screenshot for the target person C (Long version) is displayed in Figure 2 as an example.

The expectations from the study are as follows. If the relevance of information matters (H2), we should observe a higher level of confidence in the group who read the short-relevant version of the profile than the short-irrelevant one (S1>S2); if the amount of information about the target individual in general matters (H3a), we should observe a higher level of confidence in the group who read the long version of the profile than those who read short versions (L>S1=S2); and lastly, if the relevance of information is important only when it is presented in a concise format (H3b), we should observe a higher level of confidence in the

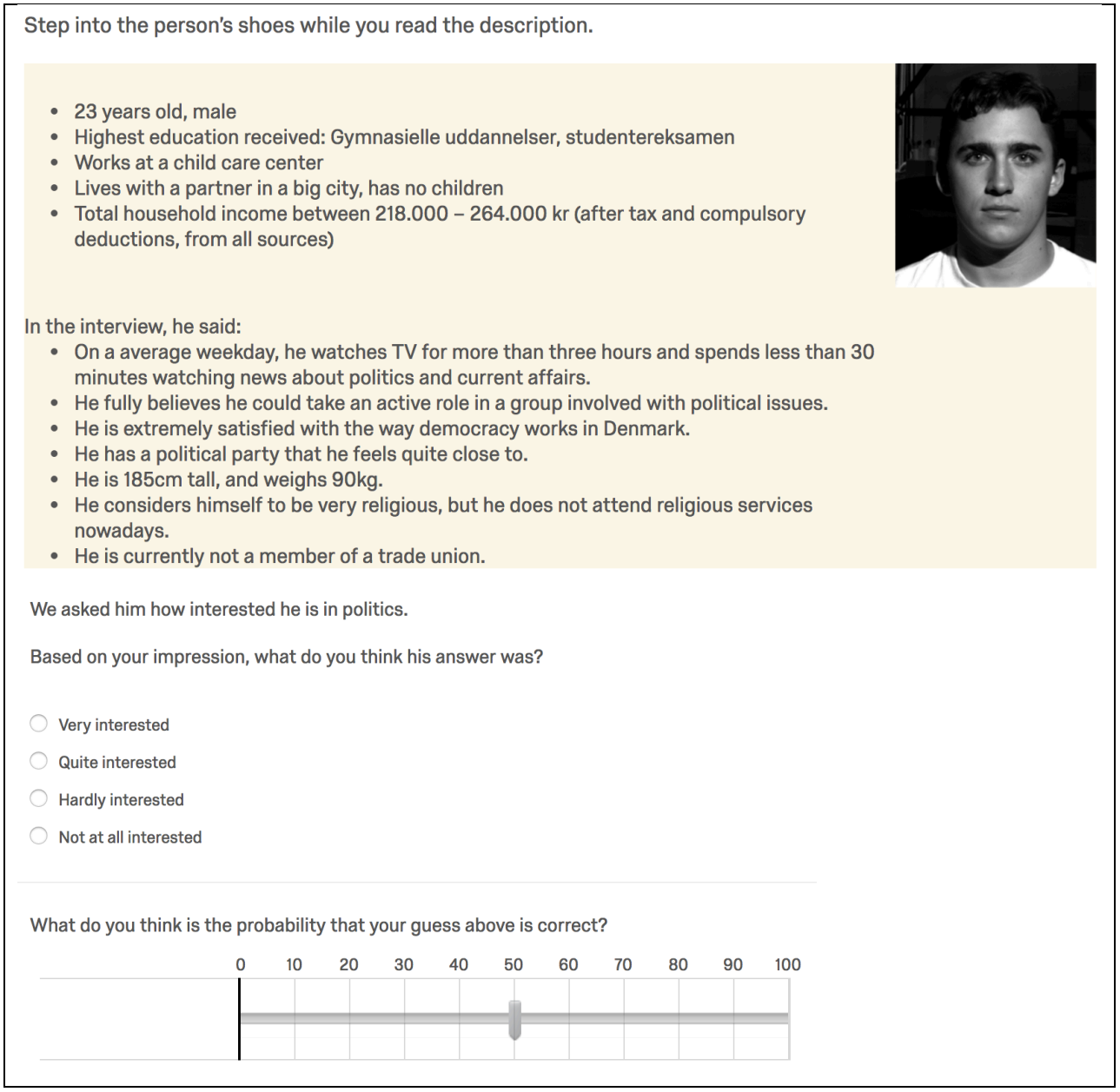
[11] I define the relevant type of information when the correlation with the target variable is higher then 0.40 among the ESS survey respondents whose sex and age bracket (e.g., 20s, 30s, etc.) is identical to the target person's gender and age category.

