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The Effects of Transparency on the Perceived Trustworthiness of a Government Organization: Evidence from an Online Experiment

Author information:

Dr. Stephan G. Grimmelikhuijsen (corresponding author)

Utrecht University, Utrecht School of Governance

Bijlhouwerstraat 6

3511 ZC Utrecht, the Netherlands

Phone: +31-30-253-1433

s.g.grimmelikhuijsen@uu.nl

dr. Albert J. Meijer

Utrecht University, Utrecht School of Governance

Bijlhouwerstraat 6

3511 ZC Utrecht, the Netherlands

Phone: +31-30-253-9568

a.j.meijer@uu.nl

Abstract

Although the effect of government transparency on trust is heavily debated, our theoretical and empirical understanding of this relation is still limited. The basic assumption tested in this paper is whether transparency leads to higher levels of perceived trustworthiness (H1). This paper uses theories from social psychology to advance our understanding of the effects and mechanism of the relation between transparency and the perceived trustworthiness of a government organization. Based on these theories we propose two alternative hypotheses, which state that (1) the general predisposition to trust government and (2) prior knowledge about the specific issue moderate the relation between transparency and trust. These assumptions are tested by online experimental research, which demonstrates that these factors indeed affect the relation between transparency and perceived trustworthiness: changes in perceived competence occur mainly in the group of citizens with high trust and little knowledge whereas changes in perceived benevolence occur predominantly in the group of citizens with low knowledge and low trust. These findings highlight that prior knowledge and general predisposition to trust should be incorporated in our theoretical models of the relation between transparency and perceived trustworthiness.

1. Introduction

Governments all around the world are enhancing their transparency by providing all sorts of information about government activities and performance on public websites. The increased attention for government transparency in recent years is to a large extent inspired by the emphasis of the New Public Management movement on making government more accountable (Pollitt & Bouckaert 2004, 24). Transparency optimists argue that showing citizens the results of

government policies through clear performance targets and indicators is supposed to result in increased trust in government. The rise of the New Public Management (NPM) doctrine triggered governments to focus on active forms of transparency (cf. Hood 1991; Noordegraaf 2000; Pollitt & Bouckaert 2004).

Will all these effort to enhance government transparency pay off and result in more trust? This is debatable and the NPM argument about the relation between transparency and trust has been challenged. ‘Transparency pessimists’ question whether showing citizens the results of government policies will actually boost their trust (O’Neill 2002; Bovens 2003; O’Neill 2006). These pessimists argue that transparency may lead to politics of scandal and even ‘delegitimization’ of government. Their key argument is that the complexities of government policies and the democratic process do not lend themselves to be easily communicated to the public through a set of performance indicators.

The empirical basis for both lines of argument is limited: both camps refer to anecdotal material rather than thorough empirical studies. Recently, some empirical studies have been carried out (e.g. Tolbert & Mossberger 2006; Cook et al. 2010; De Fine Licht 2011; Morgeson III et al., 2011; Grimmelikhuijsen, 2012) but these studies provide support for neither the optimist nor the pessimist argument. The ‘sceptical’ position seems to be supported most by these investigations: transparency seems to have hardly any effect on trust. A shortcoming of these studies is that the effect of transparency on trust in government is discussed in general terms and one could argue that this approach flattens out all differences. A specific understanding of the relation between transparency and trust requires that we comprehend the role of various variables such as object of trust, (political) context, institutional conditions, etc. As a first step in the development of a more sophisticated understanding of the relation between

transparency and trust, we will investigate the moderating effects of certain characteristics of citizens.

Which characteristics of citizens can be expected to moderate the relation between transparency and trust? Social psychology teaches us that attitudinal changes through information processing are affected by pre-existing attitudes and knowledge (Bohner 2001). Individuals process information differently if they have certain beliefs or attitudes concerning the topic and the information will be related and interpreted in terms of their pre-existing knowledge. More precise distinctions could help to advance our understanding of the relation between transparency and trust.

Cognitive Dissonance Theory (Festinger et al. 1956; Festinger 1985 [1957]) provides the basis for the assumption that people with high trust are expected to be confirmed in their beliefs by reading government information: those who had trust already will gain more trust and low predispositions are expected to lead to even less trust. The Elaboration Likelihood Model (Petty & Cacioppo 1986) indicates that prior knowledge is expected to weaken the effect transparency on trust, since these people will be influenced more strongly by the knowledge they already possess about the policy topic. To investigate this relation, we will focus on trust in a government organization and we have formulated the following research question: to what extent do citizens' prior knowledge and predisposition to trust government affect the relation between transparency and the perceived trustworthiness of a government organization?

When testing causal effects, few of the methods in the social sciences can live up to the rigor and level of control of an experimental design. Although experiments in public administration or public management research are uncommon, some experimental studies have been carried out (Scott 1997; see Bozeman & Scott 1992 for more examples and analysis of

experiments in public management research). Our experiment follows this tradition and takes experimenting to the next level by carrying the experiment out over the Internet. A large scale online experiment is used to develop a more sophisticated model of the relation between transparency and trust.

