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Modelling Political Source Credibility of Election Candidates in the USA

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Abstract

A study in political psychology identifies four item-based factors of political trustworthiness in the USA: capability, consistency and closeness, egotism and opportunism, and communal commitment. Additionally, a list of items describe epistemic expertise. Together, these elements make up a description of political source credibility in the USA.

The current study examines the power of these elements to predict source credibility. Eliciting estimations of likelihood and importance of each item on a Likert-type scale as well as overall estimations of trustworthiness and expertise, the paper presents weighted as well as non-weighted models that predict the likelihood that election candidates are trustworthy, have expertise, and are credible sources for individual respondents.

Multiple regression analyses show that non-weighted scales have slightly better predictive power than weighted scales. The findings further provide an example of a data-driven method for applying a general cognitive models of source credibility to specific domains.

Keywords: Political source credibility, trustworthiness, epistemic expertise

Introduction

Our perception of the credibility of a source can have serious implications for our reaction to persuasive attempts. For instance, if a person simply does not trust an election candidate, it stands to reason that this person would not be likely to vote for this particular candidate in an election. Indeed, humans seem quick to make estimations as to whether a person is warmth and competent (see e.g. Fiske, Susan, Cuddy & Click, 2007; Cuddy, Click & Beninger, 2011). To conceptualise and model elements of source credibility carries theoretical implications of how humans psychologically approach source credibility, but also carries practical implications, as it allows for a more in-depth and accurate understanding of source credibility in real life situations such as public health campaigns, negotiation situations, or election campaigns. The current study does *not* explore the trustworthiness of individual candidates, but rather describes and predicts factors of trustworthiness that are revealed to be predictive of whether or not election candidates as a category are trustworthy.

Aside from intuitively being influential, several studies have shown the importance of source credibility in reasoning and persuasion. Firstly, studies in persuasion theory have demonstrated the potential influence of source credibility (Briñol & Petty, 2009; Chaiken, 1980; Petty & Cacioppo, 1984; Pornpitakpan, 2004). These studies for example point to the conclusion that humans are less swayed by ad verecundiam fallacies if they are inclined to consider the persuasive attempt more carefully. This suggests that authority and source credibility interact with coping mechanisms to avoid deception and misinformation. Secondly, argumentation studies have indicated the potential for analysing source credibility from a Bayesian perspective (Hahn, Harris & Corner, 2009; Hahn, Oaksford, & Harris, 2012; Harris, Hahn, Madsen & Hsu, in press). These studies conceptualise source credibility as a product of trustworthiness and epistemic expertise. Further, they do not necessarily consider appeals to expert opinion a logical fallacy, but rather consider it a viable route through which reliable information might be obtained. This perspective has been debated as a formal model (Bovens & Hartmann, 2003), but has also been explored empirically (e.g. Harris et al., in press).

Studies may disagree on the way by which source credibility should be included in theories of reasoning and persuasion. However, all point to the conclusion that source credibility *does* matter and that it in some way influences perception of information. Unsurprisingly, source credibility has therefore been the focus of research in various disciplines such as judgment and decision making (e.g. Birnbaum & Stegner, 1976), advertising (e.g. Braunsberger & Munch, 1998), developmental psychology (Harris & Corriveau, 2011), the evaluation of legal testimony, both from a normative perspective (e.g. Lagnado, Fenton & Neil, 2013; Schum, 1981, 1994) and from a descriptive perspective (see Wells & Olson, 2003, for a review)[1].

The current study tests the predictability of source credibility in the political domain and represents a further investigation in continuation of the development of operational measures meant to capture political trustworthiness and epistemic expertise in the USA (Madsen & Clickard, in review). Departing from previous conceptualisations in management studies (see Colquitt et al., 2007 for a review), Madsen & Clickard find that political trustworthiness in the USA can be conceptualised as a product of four factors: capability, consistency & closeness, egotism & opportunism, and communal commitment. These four factors are measured by a battery of 31 items. Epistemic expertise, on the other hand, remains a single factor and is defined through 25 items[2]. The present follow-up study suggest that the factors have predictive potential of political source credibility, accounting for roughly 56,9% of the total variance. Before presenting the detailed results, however, the paper presents the theoretical background in more detail.