[12] The list of variables used for information relevant to target question is as follows:

- Target A (nights not slept well): thinking not important to be rich; felt lonely past week
- Target B (govt reduce inequality): thinking important to treat people equally; 6 on LR scale
- Target C (political interest): TV news consumption; could do active role in political group
- Target D (health condition): felt depressed past week; satisfied with his life and income
- Target E (party attachment): whether voted last election; whether signed a petition
- Target F (social gathering): not felt lonely; thinking important to be royal
- Target G (satisfaction with the economy): health condition; evaluation of the education system

group who read the short-relevant version of the profile than those who read the long version (S1>L).

FIGURE 2: An example of a treatment condition (L) for Study 2 on perceptual confidence



Note: This is an example of full version (Target person C). The relevant version only shows the top three items about his interview, and the irrelevant version shows the last four items.

Analysis

Study 1 on the confidence in factual knowledge

I first compare the participants' subjective ratings of the news articles used for the treatments in terms of familiarity, enjoyableness, and easiness. Participants' ratings on the two articles used for the first round ('US economy' for the full and relevant version and 'Spy Law in Britain' for the irrelevant version) were not different from each other (two-tailed t-tests, at 0.95 level), whereas in the second round they rated the irrelevant news article ('Free-trade agreement between EU and Canada') significantly more difficult than the news article used for full and relevant version ('Paris agreement on climate change'). Based on this balance check result, only the first round of the Study 1 is used for the analysis.[13]

Table 2 below reports the t-tests results on correctness, confidence ratings, and subjective evaluations on familiarity, enjoyableness and easiness of the news article. Correctness is coded 1 if the answer for the target question (current unemployment rate in the US) is correct and 0 otherwise. Confidence ratings are measured on a 0 to 100 scale. Familiarity is measured on a 4-point scale from not at all familiar to very familiar, and the ratings on boring—enjoyable and difficult—easy dimensions are measured on an 11-point scale. Each group had 17 or 18 participants, but the number of participants reduced to 15 in all groups when excluding those who reported they had previously read the same article. The results for the latter case (reduced sample) are reported in parentheses.

The main comparison for the hypothesis is between the relevant and irrelevant information group, but the comparison with full version might also be interesting to see whether the confidence ratings shift with the level of correctness. The differences of means test on correctness found that reading the full version of the news article enhances the chance to get the answer correct compared to other groups (Rows 1, 3, and 4). Reading the relevant version did not significantly increase the chance to get the unemployment rate correct

[13] The participants' characteristics for the first round are well balanced among the three groups in terms of age, field of major, topic interest, political knowledge, political orientation, but with two exceptions: The irrelevant group has more male subjects than the relevant group, and higher degree students than the full group.

compared to reading the irrelevant version (Row 2), suggesting that the manipulation (taking off the target information in relevant version) is successful.

When it comes to the main variable of interest – confidence rating –, the difference between the full and relevant groups is not statistically significant, neither that between the relevant and irrelevant group (although the order of the ratings are all in expected direction). It is only apparent that the participants who read news article about the US economy were more confident when the full and relevant groups are combined (Row 4) than the irrelevant group (two-group comparison). This result is probably driven by the group who read the full version and gave more correct answers for the target question than any other groups.

TABLE 2: Difference of means tests from Study 1 on the confidence in factual knowledge

	Correctness	Confidence	Familiarity	Enjoyable	Easy
Full vs. Relevant	0.48** (0.53**)	13.88 (13.13)	0.03 (0.07))	-0.56 (-0.67)	0.74 (0.53)
Relevant vs. Irrelevant	0.24 (0.20)	10.82 (5.60)	-0.12 (-0.13)	0.00 (-0.2)	0.12 (-0.07)
Full vs. Irrelevant	0.72** (0.73**)	24.70** (18.73*)	-0.08 (-0.07)	-0.56 (-0.87)	0.86 (0.47)
Full & Relevant vs. Irrelevant	0.48** (0.47**)	17.96** (12.17+)	-0.10 (-0.10)	-0.29 (-0.53)	0.50 (0.20)

Note: Entries are the differences in means between the two groups, and the differences in reduced sample are in parenthesis. The first three rows are comparisons based on three groups, and the last row is based on two groups where the full and relevant groups combined against the irrelevant group. ** $p<0.05$ (two-tailed), * $p<0.10$ (two-tailed), + $p<0.10$ (one-tailed).

