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Digital campaign competence

The role of citizens in data-driven election campaigns

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Chapter 3

Methodological Considerations

To answer the aforementioned research questions, I employed multiple methods in three different studies (see Table 2). The first study (Chapter 5) was a two-wave panel survey addressing to what extent citizens understand DDC. The second study (Chapter 6) also used a two-wave panel survey and, next to citizens understanding of DDC, investigated how citizens perceive a specific aspect of DDC, namely data-driven political advertising. This study employed latent profile analysis to explore clusters of citizens. To understand which educational approaches might increase citizens' understanding, evaluation, and skills concerning DDC, I designed an intervention experiment for the third study (Chapter 7). As all three studies were part of the project DATADRIVEN, they were financially supported by the NORFACE Joint Research Programme on Democratic Governance in a Turbulent Age and co-funded by ESRC, FWF, NWO, and the European Commission through Horizon 2020 under grant agreement No. 822166.

Table 2. Overview of Methods

Study	Chapter	Method	Sample	N	Year
1	5	Two-Wave Panel Survey	Dutch	Wave 1 = 1264 Wave 2 = 1011	2021
2	6	Two-Wave Panel Survey and Latent Profile Analysis	German	Wave 1 = 1914 Wave 3 = 1303	2021
3	7	Intervention Experiment	Austrian	553	2023

3.1 Measuring Competence in Data-Driven Campaigns

Previous research on DDC has employed a variety of methods to evaluate its use, effects, and examine the perceptions of DDC among the public. To examine the use of DDC, research has generally relied on qualitative research (e.g., Kefford et al., 2022), primarily expert interviews (Barclay et al., 2023; Bene & Kruschinski, 2021; Bodó et al., 2017). Although interviews offer insightful information (Bodó et al., 2017), it is crucial to run experiments to understand the effects of DDC. For instance, using experiments, Decker and Krämer (2023) examined the impact of microtargeting strategies on voting intentions, while Kruikemeier et al. (2016) investigated how personalized ads influence persuasion knowledge and ad sharing. Most recently, Chu et al. (2023) employed a novel approach combining mobile experience sampling, panel surveys, and content analysis to study ad perceptions, voting intentions, and party evaluations.

Studies on citizens' evaluations of DDC are particularly relevant to this dissertation because they offer insights into citizens' digital campaign competence, in addition to elucidating their understanding and skills. Public perceptions towards targeted political advertising have been studied in the US using cross-sectional surveys (Turow et al., 2012) and in the US, Germany, and the Netherlands using a comparative method (Dommett et al., 2022). However, these surveys typically only capture one component of DCC (i.e., evaluations of DDC) or use single-item measures for knowledge (Dobber et al., 2019).

This dissertation moves beyond these previous approaches in three ways. First, following a recent trend in the literature (Gibson et al., 2024), conceptual understanding and evaluative perceptions of DDC were measured in combination using more extensive measures to provide more nuanced insights (Chapters 6 and 7). Furthermore, I report on citizens' objective understanding (i.e., correct vs incorrect statements; Chapter 5) and subjective understanding (Chapter 6), thus elucidating citizens' understanding levels beyond perceived knowledge. Second, Chapters 5 and 6 connect these insights on citizens' understanding and evaluation of DDC to political behavior using robust research methods, investigating whether changes develop over time. Third, the **studies in this dissertation are solution-oriented**. I used latent profile analysis (Chapter 6) to investigate which group of citizens needs the most attention. This knowledge is important to create educational interventions tailored to certain groups of citizens (e.g., those who know little and are very skeptical or who think they know more than they do). Furthermore, Chapter 7 specifically focuses on how to increase citizens' competencies through an educational intervention experiment. Chapter 7 moves beyond other solution-orientated studies (Lorenz-Spreen et al., 2021; Stubenvoll & Binder, 2024) because I examined citizens' competencies (understanding, evaluation, and skills) rather than focusing on one component, like knowledge (Stubenvoll & Binder, 2024).

While the methods for each study will be discussed in the respective chapter, the following sections briefly highlight the strengths and weaknesses of panel surveys, intervention experiments, and latent profile analysis. This chapter finishes with a discussion of the country context.