[1] See Harris et al. (in press) for a larger review of source credibility and its conceptualisation

[2] The collapsed item list is called the Political Inventory of Credibility 56 (PIC56)

Analysing source credibility

Walton (1997, p. 102) describes source credibility as an entailment of six factors (see table 1). Harris et al (in press) argue that this list can be reduced to three aspects: trustworthiness, epistemic expertise, and consistency with others (omitting the latter in cases where no other sources are mentioned, see also Bovens & Hartmann, 2003; Harris & Hahn, 2009; Hahn et al., 2012). Harris et al (in press) provides strong empirical support for such a model[3].

Trustworthiness and epistemic expertise are subjectively estimated such that one source might seem highly credible to one person and not at all to another. Mental estimates of source credibility probably depend not only on subjective experiences of the source in general but also on the specific epistemic domain. So the specific aspects that determine whether a source is seen as credible might differ from domain to domain (e.g. source credibility may differ from economic discussions to religious debates). If source credibility is domain-specific (and, for that matter, culture-specific), we should expect different aspects to be important in different domains[4].

Table 1: Walton's source credibility factors

Question type	Definition
Expertise	How credible is the source as an expert source?
Field	Is the source an expert in the field that the issue concerns?
Opinion	What did the source assert that implies the conclusion?
Trustworthiness	Is the source a personally reliable source?
Consistency	Is the conclusion consistent with what other expert sources assert?
Back-up evidence	Is the source's assertion based on evidence?

Domain-specific source credibility

Epistemic expertise can be understood as the perceived know-how the source has for a certain domain. For example, a medical doctor might be an expert in cancer treatment, but know nothing of the workings of the stock market and vice versa with a stock broker. In their study comprising 445 respondents, Madsen and Clickard (in review) conclude that no distinct factors emerged from the anlaysis of 25 items politicias' formal education, informal experience, and local knowledge. Respondents seem to judge whether or not an election candidate seems expert, but appear less concerned with the source of the expertise. In this follow-up study we therefore aapply all 25 items as indicators for epistemic expertise.

In the same study, items for exploring political trustworthiness were compiled from aspects identifed in the management literature where trustworthiness has been described as the product of ability, benevolence, and integrity (see Colquitt et al,. 2007 for review) Taking these aspects as point of departure, Madsen and Clickard (in review) conducted a factor analysis of 861 respondents, which failed to replicate the original aspects from the management literature. Instead, four novel and distinct factors emerged through an inventory of 31 items: capability, consistency and closeness, egotism and opportunism (negative correlation), and communal commitment. The aspects related to benevolence and integrity came out in more nuanced form as three factors related more distinctly to the trustworthiness of politicians. This suggests that trustworthiness depends on the domain, as political trustworthiness seems to rely on concrete qualities.

Their findings suggest the use of data-driven, domain-dependent conceptualisations of source credibility rather than an abstract definition in which the same elements permeate across domains (e.g., integrity). People seem to draw on their knowledge of the domain when assessing what makes a source credible rather than conceive of source credibility in an abstract domain general manner. The current study expands upon the exploratory findings of Madsen & Clickard (in review) in three central ways.

First, it tests the predictive potential of the items for trustworthiness, epistemic expertise, and source credibility. The estimations of the items are collapsed onto each separate factor as well as into overall trust, expertise, and source credibility predictions. The predictions generated from the factors are tested against estimations of trust, expertise, and source credibility, as provided by the respondents. Secondly, the study compares the contributions of the models through a multiple-regression analysis. This determines the appropriateness of the factors. Finally, it is plausible that a factor is perceived as less important than others (e.g. a voter might believe that an egotistic disposition is unimportant as long as the election candidate is capable). The individual weighting of the factors, allows for analyses of each factor as a non-weighted and as a weighted entity.

The study thus tests domain- and culture-specific items (regarding election candidates in the USA) that have been used to define key elements of a formal approach to source credibility in reasoning studies (e.g. Bovens & Hartmann,

[3] The findings are in line with a Bayesian approach to argumentation (e.g. Hahn & Oaksford, 2006; 2007, see also Corner, Hahn, & Oaksford, 2011; Harris, Hsu & Madsen, 2012 for studies on Bayesian approaches to logical fallacies) in which the strength of the evidence (similar to credibility of the source) is subjectively estimated by the recipient. Such accounts argue that an individual's degree of belief in a particular proposition, or hypothesis, can be represented as a subjective probability between 0 and 1 (see e.g. Oaksford & Chater, 2007).

[4] There is a difference between trustworthiness and being a trusting person. The latter describes the likelihood that you trust someone else whilst the former is a product of characteristics that a person contains. As Flores and Solomon puts it: "In the ideal case, one trusts someone because she is trustworthy, and one's trustworthiness inspires trust" (1998, p. 209).