To control for the effect of such confounding factors, I estimate the treatment effects using a multivariate analysis. I include a set of variables in OLS regression models to control for the effects of personal characteristics, cognitive ability, habitual interest in and exposure to the topic relevant to the target information. Particularly interesting might be the effect of correctness on confidence and whether the determinants of confidence also contribute to correctness. Table 3 therefore reports the results for correctness models using logistic regressions.

TABLE 3: Determinants of correctness and confidence from Study 1

DV:	Correctness		Confidence			
	(1)	(2)	(3)	(4)	(5)	(6)
Correct answer			14.097+	13.536		-1.017
			(8.007)	(8.717)		(9.554)
Full version (base = Irrelevant)		**5.577****			**38.877****	**39.662****
		(1.780)			(11.265)	(13.599)
Relevant version (base = Irrelevant)		**2.779+**			**23.263***	**23.560***
		(1.557)			(9.393)	(9.928)
Previously read	0.098	-1.626		4.109	1.917	1.909
	(1.186)	(1.798)		(13.090)	(11.842)	(12.013)
Male	-0.937	-0.874		14.596	19.937*	19.948*
	(0.811)	(1.050)		(9.321)	(8.656)	(8.781)
Age	0.112	0.165		-2.176	-1.593	-1.574
	(0.146)	(0.189)		(1.649)	(1.491)	(1.524)
Degree	-0.390	0.083		8.551	12.073	12.042
	(1.037)	(1.475)		(12.009)	(10.898)	(11.059)
Interest in politics[#]	0.416	1.292		11.222	13.344*	13.477*
	(0.548)	(0.885)		(6.755)	(6.027)	(6.241)
Interest in economy	0.293	1.065		-6.587	-1.473	-1.328
	(0.477)	(0.759)		(5.238)	(4.854)	(5.110)
Political news consumption[##]	-1.175*	-0.944		-6.367	-3.398	-3.437
	(0.542)	(0.804)		(5.837)	(5.541)	(5.633)
Left-Right self-placement	-0.068	-0.031		1.318	0.957	0.943
	(0.227)	(0.338)		(2.437)	(2.202)	(2.237)
Political knowledge score	0.856	-1.067		-1.964	-20.764	-21.158
	(1.753)	(2.571)		(20.538)	(19.476)	(20.101)
Personality: Conscientiousness	0.378*	0.425+		3.322+	2.830+	2.870+
	(0.166)	(0.220)		(1.809)	(1.599)	(1.664)
Familiar				3.861	2.996	2.943
				(6.576)	(5.925)	(6.032)
Enjoyable				3.291+	3.165+	3.133+
				(1.801)	(1.598)	(1.650)
Easy				0.636	-0.908	-0.908
				(1.989)	(1.878)	(1.905)
Correct recall score				2.034	5.764*	5.792*
				(2.566)	(2.615)	(2.666)
Constant	-6.205+	-15.136*	44.207**	-15.212	-57.452	-58.313
	(3.586)	(6.358)	(5.325)	(41.288)	(39.177)	(40.557)
N	52	52	52	52	52	52
R^2			0.058	0.449	0.563	0.563
Pseudo or Adjusted R^2	0.202	0.476	0.040	0.219	0.363	0.345
Log Likelihood	-28.480	-18.705	-247.280	-233.366	-227.314	-227.306

Note: Standard errors in parentheses; $^{+}$ p<0.10, * p<0.05, ** p<0.01; $^{\#}$ Interest in *world* politics is used in correctness models while the average of interest in world and domestic politics is used in confidence models; $^{\#\#}$ Political news consumption is measured by adding two dichotomous variables: whether a participant had read, watched, or heard news about *world* politics or *domestic* politics during the past week.

The first two models examine the factors that influence the probability of getting a correct answer for the target question (unemployment rate in the US). Model 1 includes a set of variables that might influence the correctness: participants' demographic characteristics, whether they reported they had read the exact news article previously, general interest in topics relevant to the news (politics and economy), political news consumption, political orientation, general political knowledge scores,[14] and conscientiousness personality that is known to affect both the academic achievement and confidence in abilities (Furnham, Chamorro-Premuzic, and McDougall 2002; Pulford and Sohal 2006; Schaefer et al. 2004).