A sophisticated understanding of the relation between transparency and trust does not only have theoretical value but also important implications for government transparency policies. On the basis of the research that shows that transparency hardly has any effect on trust, one could downplay the importance of transparency and even argue that government organizations should spend their money on other issues, an argument recently made by the Dutch Minister of the Interior. An analysis of moderating factors in the relation between transparency and trust can indicate whether spending money on government transparency is appropriate to gain trust of specific groups of citizens. This study can form the basis for transparency policies that are neither naïve nor skeptical, but realistic.

2. Transparency and trust: specific expectations

Most definitions of transparency recognize the extent to which an entity reveals relevant information about its own decision processes, procedures, functioning and performance (Gerring & Thacker 2004; Welch et al. 2005; Curtin & Meijer 2006; Grimmelikhuijsen, 2012). As such, transparency typically incorporates multiple components including the availability of information about the internal workings or performance of an organization. This enables ‘inward observability’, which refers the ability of individuals and groups outside of the organization to monitor activities and decisions undertaken within the organization. This leads to the following definition: *Transparency is the availability of information about an organization or actor*

allowing external actors to monitor the internal workings or performance of that organization.
(Grimmelikhuijsen, 2012, 55)

In terms of its object, transparency concerns separate events and processes of government (cf. Heald 2006; Grimmelikhuijsen & Welch 2012): 1) transparency of decision making processes; 2) transparency of policy content; and 3) transparency of policy outcomes or effects. The latter form of transparency forms the focus of our research. NPM-style reforms emphasized the need for pro-active transparency and measurement of government performance through performance indicators in order to increase citizen trust. This paper focuses on pro-active disclosure of *policy outcomes* since this is a central premise of the NPM-reforms. The basic argument is that citizens will trust government more if they see government policies yield good results. Scharpf (1999, 9-11) refers to this mechanism as ‘output legitimacy’. For outcome transparency to be trust-generating, it is arguably important that the outcome that is presented to citizens is a positive one. In other words, if any positive effect of transparency on trust is expected it is when good policy results are disclosed. Therefore only the effects of the transparency of *positive* policy outcomes are investigated in this study. This choice has important implications for the outcomes of our study: we will not be able to draw general conclusions about the relation between transparency and perceived trustworthiness. We have to keep in mind that transparency of negative policy outcomes may have quite different effects on perceived trustworthiness and prior knowledge and general predisposition to trust may mediate this relation in a different manner.

Government transparency can vary along various dimensions of information (Davis 1999; Drew & Nyerges 2004; Heald, 2006; Mahler & Regan 2007). This paper focuses on two specific dimensions of transparency: timeliness and comprehensibility (Larsson 1998; Drew & Nyerges

2004; Heald 2006). These are considered to be two crucial elements in the transparency of policy outcome (see Table 1 for an outline of these dimensions). First, the publication of performance information online in a *timely* manner is one of the key contributions of the Internet revolution to this type of transparency (Meijer 2007). ‘Reactivity’ is the yardstick to which ‘timeliness’ is measured: the amount of time between the actual measurement or determination of the policy outcome and the disclosure of this data (cf. Hazell & Worthy, 2010). Information timeliness is a crucial element of policy outcome transparency since it enables citizens to obtain information about government policies when these still matter. Further, the importance of *comprehensibility* of government information is emphasized by several scholars. Larsson (1998, 40-42) stresses that transparency should embrace simplicity of the information made available. In a similar fashion, Drew and Nyerges (2004) state that the clarity of information is an important dimension of transparency. The particular way in which these two dimensions are measured in practice depends on the specific policy context, however it should be noted that these two dimensions are central to policy outcome transparency.

There are few concepts that have been discussed as much as trust. Trust is an important subject in various disciplines in the social sciences: public administration scholars, sociologists, psychologists, economists, and political scientists all try to further our knowledge of the concept (see for example the work of Luhmann 1979; Zucker 1986; Gambetta 1988; Lewis & Weigert 1985; Fukuyama 1995; McAllister 1995; Nye et al. 1997; Rousseau et al. 1998; Putnam 2000; Dalton 2004). We will not attempt to provide an exhaustive discussion of all the literature on this subject, but rather argue how we have conceptualized trust within the context of this experimental research. Trust will be defined first in a general sense, and afterwards it is

discussed how this relates to transparency. Trust in general is a multidisciplinary concept with a wide variety of definitions but Rousseau et al. (1998, 395) have formulated an influential overarching definition by stating that trust is “*a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behavior of another*”.