3.2 Strengths and Challenges of Panel Survey Studies

To explore citizens' *understanding* (RQ1) and *understanding in combination with evaluation* (RQ2) of DDC, I conducted two two-wave panel survey studies. In Chapter 5, I analyze the extent to which Dutch citizens are knowledgeable about DDC. This study was

conducted before the 2021 Dutch general elections. In Chapter 6, I examine the level of understanding of DDC among German citizens and its interaction with their evaluation of DDC. Data collection took place before the 2021 German federal elections. Panel surveys are widely used in the social sciences and have a rich history (Lazarsfeld et al., 1968). In both studies, I assessed to what extent understanding (Chapter 5) and understanding and evaluation (Chapter 6) are connected with citizens' self-reported ad engagement or ad avoidance. Both studies contribute to advancing DDC research by using extensive measures for both understanding and evaluation and by connecting these measures to campaign behaviors.

Compared to cross-sectional studies, panel studies allow for the identification of changes in observational units over time by employing lagged dependent variable models (Pffor & Schröder, 2016). In the first study, this entailed exploring shifts in citizens' understanding of data-driven political advertising, a facet of DDC, and changes in ad engagement and ad avoidance behavior. Similarly, Chapter 6 focuses on changes in ad engagement and ad avoidance. Controlling for lagged dependent variable values allowed for interpretation of the coefficients as effects on the changes in the dependent variable (Finkel, 1995). Taking previous values into account is considered a robust method to deliver correct coefficient estimates (Wilkins, 2018). In both chapters, controlling for possible changes was essential because the panel waves occurred before the elections in the two countries surveyed. As an election date draws near, there is a surge in the circulation of election-related information, including campaign strategies and advertisements. As a result, citizens likely have more opportunities to update their knowledge, increase their engagement with campaign materials (Dobber, Trilling, et al., 2019, p. 1225), and adjust their avoidance behavior. This assumption is further supported by the fact that online political advertising expenditures tend to rise as the day of an election approaches, as political parties want to reach a larger number of potential voters closer to the election date (Fowler et al., 2021).

According to Bergmann and Barth (2018), training and memory effects might be challenges in panel survey studies. There are two key reasons why I do not consider such panel conditioning to be a significant concern in Chapters 5 and 6. First, participants did not get feedback on their responses when I asked about their understanding of DDC, leaving them unaware of the accuracy of their answers. This absence of feedback reduces the likelihood of training effects and mitigates the impact of memory on subsequent responses. Second, both studies consisted of only two waves. Although the fact that repeated interviewing can potentially introduce biases is a particularly relevant concern when examining relatively novel topics, as might be the case with

informing citizens about data-driven campaigning strategies and implications, the limited number of waves mitigates this concern.

3.3 Strengths and Challenges of Experiments

The third study in this dissertation, described in Chapter 7, used an intervention experiment to investigate how to *influence citizens' understanding, evaluation, and skills* (RQ3). This solution-oriented case study took place in Austria during a non-election period. Experiments are widely used in communication research because they offer powerful research designs that can establish causal relationships between independent and dependent variables (Druckman, 2022; Thorson et al., 2012). As I aimed to uncover how to best empower citizens in a DDC context, an experiment was the ideal choice. To do this, I investigated to what extent the interactivity of educational interventions matters (in this case, reading a voter guide or playing a campaign game) and whether emphasizing the risks or the benefits of DDC has a great influence on citizens' understanding, evaluation, and skills. Second, the experimental setup allowed me to be in control through manipulation of the stimulus (Bryman, 2012; Shadish et al., 2006). This control over the treatment was important as I adapted existing educational materials by the NGO Tactical Tech to test and, explore how to best inform citizens about DDC using real-life examples.

According to Thorson et al. (2012), four main challenges should be considered when empirically assessing experiments: randomization, confounders, manipulation checks, and message-related variance. Participants were randomly assigned to the treatment and control conditions to ensure that the groups differed only due to chance (Gerber, 2011, p. 116). Confounders may introduce unexpected variation, thus complicating the attribution of differences found in the dependent variable. As outlined in the limitations section of Chapter 7, participants in the game conditions roleplayed as campaign managers for a fictional party, while those reading the voter guide remained voters. While this non-identical implementation is not inherently problematic (Shadish et al., 2006), it represents a trade-off between internal and external validity that was necessary due to practical and logistic constraints (McDermott, 2011). To minimize the impacts of this trade-off (McDermott, 2011; Shadish et al., 2006), the educational intervention design underwent meticulous evaluation through two pilot tests and successful manipulation checks. Moreover, both formats of the educational intervention aligned with real-world implementation settings. Additionally, I determined the necessary sample size through power analysis. Finally, the issue of message-related variance (Thorson et al., 2012) was addressed using multiple risk

or benefit messages per treatment. For example, in the benefit-framed conditions, participants were presented with multiple messages emphasizing the potential benefits of DDC to citizens or democracy, rather than relying on one example. This offers citizens a more comprehensive understanding and enhances the ability to generalize the findings to a message category (e.g., benefit-framed).