Only two variables appear to influence the correctness: (somewhat counterintuitively) a negative effect of having exposed to political news in past week, and a positive effect of conscientiousness personality is found. Model 2 includes the treatments conditions with the irrelevant profile condition as the baseline. The results suggest that reading news about US economy increases the chance to answer correctly and including these factors dramatically enhance the explanatory power of the model. Having read the relative version only marginally increases the probability of correct answer compared to the irrelevant version (significant at $p<.10$).

The confidence models include the same set of control variables in the correctness models. Whether a participant answered the target question correctly is of course an important variable to control, and the ability to recall information shown in the news is also included. The confidence models also include participants' subjective ratings on familiarity, enjoyableness, and easiness of the news article because these subjective evaluations are likely to influence subjective judgment about confidence in their answer.

Model 3 only includes correctness as the explanatory variable and a series of control variables discussed above are added to Model 4. In Model 3, correctness only marginally enhances confidence ratings (at $p<.10$), and this effect fades away in Model 4 when a series of control variables included. Model 5 includes dummy variables for treatment conditions

[14] Political knowledge score is based on thirteen questions about Danish politics and world-facts. The score ranges from 0 to 1, indicating the proportion of correct answers for these items.

instead of correctness. This model finds strong treatment effects on confidence ratings, i.e., participants who read the news about US economy had higher levels of confidence than those who did not read it. This positive effect is held even after controlling for correctness in Model 6, suggesting the importance of the exposure to relevant information in enhancing confidence.

The last two models (Models 5 and 6) also reveal certain group characteristics with regard to confidence in knowledge: A higher level of confidence is expressed among male participants (than female), those who are more interested in politics, and those who better recalled the information they have seen ($p<.05$). The subjective ratings on the enjoyableness of the news article and the conscientiousness personality are also positively associated with the level of confidence ($p<.10$).

Although this pilot study was not very successful in balancing the probability of getting a correct answer between the relevant group and the irrelevant group, the multivariate analyses in general support that the exposure to relevant information enhances confidence in knowledge (H1).

Study 2 on the perceptual confidence

I analyze the Study 2 results using the dataset combining all seven rounds of the experiment (n=364). From the comparison of characteristics of the three groups I revealed that the participants assigned to S2 are on average one year older than those in two other groups, and are in a higher level of academic program than those assigned to the group L. The fact that the group S2 is older and has more participants from a higher-level degree program is likely to reduce the treatment effects. Another difference is in the openness personality: Participants assigned to S1 had lower score for openness personality trait than those assigned to two other conditions. This will also likely to suppress the treatment effect given that some previous studies find the positive association between openness and confidence (Pulford and Sohal 2006; Schaefer et al. 2004).

The level of confidence is highest among those who read the short-relevant version of profiles (S1) with an average of 64.5, and lowest among those who read the short-irrelevant version (S2) with an average of 59.9. The mean rating of those who read the long version (L) is in between, with an average of 63.1. Although the order of levels of confidence is in the direction expected by the relevance of information hypothesis (H2) and the distraction of irrelevant information hypothesis (H3b) (and partially by the amount of information hypothesis (H3a) in the sense that L>S2), the differences are not statistically significant (at $p<.05$ level). In part, this is likely due to the imbalances in the characteristics of the groups (such as personality traits and age, as discussed above) that may influence perceptual judgment (Catterson, Naumann, and John 2015; Wolfe and Grosch 1990).[15]

Using multivariate models, I estimate the treatment effects controlling for the effect of individual characteristics. The task is making judgment about other individuals based on the pieces of information given about target individuals, and the degree of confidence in those judgments is the outcome variable. As the confidence in the task is likely to be influenced by respondents' inter-personal skills, experiences, and ability to process and apply information to typical cases they have faced in daily lives, I control for personality and psychological traits (including self-esteem score, need for evaluate, trait curiosity, and the scope of topic domains they reported interested in[16]), in addition to basic demographic characteristics and fixed effects for each target individual (i.e., each of the seven experimental rounds).

Although we are interested in perceptual confidence about "political" traits of others, it is also of interest to examine whether the relevance and the amount of information influence both for the perceptual confidence about political *and* non-political traits of others. As respondents with a higher level of attentiveness to politics and with a higher ability to utilize political knowledge is likely to have strong beliefs in their judgment, I control for a set of

[15] There were no significant differences among three groups in the proportion of correct answers. The percentage of respondents who gave correct answers (i.e., correct prediction of target persons' characteristics) in groups S1, L, and S2 were 18.3%, 17.9%, and 19% respectively.
[16] The scope of interest variable is the count of the number of topic areas in which a participant reported quite or very interested, using a battery of general interest questions that ask about levels of interest in eighteen different topic areas.

politics-relevant traits such as political interest, political knowledge, and self-placement on the left-right space.