This means that trust is viewed as a perception of the trustworthiness of another. Perceived trustworthiness is acknowledged by many scholars to be multidimensional (Mishra 1996; Rousseau et al. 1998; McKnight & Chervany 2006). In this paper, three dimensions of perceived trustworthiness that are mentioned in most key publication on trust are distinguished: competence, benevolence, and honesty. We acknowledge that these dimensions are interrelated but both the literature and our own research show that these dimensions measure separate aspects of perceived trustworthiness.¹

Many authors on trust find some form of ‘perceived competence’ to be a part of trustworthiness (e.g. Peters et al. 1997; Jarvenpaa et al. 1998; Hetherington 1998). In this paper, this refers to whether people perceive a government organization to be capable, effective, skilful or professional in making decisions. Secondly, many scholars regard ‘perceived benevolence’ to be a part of trustworthiness (e.g. Mishra 1996; Peters et al., 1997; Levi & Stoker 1998). As opposed to perceived competence, this can be viewed as a more ethical dimension of trustworthiness; it particularly focuses on the intentions of government action. For this study, this refers to whether people think that a government organization genuinely cares about citizens’ interests. Third, many scholars identify ‘perceived honesty’ or integrity of the trustee. In this paper, perceived honesty implies that the government organization is perceived to keep

¹ A Principal Component Analysis with Varimax rotation confirms that these dimensions indeed load separately on three components.

commitments and tell the truth (e.g. McKnight et al., 2002; Kim, 2005). Table 1 summarizes the conceptualization of transparency and perceived trustworthiness in this research.

[Table 1 about here]

A large body of literature states that mainly positive effects of transparency (on trust) are expected (Blendon et al. 1997; Bok 1997; Nye et al. 1997; Birkinshaw 2006; Cook et al. 2010). This is basically an enlightenment or modernization discourse (Meijer 2009): better informed citizens are expected to have more trust in government. Transparency optimists emphasize that transparency stimulates a ‘culture of openness’ within organisations. They believe the perception of having an open culture also has a positive effect on trust (Hood, 2006, p. 217). According to transparency proponents, ‘lifting the veil of secrecy’ is beneficial to all of us and that only those who have something to hide oppose transparency. Transparency helps people become more familiar with government and brings them closer and creates understanding. Nye et al. (1997) emphasise the beneficial effects of the information technology revolution which may help government reach this goal. When people feel a closer connection to government then trust in government tends to be higher. This is based on the basic idea that when citizens do not know government or what it does, they will not come to trust it easily. For example, Campbell (2003) argues that one cause for a lack of trust in government is that citizens are not provided with factual documentation about government processes and performance. In this sense, disclosing information about government activities is crucial to increasing citizen trust.

On the other hand, there are scholars who emphasize the negative effects of transparency (e.g. O’Neill 2002; Bovens 2003; O’Neill 2006; Etzioni 2010). For example, it could lead to

politics of scandal or misinformation which could eventually lead to less instead of more trust. This supposedly contributes to political cynicism, and citizen trust in government might even decline. By making use of increased transparency it is easier for citizens to audit government; the downside of this is that citizens might – again, justly or unjustly – blame government for small mistakes time and time again (Bovens 2003; Worthy 2010). Although the literature is not unequivocal regarding the direction of the effect of transparency on trust, the main tendency is to attribute positive effects to transparency. Therefore we will hypothesize a positive effect of transparency on perceived trustworthiness of a government organization:

H1) A high level of transparency leads to more perceived trustworthiness of a specific government organization.

What is missing in the debate on transparency and trust is an empirical analysis of the effects of transparency on perceived trustworthiness for different types of citizens. Prior studies in political science and sociology have shown that the extent to which people tend to trust government relates to background variables such as gender, age, education, and political preference (e.g. King 1997; Putnam 2000; Norris 2001). These studies, however, fail to address how characteristics of citizens moderate the relation between transparency and the perceived trustworthiness of a specific government organization. To increase our understanding of the *mechanism* that plays a role in the transparency and trust relation, we borrow from social psychological research and literature on attitude and attitude change. Van den Bos (2011, see also Van den Bos et al. 1998) argues that three types of citizens can be distinguished: those with a fundamental predisposition to trust government, those with fundamental distrust, and a group

of citizens that do not know whether government is to be trusted. Many people do not know whether they can trust government: in order to determine this they will use information to form a judgment. We thus need to focus on information processing by citizens to understand the effect of transparency on perceived trustworthiness and that information processing is influenced by prior knowledge and the general disposition to trust government.

On the basis of theories from social psychology two relations are hypothesized: high levels of prior knowledge are expected to weaken the relation between transparency and trust, whereas higher levels of predisposition to trust in government are expected to strengthen the effect of transparency.

H2) High levels of prior knowledge weaken the effect of transparency on the perceived trustworthiness of a specific government organization.

In the relation between transparency and trust, one can distinguish between knowledge-based or cognitive trust, and non-knowledge based or affective trust (cf. Lewis & Weigert 1985; McAllister 1995). People who already have a great deal of knowledge about the policy topic that is made transparent will not easily learn more by reading government information compared to laymen and hence one cannot expect their attitude towards government to change. In other words, the information disclosed to the public might not be new to people with high prior knowledge and, because of this, knowledgeable citizens will not be easily 'persuaded' by transparency: they have already formed an opinion based on other knowledge and information sources.

The Elaboration Likelihood Model (ELM) developed by Petty and Cacioppo (1986) states that persuasion can take place both through effortful and effortless processing of

information. This ‘central route’ of ELM – also referred to as the Cognitive Response Approach – proposes that individuals who are exposed to a persuasive message relate the message to their existing knowledge about the message topic (Bohner 2001, 253). Persuasion through the central route is a process that involves deliberative and active information-processing in terms of scrutiny of message arguments and other relevant information. Individuals who have limited knowledge about the topic can be expected to change their attitude more easily in response to a message than people who already have substantial knowledge and do not learn more from the message. One can distinguish between an attitude that is based on knowledge and one that is not. Persuasive messages are expected to affect attitudes without a knowledge basis more than those that are based on knowledge. The ELM also proposes a ‘peripheral route’ based on social identification, conditioning and the use of heuristics. This route is chosen when individuals spend limited time or have little knowledge to process a persuasive message.