2003, chapter 3). The predictions from each factor and from the amalgamation of factors are compared with estimations of general trustworthiness and expertise drawn from the respondents. If the items are predictive, they should correlate significantly with the observed ratings and account for a reasonable amount of the variance.

Method, design, and respondents

Design and method

Trustworthiness factors identified by Madsen and Clickard (in review) are capability (8 items), consistency and closeness (8 items), egotism and opportunism (9 items), and communal commitment (6 items). Epistemic expertise was measured by 25 items (all items were taken from Madsen & Clickard).

Respondents rated the likelihood of each item (e.g. 'most election candidates will go out of their way to help me'[5]) on a five-point Likert-type scale (1 = disagree strongly, 5 = agree strongly). This elicited measurements of their subjective perception of each item. Their subjective perception of each trustworthiness factor (capability, consistency & closeness, egotism & opportunism, and communal commitment) and epistemic expertise was calculated by averaging the scores of each item related to each factor (e.g. 8 capability items). Cronbach's Alpha was between 0.888 and 0.909 for all summated scales. Respondents were further asked to rate the importance of each item ('this is very important to me') on a five-point Likert-type scale (1=disagree strongly, 5 = agree strongly). Thus, for each item a propensity and importance score was elicited.

Alongside estimations of each item, respondents also were asked how likely they thought it was that most election candidates were trustworthy and how important this was for them *in general*. This provides the dependent variable of overall likelihood of election candidate trustworthiness ('observed trust' and 'observed M' below) against which the predictive potential of the above mentioned scales are measured. In a similar manner, respondents were asked about political expertise, and finally the measurements of perceived trustworthiness and expertise were combined to estimate the respondents' perception of the source credibility of election candidates. The present study then explores whether the items generated in Madsen and Clickard (in review) are predictive of these overall perceptions of political trustworthiness, expertise, and source credibility.

Demographic information was collected, but as these did not prove significantly related to any scales, they were not included in the analyses reported here.

[5] The term 'election candidate' rather than, say 'politician' was chosen as this is the term used in Madsen and Clickard (in review).

Respondents

250 respondents were recruited from Mechanical Turk for a short study on election candidates in the USA[6]. Respondents were American citizens eligible to vote and represent a similar pool as the original study in which the inventory of items was generated. Of the 250 respondents, 7 either did not complete the study or failed to provide the right completion code at the end of the study. These were deleted, leaving 243 respondents for the analyses.

Results

The following section presents three analyses of the data collected from the respondents. First, we examine whether the established scales can predict respondents' overall perception of political trustworthiness. Secondly we carry out similar analyses for political epistemic expertise, and finally also for source credibility.

Political trustworthiness

When examining political trustworthiness we use of the propensity as well as importance scores for each factor (capability, consistency and closeness, egotism and opportunism, and communal commitment[7]). For each of the four factors, a non-weighted score was calculated as the average of the underlying items[8]. The importance of each factor was calculated as the average importance of each item. A weighted score was then calculated for each respondent, allowing for subjective estimations to differ. A paired-sample t-test show that respondents rated egotism and opportunism as significantly less important than the other three factors (egotism and opportunism (M: 3.51), consistency and closeness (M: 3.79), capability (M: 3.89), communal commitment (M: 3.89), ts between 5.809 and 6.959, dfs (242), all ps < 0.001).

Weighted and non-weighted scales: trustworthiness

Ten averages were produced from the trustworthiness items (4 individual factors (weighted or non-weighted) and overall prediction (weghted or non-weighted)). The predictions are compared against observed estimations of trustworthiness.

Individual Pearson correlation analyses show that all weighted scores (including the overall weighted trust perception) are less correlated than the non-weighted scores (weighted correlations between .396 and .698, non-weighted

[6] For validating support of using MT respondents, see Paolacci et al. (2010)

[7] As egotism and opportunism is negatively correlated with being a trustworthy election candidate, scores for this factors were inversed such that a high likelihood of being egotistic would result in a negative impact on overall trustworthiness.

[8] A Bayesian predictive model would be intersting to test here, as the formal model in Harris et al (in press) builds on a Bayesian foundation. Such a model requires values for likelihood ratios of facets and trustworthiness not elicited here. Consequently, the data does not support such a model. This is a good suggestion for further research, though, and I thank an anonymous reviewer for the suggestion.

correlations between .443 and .704). Overall trust estimations (weighted and non-weighted) have the highest correlation (.698 and .704 respectively), suggesting that the amalgamation of factors outperforms individual factors when accounting for the dependent variable (observed trust).