Table 4 reports the results from the five OLS regressions: Models 1, 2, and 3 test the treatment effects pooling all seven rounds including both political and non-political traits as target questions (n=364). Model 3 includes both variables for treatment conditions and for personal characteristics, while Models 1 and 2 only include part of these variables. The fixed effects for experimental rounds are included in all models. The baseline experimental condition is the short-irrelevant profile condition (S2), where the confidence ratings are expected to be lower than the group S1 in H2 (relevance of information) and lower than the group L in H3a (amount of information). The distraction of irrelevant information hypothesis (H3b) expects a higher level of confidence in the group S1 than the group L.

TABLE 4: Determinants of perceptual confidence from Study 2

	Target question				
	---- All (Political & Non-political) ----			Political	Non-political
	(1)	(2)	(3)	(4)	(5)
Treatment [baseline: short-irrelevant (S2)]					
Short-relevant profile (S1)	4.641+		4.439*	6.898*	-0.547
	(2.535)		(2.239)	(2.894)	(3.735)
Long profile (L)	3.261		2.252	2.053	2.395
	(2.520)		(2.200)	(2.987)	(3.507)
Personal characteristics					
Male		-0.095	-0.483	-2.003	2.253
		(2.448)	(2.449)	(3.229)	(3.861)
Age		-1.883**	-1.804**	-2.212**	-1.404
		(0.566)	(0.570)	(0.764)	(0.887)
Degree		4.249	4.622	9.028*	-2.060
		(2.980)	(2.981)	(3.926)	(4.725)
Social science major		-5.698*	-5.782*	-5.698+	-5.556
		(2.345)	(2.339)	(3.078)	(3.673)
Self-esteem score		19.536**	19.220**	18.934**	19.676**
		(2.950)	(2.963)	(3.889)	(4.671)
Need for evaluate		-2.841*	-2.905*	-2.620	-3.283
		(1.315)	(1.313)	(1.727)	(2.059)
Personality: Extraverted		-0.105	-0.119	0.220	-0.622
		(0.408)	(0.407)	(0.535)	(0.638)
Personality: Agreeable		2.416**	2.316**	3.120**	1.294
		(0.614)	(0.614)	(0.808)	(0.964)
Personality: Conscientious		-0.246	-0.215	-0.501	-0.004
		(0.497)	(0.496)	(0.652)	(0.788)
Personality: Emotional stability		2.715**	2.727**	2.621**	2.838**
		(0.460)	(0.459)	(0.604)	(0.723)

Personality: Openness		2.484**	2.572**	2.824**	2.250*
		(0.575)	(0.575)	(0.757)	(0.901)
Trait curiosity (CEI-II)		-1.931	-1.821	-1.126	-3.318
		(1.530)	(1.528)	(2.009)	(2.420)
LR self-placement		0.403	0.377	0.562	0.345
		(0.565)	(0.565)	(0.741)	(0.898)
General interest (Scope)		-0.252	-0.248	-0.202	-0.254
		(0.466)	(0.465)	(0.611)	(0.731)
Political knowledge		13.195*	12.529*	9.950	15.524+
		(5.206)	(5.223)	(6.981)	(8.209)
Interest in Politics[#]		1.270	1.608	2.414	0.253
		(1.981)	(1.988)	(2.615)	(3.125)
Fixed effects (target person)					
Target person A	[baseline]	[baseline]	[baseline]	–	[baseline]
Target person B	0.923	0.923	0.923	[baseline]	–
	(3.858)	(3.291)	(3.282)		
Target person C	6.447+	6.385+	6.428+	5.501+	–
	(3.859)	(3.291)	(3.282)	(3.265)	
Target person D	11.846**	11.846**	11.846**	–	11.846**
	(3.858)	(3.291)	(3.282)		(3.368)
Target person E	-0.596	-0.596	-0.596	-1.519	–
	(3.858)	(3.291)	(3.282)	(3.265)	
Target person F	-0.514	-0.577	-0.534	–	-0.531
	(3.859)	(3.291)	(3.282)		(3.369)
Target person G	-0.623	-0.596	-0.638	-1.612	–
	(3.859)	(3.291)	(3.282)	(3.265)	
Constant	59.860**	-2.267	-7.218	-17.351	16.136
	(1.820)	(16.831)	(17.024)	(22.775)	(26.719)
N	364	364	364	208	156
R^2	0.009	0.342	0.350	0.375	0.369
Adjusted R^2	0.004	0.300	0.304	0.305	0.275
Log Likelihood	-1605.810	-1531.217	-1529.119	-868.472	-653.637

Note: The dependent variable is confidence ratings on respondents' judgment about each target individual; Standard errors in parentheses; $^{+}$ p<0.10, * p<0.05, ** p<0.01; $^{\#}$ Average of interest in *world* and *domestic* politics.