In general, individuals have limited time and capacities to processing information. In order to make decisions, people heavily simplify the options and information available. A decision to trust a government organization may therefore not always be conscious and/or rational. Although not specifically aimed toward trust, the current debate on ‘nudging’ in the public domain (Thaler & Sunstein 2008) closely relates to the idea that not all decisions are rational, moreover people have many subconscious emotions that are important to the citizen-government relation. Nudging refers to influencing these emotions to direct citizens into a certain ‘preferred’ direction. For instance, a powerful ‘nudge’ is offering a default option to people. If several options are offered on a website and one of them is marked as a default, people tend to choose this option (Thaler & Sunstein 2008; Tiemeijer 2011).

Overall this paper does not test the effect of transparency on people's knowledge, yet takes prior knowledge as point of departure in or test its effect on the relation between policy outcome and the perceived trustworthiness of a government organization. High levels of prior knowledge are expected to weaken this relation, whereas low levels of knowledge are expected to strengthen it.

H3) High levels of predisposition to trust government in general strengthen the effect of transparency on the perceived trustworthiness of a specific government organization.

This hypothesis implies that transparency people's predisposition to trust government in general will influence how transparency affects trust in a specific government organization. The classic psychological theory of cognitive dissonance helps to provide a theoretical basis for this hypothesis. An early description of cognitive dissonance was observed and described in a case study by Festinger et al. (1956), which was later developed into a theory of cognitive dissonance (1985 [1957]). Cognitive Dissonance Theory highlights that people strive for consistency in their cognitions.

One particularly relevant form of dealing with dissonance is confirmation bias, which is the denial of evidence or information that does not fit the beliefs of a person. People tend to search for and use information only if it confirms their own beliefs (Nickerson 1998; Kunda 1999; Baron 2000), which results in overconfidence in these personal beliefs. These are maintained or even strengthened in when faced with evidence or information. Confirmation bias does also apply to the biased interpretation of the same information by different individuals. Lord et al. (1979) found that people who have strong prior opinions on an issue tend to accept

confirming evidence at face value, whereas disconfirming evidence is subject to more heavy scrutiny and critical evaluation.

People thus seek and use information that confirm their prior beliefs. This might also apply to the situation of the perceived trustworthiness of a specific government organization. People already have a certain predisposition to trust government in general. When confronted with transparent (and positive) information about a specific government organization, people with a low predisposition to trust are expected to disconfirm this information and perceived this a lie, hence confirming their negative beliefs about government. Those with a high-trusting predisposition are confirmed in their thoughts that government is indeed trustworthy, which will confirm their trust in the government organization that discloses the information.

3. Experimental method

3.1 Participants

The experiment was carried out over the Internet: a municipality granted permission to make use of a panel of citizens that regularly participated in their online questionnaires. An e-mail was sent on behalf of the municipality and Utrecht University to an online opinion panel with 3,000 members who are regularly complete municipal questionnaires (not experiments). 985 people responded to our call to participate in the experiment. A part of this sample was presented with websites not central to this paper which were therefore cleared from the dataset.² As a result, a total of 570 participants remained in our online experiment. It should be noted that the sample is not representative for the population of the Netherlands: people are relatively high educated and

² It should be noted that participants were randomly assigned to the different websites.

oriented towards (left leaning) liberal political parties.³ Due to this, and a self-selection bias – people who are interested in the topic are more likely to participate in this research – the sample probably relatively knowledgeable about the policy topic under scrutiny and more trusting towards government in general. That said, in this paper we are not interested in statistical generalization to the whole population as such, yet to generalizing the *theoretical relation* between transparency and trust.

By designing an online experiment many participants can be recruited relatively easily. This might come at the cost of a loss of control over the actions of participants which might weaken the internal validity of the experiment, yet this can be partly obviated by making clear-cut instructions. In addition, people can now carry out the experiment in a more natural setting, which strengthens the external validity of the experiment.

Variables such as political preference might affect trust in government, and unequal distribution of these background variables potentially threatens the internal validity of the results. The most important background variables that might affect trust in government are considered to be gender, age, education, and political preference (e.g. King 1997; Putnam 2000; Norris 2001). A Pearson chi-square test showed no evidence for an unequal distribution of gender, age, education or political preferences amongst the control and treatment groups.⁴ This means that the

³ For example, the percentage of ‘liberal voters’ in the 2010 national elections was 44.4 percent. Thus, participants in the sample are more favorable towards left-wing parties than citizens in the population (about seventy percent). In addition, in the Dutch population 27 percent are educated on the higher vocational level or up (2009 figures obtained for the Dutch CBS (Statistics Bureau the Netherlands), available at statline.cbs.nl, accessed April 15 2011). This is a percentage much lower than in the sample (about 75 percent). That said, we seek to compare groups and group differences.