To test the ability to predict observed trust, a stepwise multiple regression analysis was conducted. The overall (non-weighted) scales have the highest level of prediction accounting for 49.5% of the variance in observed trust. The model is highly significant as shown in Table 2.

Table 2. Multiple regression compared with observed trust

Predictor	β	R	R^2	t	Sig change
Overall trust prediction	.704	.704	.495	15.373	.000

As indicated by the correlation analyses, the weighted averages turned out to have less predictive power in a similar regression analysis.

Although the multiple regression analysis shows that the overall, non-weighted scales represented the best model for predicting political trustworthiness, the model yields a significantly more optimistic prediction of trustworthiness than the observed trust (predicted M=3.08, observed M=2.94, t=2.213, df (242), p = 0.028). However, although somewhat over-optimistic, the model enjoys a good fit with the pattern of individual respones.

Political epistemic expertise

Following Madsen and Clickard (in review) only one model (including all 25 items as reported above) was available for the analysis of expertise. Analyses were carried out in the same manner as shown above for trustworthiness.

Weighted and non-weighted scales: epistemic expertise

As with political trustworthiness, the model for epistemic expertise overestimates the likelihood of expertise of election candidates (predicted M=3.45, observed M=3.13, t=4.986, df(242), p < 0.001). A Pearson correlation shows that the predicted expertise enjoys significant correlation with the observed individual data (0.651, p < 0.001). A multiple regression analysis shows that the items account for a reasonable amount of the variance (adjusted R^2=.422). Although performing reasonably well, the epistemic expertise items are less predictive of observed epistemic expertise of election candidates than the four summated scales in the case of trustworthiness.

Political source credibility

In the literature, source credibility was defined as an amalgamation of trustworthiness and epistemic expertise. In order to determine the predictive potential for politial source credibility, the data from both elements need to be considered in unison. In order to predict source credibility, scales and estimations for trustworthiness as well as expertise were incorporated.

Multiple stepwise regression analyses were conducted to determine the model with the best overall ability to predict political source credibility.

Weighted and non-weighted scales: source credibility

In line with result for trustworthiness and expertise, multiple regression analyses show that the non-weighted model is best for predicting political source credibility (see table 3). Including trustworthiness as well as expertise yields the result that the model accounts for 56.9% of the variance in observed source credibility (measured at the combination of observed trustworthiness and expertise as mentioned earlier).

Table 3. Multiple regression compared source credibility

Predictor	β	R	R^2	t	Sig change
Overall trust (non-weighted)	.749	.749	.560	17.572	.000
Overall expertise (non-weighted)	.178	.757	.569	2.474	.014

The stepwise regression model takes in trustworthiness as the first explanatory variable. Due to multicollinarity this has the effect that the independent impact of expertise becomes quite small. Nonetheless, expertise still contributes significantly to the change of the variance explained (p = .014).

The predicted mean of the overall trust model (non-weighted) does not differ significantly from the observed mean for political source credibility (predicted M: 3.08, observed M: 3.04, t = 0.725, df (242), p = .469). A Pearson correlation shows a significant correlation between the predicted value and the observation (.749, p < 0.001), This shows a good fit with the observed pattern of individual responses. Overall epistemic expertise also enjoys a good correlation with the observed pattern (.668, p < 0.001).

Although not the best model, the weighted average overall prediction represents the most 'complete' model, as it takes into account all items and their relative weights. It is worth briefly summarizing its relationship with the observed data. The weighted model overestimates the credibility of election candidates (predicted M=3.27, observed M=3.04, t=4.227, df (242), p < 0.001). It enjoys a good, but less strong correlation with individual responses (Pearson correlation, .719, p < 0.001). Finally, it accounts for less of the variance than the trust model (adjusted R^2=.517).

General discussion

The study examines the predictive potential of the Political Inventory of Credibility developed in Madsen and Clickard (in review) that describes source credibility in the USA as a product of trustworthiness (defined as capability, consistency and closeness, egotism and opportunism, and communal commitment) and epistemic expertise (defined as a single factor). The 56 items from the inventory were presented to respondents who provided subjective estimations the likelihood of each item as well as how important each item is to that particular indivdual. The predictions from these items were compared with general

estimations of how trustworthy and expert respondents felt election candidates were.

Alternative models were developed to account for each element (trustworthiness and epistemic expertise) as well as an overall prediction of political source credibility. The findings support the item inventory, as the models account for a good amount of the variance (up to 56.9%). The models have a significant fit with individual responses (Pearson correlations between .651 and .749, all ps < 0.001).