As shown in Models 1 and 3, the short-relevant group (S1) was more confident than the baseline group (S2), on average by more than 4 points. This positive effect of the relevance of the information supports the relevance of information hypothesis (H2). The amount of information relevant to target individuals, however, did not appear to have significant impacts on confidence (H3a): The effect of the long profile (L) was not discernable from the short-irrelevant profiles. Neither the distracting effect of irrelevant information hypothesis (H3b) was supported: Although the group S1's confidence was higher than that of the group L, the difference failed to reach statistical significance at .95 (the results not reported in the table). Additionally, Models 2 and 3 found that a number of respondents' personal

characteristics matters for the perceptual confidence: Participants with higher self-esteem, higher political knowledge score, more agreeable, emotionally stable, and open to experience demonstrated higher confidence in their judgment about others.

The results from the last two models, one for political and the other for non-political target questions, uncover that the relevance of information fosters the perceptual confidence about political traits, but, interestingly, not for the non-political traits. Model 4 tests the treatment effects only for politically relevant target questions, including attitudes about government's role in reducing income inequality, political interest, party attachment, and satisfaction with the current state of the economy. Participants who received a short profile with relevant information (S1) gave almost 7 points higher ratings on their judgment about such traits than those who received a short profile without relevant information (S2). In contrast, in Model 5 that only includes non-political target questions (such as sleeping problem, general health condition, and social gathering), the treatment condition does not affect confidence while the effects of most personal traits remained.

Conclusion and Discussion

This study is a first attempt to test the sources of confidence in political knowledge and judgment. Drawing on the accessibility model of feeling of knowing in psychology, the present study examines whether the theory's core argument is valid when applied to the confidence in political stimulus – i.e., Does the availability of relevant information in memory enhance confidence in factual political knowledge and the judgment about other's political traits? An experiment is designed to manipulate the availability and the relevance of information, and the results suggest that people are sometimes more confident about what they think they know because they have pieces of information in memory accessible and available when requested. This accessibility is likely coming from their previous exposure to the information relevant to the domain of the topic, although that experience does not necessarily enhance the accuracy of their knowledge or perception about others' political traits.

This finding implies that one's judgment about the confidence can be a valuable auxiliary measure at least as a proxy of a certain aspect of individuals' political informedness or knowledge (especially if we define "knowledge" as the information stored in memory). In other words, if we use the concept of political knowledge or informedness to capture the amount of information an individual has, the time spent to think about the political matter (deliberation), and the extent to which an individual possesses prior knowledge in an integrated manner, confidence certainly do reflects at least some of these traits. From this point of view, there are a number of research agendas to be revisited and questions to be answered, to name a few: What are the behavioral and attitudinal consequences of confidence (as compared to accuracy of knowledge and judgment)? How important would be the partisan-directed motivation for confidence in knowledge, compared to other sources of confidence? What are the conditions that enhance or depress confidence? Does the perceptual confidence impact the credibility of the target person as the source of political information?

It should be also noted that the current theoretical expectation and the subsequent experimental design has room for further development and complication. First, the number of participants in this pilot experiment study is obviously not enough to validate the results, and the balance of the covariates is not well controlled. Therefore, an extension or replication of the study will be necessary to provide a more convincing evidence for the theory. Second, the scope of the study is extensible. Confidence in knowledge and perception about "public policies" can be an extension as the current study does not examine them. It is also meaningful whether the perceptual confidence is influenced by different factors when the target political trait is attitudinal and when that is behavioral. In the current pilot study (Study 2), political traits of target individuals in question are almost all attitudinal (e.g., party affiliation) whereas some of the non-political traits are behavioral (e.g., how often the person meets socially with friends, relatives, or colleagues). Third, the data collected from the survey experiment have useful tools for further tests. For example, an easy, well-established way to test the accessibility of information is to look at the association between response latency and confidence ratings. This can be easily done with the current data as the response latency is available.

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