⁴ Gender Pearson ($\chi^2=4.69$, $df=5$, $p = 0.466$), Age (Pearson $\chi^2=324.40$, $df=315$, $p = 0.346$), Education (Pearson $\chi^2=9.11$, $df=5$, $p = 0.105$), Political preference (Pearson $\chi^2=1.83$, $df=5$, $p = 0.873$).

randomization of participants in the experiment was successful which cancels out confounding effects of these background variables on perceived trustworthiness.⁵

In addition to the sample distribution we looked at the distribution of participants amongst the previously mentioned distinction in low and high knowledge and low and high predisposition. Based on this, four groups of citizens can be distinguished: those with low trust and low knowledge, high trust and low knowledge, low trust and high knowledge, and high trust and high knowledge. These four groups were decided by using 3.0 as a cut-off value.⁶ Descriptive results and background characteristics for each group are displayed below (table 2).

[Table 2 here]

Groups 1 and 2 represent the ‘low prior knowledge’ group. The average level of knowledge on a five-point scale is about 2.2. The high knowledge groups (groups 3 and 4) indeed have much higher knowledge levels of about 3.8. The ‘predisposition to trust government in general’ score showed a similar pattern although the differences were slightly smaller. People in the groups with low predisposition to trust (groups 1 and 3) have an average predisposition score of slightly below 2.6. The same is true for the high predisposition groups (groups 2 and 4), who had means scores of slightly above 3.6. Overall, a considerable variance in knowledge and predisposition between the groups can be observed from Table 2. This means that our distinction based on the 3.0 cut-off point is meaningful: participants in the low knowledge/predisposition

⁵ An additional analysis showed that no significant interaction effects occur between the background variables and the transparency and trust relation. Further, an ANOVA analysis with ‘predisposition to trust’ as a dependent variable shows that it is not affected by transparency ($F(2,517)=1.528, p > .05, Adj. R^2=.002$).

⁶ At a five-point scale, 3.0 is considered to be a neutral value. All participants that had a score of below 3.0 were attributed to the low knowledge/predisposition groups; those above 3.0 were attributed to high knowledge/predisposition groups respectively.

groups indeed have substantially less knowledge or lower predisposition compared to the high knowledge/predisposition groups.

3.2 Experimental setting and procedure

The experimental setting was local government dealing with air pollution.⁷ The experiment consisted of an independent measures design with one control group and two treatment groups. The control group received no information. Two groups were asked to read information regarding the degree air pollution in their municipality (i.e. reflecting the concept ‘policy outcome’). The information varied on the timeliness and comprehensibility of the information (ranging from ‘low’ to ‘high’). As discussed in Section 2, to reduce the complexity of the design the only actual policy outcome showed to people was a positive outcome.

The procedure consisted of three elements: (1) an instruction of the experiment with some general questions, (2) presenting the stimuli, and (3) a post-test questionnaire. Each of these elements will be explained.

1. At the start, participants were shown questions about prior visits of municipal websites and prior knowledge about the topic. A click on a link led them to one of the two websites in the experiment. Before clicking on the link, the questionnaire told participants to read the website and to follow the instructions on the website.

2. Each website consisted of two pages. The first page had a general explanation about air pollution in the city and was equal in each group. People were then instructed to click on to the

⁷ The experimental setting (i.e. local air pollution) may influence people’s trust in a specific government organization. An additional correlation analysis shows that the degree to which air pollution is a salient topic to people indeed matters slightly for their trust in a government organization ($R=-0.118$, $p < .01$). ‘Salience’ was operationalized as follows: “Air quality in the city of [...] is an important issue to me” and “I follow the local news to know about developments concerning air quality”. This implies that if a more salient topic was selected this may have a slightly negative impact.

next page which contained a map with three stations measuring air pollution depicted on it. A more detailed image of these experimental stimuli can be found in the Appendix of this article. The stimulus for a low level of transparency information usability only mentioned a number for air pollution without providing further explanation; it furthermore used a figure attributed to the year 2006. The stimulus for a high level of transparency indicates that the figures are very recent, at most one hour old. In addition, the figures are easily comprehensible by indicating the quality of the air. The control group (i.e. without stimulus) only completed a questionnaire and hence did not look at a website. These stations depicted in the figures exist in reality but the degree of air pollution indicated by each station was manipulated to fit the purposes of the experiment. Participants were instructed to read the information provided by each of the three measuring stations.

3. At the end, they were asked to close the window of their browser and to complete the questionnaire. The participants in the control group were directed to the questionnaire directly, without visiting the municipal website.

3.3 Measures

Policy outcome transparency was operationalized according to the extent the information was timely and comprehensible. Both the comprehensibility and timeliness of the information varied across groups simultaneously, which means that only the overall effect can be assessed and not the effect of each element separately. These two dimensions varied across the experimental groups simultaneously in order to create two extreme conditions, so as to create the highest probability to detect an effect. In this sense, this is a ‘most likely’ design: if we do not find an effect with this extreme manipulation, we will not find effects on separate dimensions.