The non-weighted models proved to be the strongest in accounting for the variance in observed trustworthiness, expertise, and source credibility. The analyses suggest that the four trustworthiness factors identified in Madsen and Clickard are apt in describing political source credibility for election candidates in the USA. The items identified for epistemic expertise are less apt (although the multiple regression analysis of source credibility shows that these do contribute to improve the model). The study points to the need to develop a method to explore the relationship between general cognitive models and culture- and domain-specific concepts.

The general and the specific: Placing a model

In recent years, cognitive psychological models of reasoning grounded in Bayesian rationality have been developed to account for how humans make sense of argumentation, information, and source credibility. For the latter, the model set out in Bovens and Hartmann (2003) and further developed by others (e.g. Hahn et al., 2012), defines source credibility as an amalgamation of trustworthiness and epistemic expertise. Although desirable and with a good fit with the data, these models represent a general description of a complex phenomenon. As shown in Madsen and Clickard (in review), concepts such as trustworthiness are influenced by the domain in which they manifest (and, presumably, by the culture as well). That is, factors that make a person trustworthy in one domain might well render her untrustworthy in another depending on domain and culture. Thus, although the models may be generalisable, the elements and factors of the models need to be grounded when applied to a specific situation. This calls for the development of a methodology to apply general models to specific situations driven by data of the particular domain in a particular cultural context. In political campaigning, such a requirement has already been acknowledged through the advent of micro-targeted campaigning in which persuasion and influence is directed specifically at individual targets instead of large groups. For this, concrete conceptualisations of general models are developed through data.

Trustworthiness as described in the aforementioned managements and political literature (Colquitt et al., 2007) provides an important step in this direction, as they show the different instantiation of the same concepts in different domains. The current study goes beyond these studies, as it makes use of these *descriptive* factors to *predict* how credible a political source normatively should be given the items in the inventory. As such, the study functions as an example of a method for developing micro-descriptive predictive models of complex phenomena that can be applied to a variety of domains such as politics, public health campaigns, and so forth. In other words, the study suggests a method that might provide a clearer insight into what may and may not be a persuasive messenger from domain to domain, from culture to culture. On a larger note, this suggests that humans' perception of information and of others are guided by the situation in which they manifest themselves rather than by abstract philosophical principles.

Likert-type scale and probabilistic estimations

The elicitation of the likelihood and importance of each item was obtained through a five-point Likert-type scale (1-5) rather than a probabilistic scale (0-1)[9]. Given the fact that a Bayesian model was developed to provide a normative prediction of the likelihood of source credibility, this is a potentially limiting element of the study, as the elicitation was made in a less gradient manner. The models might have enjoyed a better fit with the data if sliding, probabilistic scales were used for item estimations instead of the Likert-Type scale employed here.

Future research

The theoretical foundation for the present study is drawn from a formal and normative Bayesian model that has been applied to source credibility in reasoning and argumentation theory (e.g. Bovens & Hartmann, 2003; Harris et al., in press). The current study tests aspects that have been developed to describe source credibility in a specific domain and culture (politics in the USA). It would be fascinating to explore the predictive potential of the aspects of source credibility and their argumentative convincingness in a reasoning paradigm used in Bayesian argumentation studies. That is, to test the persuasive potential of different election candidates *given* differences in the above factors This would provide a concrete reasoning task that would point to a domain-dependent application of the formal model in which the posterior degree of belief would depend on the source credibility of the speaker (as defined by the concete factors). This would be an interesting amendment to and application of the paradigm explored in Harris et al. (in press).

Concluding remarks

The study suggests the predictive potential of domain-bound aspects of political trustworthiness and epistemic expertise in the USA to determine the source credibility of election candidates. In the real world, source credibility is bound to be more complex, but the findings suggest that the aspects are indeed related to political source credibility in the USA. In a larger psychological context, the study embodies a method for applying a general Bayesian model of source credibility to a specific domain and culture in order to describe and predict key aspects of persuasion. Whether

[9] The observed ratings of trustworthiness and expertise (against which the models were measured) *were* elicited probabilistically.

such domain-and data-driven methods can be employed in other areas of persuasion remains to be explored in future research.

In conclusion, the study strongly supports the factors identified for political trustworthiness in the USA, somewhat supports the items identified for political epistemic expertise in the USA, and more generally points the way for a data-driven approach to situate general cognitive models of reasoning in specific domains in specific cultures.

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