3.4 Strengths and Challenges of Latent Profile Analyses

The second study, outlined in Chapter 6, employed latent profile analysis (LPA) because the existing understanding regarding how much citizens know about DDC and how they evaluate it is limited which makes an exploratory method such as LPA appropriate. This method was chosen because it allowed me to identify different groups within a population based on certain variables (i.e., understanding and evaluation of DDC; Spurk et al., 2020). It assumes that profile membership is a latent, unobserved variable and individuals are classified based on probabilities. Furthermore, this approach allows for a combination of various measurement variables (nominal, ordinal, and continuous), which was especially important as conceptual understanding was measured using Likert scales and correct/incorrect statements (Vermunt & Magidson, 2002). As a result, the insights are more nuanced because they make patterns of quantitatively different configurations visible (Spurk et al., 2020), and LPA was thus preferred over other non-latent clustering methods.

Despite these benefits, LPA approaches often face criticism regarding their ability to contribute novel insights (Spurk et al., 2020, p. 13). However, particularly in areas such as citizens' understanding of DCC where there are limited insights, an exploratory approach like LPA can shed light on both the diversity of certain profiles and the extent of their uniformity. Chapter 7 and its appendix provide an extensive discussion on the unique insights derived from the implementation of LPA in Study 3.

3.5 Country Context

Each of the three studies in this dissertation was conducted in a different European country and thus the insights offer a valuable contribution to the literature on DDC, extending beyond the previous predominant focus on the US (Aagaard & Marthedal, 2023; Dommett et al., 2023). By providing case studies within European contexts, this research acknowledges that the distinct political, organizational, and regulatory frameworks present in Europe differ from those in the US (Vaccari, 2013).

Consequently, the findings reported in this dissertation shed light on the state of citizens' understanding, evaluation, and skills within the boundary conditions in place to regulate DDC. German citizens tend to dislike political personalization in campaigns, a form of DDC, more than their US counterparts. This contrast highlights how responses are influenced by diverse societal and regulatory contexts (Kozyreva et al., 2021).

Although the studies take place in different countries, Austria (Chapter 7), Germany (Chapter 6), and the Netherlands (Chapter 5) are all Western democratic countries with high levels of political participation (voter turnout above 76%; *OECD*, n.d.). Despite similarly high levels of internet penetration (88% in Austria, 94% in Germany, and 95% in the Netherlands; Newman et al., 2023), citizens of the three countries exhibit varying levels of basic digital skills: around 65% in Austria, 52% in Germany, and over 80% in the Netherlands (*Digital Skills*, 2023). Furthermore, unlike the US, which operates under a two-party majority electoral system, these countries are characterized by multi-party systems (Dobber et al., 2017; Magin et al., 2017). They employ proportional representation systems, requiring parties to form coalitions after elections (Taras, 2022). Consequently, citizens in these countries typically have a wide array of political options to choose from, as multiple parties compete for their attention. For parties, however, identifying supporters can pose greater challenges in a multi-party system compared to a two-party system because it is arguably harder to categorize voters into multiple groups than into two (Dobber et al., 2017).