As mentioned in Section 2, ‘reactivity’ is the yardstick to which ‘timeliness’ is measured: the amount of time between the actual measurement or determination of the policy outcome and the disclosure of this data. Two categories were distinguished: ‘old’ and ‘recent’ information. Both categories were operationalized as follows. Old data in the experiment consisted of air pollution that were four years old (at that moment, i.e., figures of 2006), whereas recent data yield air pollution figures updated one hour ago. Further, the experiment was designed so as that the transparent websites are readily comprehensibly for laymen, whereas the low transparency websites are only understandable for those with expert knowledge. This category, which we call ‘difficult’ information only provided figure about air quality to the reader, without explanation about this figure. ‘Easy’ information was made feasible by disclosing visual and textual aid to help participants in understanding the figures.

To test the moderating effects of prior knowledge and predisposition to trust government four configurations were designed: low knowledge/low predisposition, low knowledge/high predisposition, high knowledge/low predisposition and high knowledge/high predisposition. The level of prior knowledge was determined by self-assessment on two items which were both measured five-point scale. This means that perceived knowledge as opposed to ‘objective’ knowledge about the topic is measured. First citizens were asked to what extent they felt they were knowledgeable about municipal policy measures designed to combat air pollution (1) and to what extent they followed the (local) news regarding messages about the issue (2) (Cronbach’s alpha = 0.75). Predisposition to trust government in general was measured by four items capturing its perceived competence, benevolence and honesty. (Cronbach’s alpha = 0.82).

Trust in government was measured through a questionnaire. Participants were asked specifically about the perceived benevolence, competence, and honesty of the government

organization with regard to the topic. All dimensions were measured on a five-point scale and are derived following a trust scale validated by McKnight et al. (2002), and then tested and adapted to the public sector context.⁸

3.4 Manipulation check

The manipulation was checked by asking participants first whether they perceive the data to be up-to-date and second if they found it understandable. Participants of the two highly transparent groups indeed found the data much more comprehensible ($F(1,341)=96.13, p<0.000$) and timely than participants in the two other groups ($F(1,341)=238.67, p<0.000$).

4. Results

4.1 Overall Effects

We used a MANOVA to carry out our analyses. MANOVA is suitable and robust for detecting the mean difference between the control and treatment groups when there are multiple dependent variables (i.e. perceived competence, benevolence and honesty). The analysis of the overall effect of policy outcome transparency on trust in a government organization shows that the predicted effect is indeed significant ($F(2,518)=4.75, p<0.001$).⁹ Next, the overall effect of transparency on perceived trustworthiness is tested (table 3).

⁸ Specific survey items regarding all variables mentioned in this section can be found in the appendix.

⁹ There is a possibility that respondents made judgments based on performance instead of on transparency. The experimental design, however, does not manipulate the performance outcome, i.e. there was no variation on this “variable”. It is possible still that respondents who were shown the low transparent website judged the outcome different as well, because they were unable to recognize the “good performance” since information was not easily comprehensible. To check whether this was the case, we carried out an additional analysis. Two items contained questions about perceptions of timeliness and perceptions of comprehensibility of the information (i.e. perceptions regarding the transparency manipulations), another item asked whether people perceived the information to be “positive about the municipality.” (i.e. indicating perceptions about performance) Three independent t-tests show that perceptions regarding timeliness and comprehensibility ($t=15.449, p<0.001$ and $t=9.805, p<0.001$) differ much stronger across the low and high transparency groups than the perceptions of “positiveness” ($t=4.657, p<0.001$).

[Table 3 here]

No significant effects were found for the overall construct of perceived trustworthiness. A specific analysis of the three dimensions of this construct shows that only perceived competence is affected by policy outcome transparency: in case of low outcome transparency, people had less trust in the government organization. This effect is somewhat ambiguous, however, the difference was significant if we compare low transparent information to high transparent information, yet this is not large enough to be significantly different from the control group. No significant effects were found for the perceived benevolence and honesty dimension.¹⁰ Does this really mean there is hardly any effect of transparency on perceived trustworthiness? Or do the effects disappear when they are analyzed for population-wide effects only? To answer these questions we need to delve deeper into the characteristics of citizens to understand these specific effects.

4.2 The Interaction Effects of Knowledge and Predisposition to Trust

We used our data to compare four specific configurations of prior knowledge and general predisposition to trust government: (1) low knowledge/low predisposition, (2) low knowledge/high predisposition, (3) high knowledge/low predisposition and (4) high knowledge/high predisposition. The multivariate test for two of these configurations was

This provides evidence that people reacted to intended experimental manipulation in stead of government performance.

¹⁰ We carried out four additional analyses to assess the main effect of transparency. One MANCOVA with several covariates, controlling for the effect of sex, level of education, political preference and age showed the same results as our current analysis of the main effect, i.e., the effect on competence, not on other dimensions. Three linear regression analyses with the same control variables and transparency as binary variable (low or high), one for each dimension of perceived trustworthiness, again confirmed the current results.

significant.¹¹ The subsequent univariate tests, however, showed that the effect on perceived honesty was not significant in these cases. Therefore, only the results regarding perceived competence and perceived benevolence are presented in the next two tables. First, table 4 below shows the effect of policy outcome transparency on perceived trustworthiness, which is a combined scale (mean) of all three dimensions of perceived trustworthiness.

[Table 4 here]

An effect of positive outcome transparency on perceived trustworthiness only occurs when people have low knowledge and a low predisposition to trust government. Table 4 shows us that high transparency group is significantly higher mean than the low transparency group. No significant difference was detected in comparing the experimental groups with the control group. This means that this form of transparency has a positive effect on perceived trustworthiness of a government organization, but where does this effect come from exactly? To investigate this, table 5 presents an analysis of the effect of transparency on perceived competence, one of the separate dimensions of perceived trustworthiness.

[Table 5 here]

Table 5 shows that in case of low prior knowledge/high predisposition, perceived competence is in the high transparency group is perceived to be higher than in the low transparency group (3.47 compared to 3.18). For the low knowledge/low predisposition a similar effect on perceived competence was found yet in this case this does not surpass the degree of perceived competence

¹¹ $F(2,141)=3.91$, $p = 0.001$ for configuration 1, and $F(2,185)=3.28$, $p = 0.004$ for configuration 2.

of the control group (3.06 compared to 2.87 in the control group). No positive effects of transparency on perceived competence have been found. Highly transparency information showing a positive policy outcome (i.e. clean air) did not strengthen perceived competence of local government in any of the groups.

The next table shows more differentiated effects of transparency on perceived benevolence (Table 6).

[Table 6 here]

Table 6 shows how perceived benevolence is affected by prior knowledge and general disposition to trust government. The data show that perceived benevolence was positively affected for the people with low predisposition to trust and low knowledge (3.44 compared to 3.05 and 2.91). People with little knowledge and high trust already have a high score on perceived benevolence and this score is not significantly increased by transparency. The perceived benevolence was not affected for people with high knowledge.

The analysis of moderating effects of prior knowledge and general disposition to trust government shows that a decline in perceived competence when confronted with limited transparency occurs for people with little knowledge and this effect is so strong that it still shows when analyzing the whole population. A rise in perceived benevolence occurs only in one specific group: people with limited prior knowledge and low trust in government in general. This effect disappears when analyzing the whole population.

5. Discussion and Conclusions

This paper sought to answer the question whether prior knowledge and predisposition to trust government in general influence the relation between transparency and trust. The effects were investigated under the condition that *positive* policy outcomes are made transparent. The results provided somewhat unclear results regarding the overall effect hypothesis of transparency (H1). A positive effect of positive policy outcome transparency on perceived competence was found when high and low transparency groups are compared. However these means do not differ significantly from the level of perceived competence in the control group. This means we found no support for H1, which predicted a positive effect of transparency on perceived trustworthiness. Hence, for the general sample, transparency has a negative effect on the perceived competence of a government organization which shows that the overall optimism surrounding transparency should be nuanced. To investigate whether this negative effect holds for specific groups of citizens, we formulated two alternative hypotheses based on moderating effects of prior knowledge and the predisposition to trust government.

The second hypothesis stated that the level of prior knowledge would weaken the effect of transparency on perceived trustworthiness. A positive effect of transparency on the overall perceived trustworthiness was found in the group with low knowledge and low predisposition to trust government. Participants who were presented with comprehensible and timely information found the government organization more trustworthy than those presented with hard-to-comprehend and 'old' information about policy outcomes.

More specific analyses regarding the separate dimensions of perceived trustworthiness more precisely showed which dimensions were affected by transparency. This hypothesis was supported for two dimensions (competence and benevolence): prior knowledge makes citizens hard to persuade, they are unlikely to receive any new information. A high level of knowledge

even caused the transparency and trust relation to disappear completely. Participants that reported to have rather low levels of prior knowledge and low predisposition to trust were significantly more positive on the municipality's benevolence if they were presented with highly transparency policy outcomes (3.44 compared to 2.91). In contrast, the low knowledge/high trust groups was more negative regarding the organization's competence if results were presented in a low transparent manner (3.18 compared to 3.41 and 3.47). This means we found support for hypothesis 2, which postulated that prior knowledge weakens the effect of transparency.

Our third hypothesis stated that high predispositions to trust government in general would strengthen a potential positive relation between transparency and perceived trustworthiness. This appeared not to be the case when we compared groups with a low and high predisposition to trust government: similar effects were found for these two groups. However, with the group of citizens with low prior knowledge, a moderating effect of the general disposition to trust was found. People with low predispositions and low prior knowledge were remarkably more positive about the benevolence of the government organization in case of high policy outcome transparency. This effect faded for participants with low knowledge yet with high predispositions to trust government in general. The second hypothesis should thus be rejected. These findings were contrary to the hypothesis that stated that the effect would be stronger for a high predisposition to trust government in general.

This study showed that prior knowledge and the general predisposition to trust indeed influence the relation between transparency and trust in a specific government organization. There is no effect at all of transparency on trust when participants have high knowledge: neither participants with a high general predisposition to trust nor those with a low general predisposition to trust were influenced by transparency. Differentiated effects were found for

participants with little knowledge and varying degrees of general trust in government. Strong transparency policies result in a rise in the perceived benevolence of government among participants with little prior knowledge and a low level of general trust in government. In contrast, weak transparency policies result in a decline in the perceived competence of participants with little prior knowledge and a high level of general trust in government.