From an organizational viewpoint, the US has better access to high-quality voter data. This is due to administrative records that store voting behavior (Hersh, 2015). These records are considered dependable and are readily available to political parties in the US. Furthermore, campaigning in the US is an industry that is not only rich in resources but also in personnel (Baldwin-Philippi, 2017). European election campaigns need to make ends meet with smaller budgets, and thus less personnel and fewer services providing dependable voter data (Dommett et al., 2024; Zuiderveen Borgesius et al., 2018). Facebook and its tools, such as “look-alike audiences,” are common methods for parties to categorize voters into groups, but this also means that citizens' data are often collected without their knowledge (Dommett et al., 2024). Notably, Facebook ranks among the top three social media channels in all three countries, with Austria and the Netherlands placing it at the top (Newman et al., 2023). The widespread use of Facebook highlights its importance as a platform for both political engagement and data collection. However, insights from interviews with campaign leaders suggest less refined DDC strategies such as narrowcasting when it comes to targeting (see, e.g., Dommett et al., 2024). Nevertheless, political parties in Austria, Germany, and the

Netherlands use DDC to some extent. In 2019, rather than sophisticated monitoring and targeting of citizens, all political parties in Austria were running target group-centered campaigns because they lacked knowledge and resources (Russmann, 2022). The populist right-wing Freedom Party of Austria (FPÖ), the conservative ÖVP, and the New Austria and Liberal Forum (NEOS) also used dark ads in their 2019 campaign, while the Greens refrained for ethical reasons (Russmann, 2022). In the Netherlands, targeting based on behavioral data, a form of DDC, was employed to varying degrees in 2017. Some parties also sent dark ads as a means to save resources. For instance, the Greens (GroenLinks) went as far as developing their own app to gather additional data, whereas parties like D66 and the 50 Plus (senior party) expressed reluctance towards excessive tracking of individuals (Dobber et al., 2017). In 2017 in Germany, only the CDU and SPD regarded targeting as a significant aspect of their campaigns and allocated both financial and time resources to it, while most German parties used tracking cookies on their websites (Kruschinski & Haller, 2017). However, in Germany and the Netherlands, the strategies employed tended to be more conservative compared to those used in the United States (Dobber et al., 2017; Dommert et al., 2024).

Finally, the regulatory conditions in the US are less strict than in Europe (Bennett, 2016). The lack of data regulations in the US (Solove & Hartzog, 2014) allows for extensive collection of citizens' data, merging of datasets, and buying and selling of data records (Hersh, 2015; Rubinstein, 2014). European countries, on the other hand, are well known for their strict data protection laws (Anstead, 2018; Jungherr et al., 2020; Kruschinski & Haller, 2017). This means that DDC remains somewhat restricted in Europe compared to the US (Dommert et al., 2024; Russmann, 2022). While regulatory conditions are a moving target and are therefore difficult to discuss, the most influential data-protection frameworks are currently the EU's General Data Protection Regulation (GDPR; see Dobber et al., 2019) and the Digital Services Act (DSA). The DSA tends to be more influential for DDC because it specifically highlights the need for transparency around data processing and targeting strategies (Gibson et al., 2023, p. 9). As a consequence of this framework, citizens must be informed how their data is used and for which purposes. European citizens are thus not exposed to as much opaque data collection and use as citizens in the US. These regulatory frameworks likely play a crucial role in citizens' perception of DDC, potentially directing their moral compass when they evaluate it. The prevailing narrative regarding privacy risks associated with DDC might lead European citizens to feel a greater urgency to acquire knowledge and develop skills to respond to DDC, particularly compared to citizens in the US. For instance, certain parties in Austria, like the Greens, exhibit reluctance towards employing some DDC tactics due to ethical considerations (Russmann, 2022, p. 279). Their stance, "Clean environment, Clean politics," implies a perception of DDC

as somewhat tarnished or unethical. If communicated, this perspective could shape citizens' attitudes towards DDC.

Exploring three European countries with similar political, organizational, and regulatory conditions provides an opportunity to enrich the discussion on DDC through case studies. The dissertation also offers insights from both election and non-election periods, as the panel survey studies were conducted during elections and the experiment took place outside of election periods.

3.6 Open Science Principles

All three studies in this dissertation adhered to certain open-science principles aimed at promoting transparent research practices. This entails making the code and data for all three studies accessible on the Open Science Framework (OSF.io) once the articles are published. During the review process, these materials were made available to reviewers in an anonymized format. Additionally, the materials for the intervention experiment in Chapter 7 were pre-registered. Through the sharing of research materials and data, my goal is to enhance the reliability and credibility of the findings presented in this dissertation and facilitate the sharing of knowledge among researchers. Materials and code for each of the studies can be accessed here:

- *Chapter 5*: <https://osf.io/s3r6t/>
- *Chapter 6*: <https://osf.io/q5zuh/>
- *Chapter 7*: <https://osf.io/ahj9t/>