What do these results mean for the debate between transparency optimists, pessimists and skeptics? Based on the current sample of participants, the results indicate that they are all right, but in different ways. The *optimists* are right when it comes to participants with relatively low levels of prior knowledge about a policy topic and who have a rather low predisposition to trust government in general (27 percent of our sample). Policy outcome transparency strengthens the perceived benevolence for of a specific government organization this group of citizens. The *pessimists* are right for the large group of participants with a rather positive predisposition towards government and limited prior knowledge about a certain policy (36%). Although high transparency has no effect on their perceptions, low transparency decreases the perceived competence of a specific government organization. The *skeptics* are right for the group of participants with high knowledge (37%). Transparency does not have any effect at all on trust for this group of participants since they have already formed their opinion about local government and this has resulted in either low or high trust. This knowledge based trust is not influenced by transparency (at least not by a single encounter with information about air pollution).

What are the theoretical implications of these findings? First of all, this study shows the usefulness of online experiments as rigorous method to investigate effects of government actions

on attitude change of individuals. In addition, social psychological theories have been proven to be useful tools in explaining the mechanism in attitude change toward government organizations for different types of citizens, as opposed to using only background variables.

The second implication of our study is that transparency can only influence trust that is based on affection and not on prior knowledge. Our study shows that prior knowledge both attenuates the positive effect of high transparency on perceived benevolence and the negative effect of low transparency on perceived competence. Based on the Elaboration Likelihood Model (Petty & Cacioppo, 1986; Freeman & Spyridakis, 2004), we argued that people with high prior knowledge are less likely to be persuaded by new information. Their trust is ‘cognition based’: once (perceived) prior knowledge is high, it becomes the primary driver for perceived trustworthiness of a government organization and citizens are not persuaded (negatively or positively) by the outcome information disclosed through websites. By contrast, for individuals with low prior knowledge trust is more ‘affection based’. This group was persuaded by transparency: new information changed their attitudes.

The third theoretical implication is that the confirmation bias (Nickerson 1998; Kunda 1999; Baron 2000) does not play a role in the relation between transparency and perceived trustworthiness. We found that people with high predisposition to trust were disappointed in the competence of the government organization when they saw a website with low usable information and people with a low predisposition to trust and low prior knowledge had enhanced perceptions of perceived benevolence after seeing the website with highly usable policy outcome information. This means that people’s predisposition to trust government in general does not result in confirmation bias.

The fourth implication is that the dissatisfier-effect (Swan & Combs 1976, 25; Johnston 1995) helps to understand how a general predisposition to trust moderates the relation between transparency and perceived trustworthiness. People expect local government to be transparent and if their expectations are fulfilled, this at best does not lead to dissatisfaction. For citizens with a high predisposition trust, being transparent only meets the expectation that this is part of a normally functioning government. This is in line with prior research, for example, Piotrowski and Van Ryzin (2007) found a high demand of citizens for transparency. Those with a high general predisposition to trust are only disappointed in the competence of a specific government organization if policy outcomes are not that transparency, whereas low predisposed citizens are positively surprised and perceived the municipality to be acting in the citizens' interest (i.e. benevolence).

This study has some important limitations which call for follow-up research. The current sample was biased towards high educated and liberal participants and follow-up experiments and/or survey research need to test whether these findings also hold for other groups, especially people with a lower education. In addition, our findings hold for a situation in which the policy outcomes are positive: pessimists may be more right when it comes to negative policy outcomes. This needs to be tested in follow-up experimental research. Furthermore, this experimental study is based on an 'extreme' manipulation of timeliness and comprehensibility. To check whether the effects of transparency also hold in less extreme conditions, future research may design stimuli that separately vary on timeliness and comprehensibility. Also a design that varies on the degree of timeliness, for example with data ranging from one to four years, will provide more inside in the effect of this dimension.

In sum, 'naïve' trustees in government organizations lose their trust if government does not do a good job in creating transparency while being naïve has an opposite effect when it comes to perceived benevolence. Individuals with little prior perceived knowledge and a low predisposition to trust government were pleasantly surprised about government's benevolence when confronted with a high degree of transparency. On the other hand, interested citizens are savvy consumers of information. They are likely to consume a great deal of information which in the end seems to make these citizens skeptical.

These findings can form the basis for better informed transparency policies. How should government organizations spend their scarce resources wisely? Government organizations should diversify their information strategy: information savvy citizens are not convinced by the type of information (simple and comprehensible information) yet need might need more extensive and detailed information to be persuaded, information that is not necessarily comprehensible or interesting to less interested or knowledgeable citizens. Citizens with less interest and knowledge may need to be approached more actively and cannot be expected to visit government websites spontaneously: a combination with social media that raise more attention such as Twitter and Facebook may entice them to access government information. Targeting transparency efforts at specific groups of citizens helps government organizations to strengthen citizens' trust in their performance and intentions.

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