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Digital campaign competence

The role of citizens in data-driven election campaigns

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Chapter 8

Conclusion

8.1 Overall Summary and Discussion

This dissertation highlighted the role of citizens in data-driven election campaigns by examining their understanding, evaluations, and skills regarding such campaigns. Although many studies emphasize the importance of knowledge in being a competent citizen, particularly in political science (Carpini & Keeter, 1996; Jackson & Marcus, 1975; Kuklinski et al., 2001; Luskin, 1987), this approach may not be sufficient for the context of *data-driven* campaigns. Rather, **competence in data-driven campaigns goes beyond mere (political) knowledge**: it involves an awareness of using personal data for persuasion, which is often facilitated by political parties in collaboration with major tech companies and platforms. Indeed, it is generally underrecognized that citizens require a deeper understanding to be empowered in a data-driven political context and that **citizens' perceptions matter**. This cumulative dissertation addresses this gap with three studies that build on one another. The first study (Chapter 5) investigated citizens' *understanding* of data-driven campaigns. The second study (Chapter 6) explored the *interaction* between citizens' understanding and the evaluation of data-driven campaigns. Chapters 5 and 6 both focused on a specific aspect of DDC, namely, data-driven political advertising. The third study (Chapter 7) investigated ways to enhance citizens' understanding, evaluation, and skills related to DDC. Together, these chapters inform us about (a) what citizens think of DDC, (b) whether their knowledge and perceptions lead them to (dis-)engage with political campaigns, and c) how citizens can be supported to navigate DDC.

In this final chapter, I first summarize the findings and contribution of each study and then present two overall contributions that relate this dissertation to larger debates in communication science and political science. To conclude, I describe the limitations of this dissertation and finish with a discussion of the most promising avenues for future research.

8.1.1 Overview of Results and Contributions

In the section that follows, I present the main findings of each study, along with a summary and a discussion of their respective contributions.

- *Chapter 5*: Citizens' understanding of DDC is multi-faceted and, alone, does not predict ad engagement or ad avoidance.
- *Chapter 6*: The majority of citizens are conceptually literate about DDC, yet none express a positive evaluation of it. It is only those with a strong aversion to DDC and a high level of knowledge who tend to avoid political ads.

- *Chapter 7*: Non-interactive educational interventions, particularly those using risk-framing, bring citizens closest to the ideal of being a critical thinker, fostering heightened knowledge and increased skills.

8.1.2 Summary and Contributions of Study 1

Chapter 5 (Minihold, Lecheler, de Vreese & Kruikemeier, *submitted*) sets out to examine (a) which voter characteristics enhance understanding of data-driven political advertising tactics and implications and (b) to what extent understanding matters for engaging with political ads or avoiding them. Informed by a two-wave panel survey conducted during the 2021 Dutch General Elections, Chapter 5 illustrates that knowledge about a specific aspect of data-driven campaigning, data-driven political advertising (DDPA), is generally low. Examining sub-components of DDPA knowledge, including general personalization knowledge, behavioral personalization knowledge, social media personalization knowledge, and privacy and data-collection knowledge, revealed notable demographic differences. Higher levels of knowledge were present among males, younger individuals, those with higher education, and those who are politically interested. However, DDPA knowledge alone could not explain citizens' ad engagement or ad avoidance. Instead, political interest and self-efficacy emerged as critical factors influencing ad engagement and avoidance, respectively.

The findings in Chapter 5 make three significant contributions to the existing literature. First, low levels of knowledge regarding data-driven political ads underscore the necessity of developing effective educational approaches for citizens. Second, given that various demographics exhibit distinct patterns across different DDPA knowledge components, this concept seems indeed multi-faceted and thus suggests that a one-size-fits-all training approach may not be effective in enhancing citizens' understanding of DDC. Third, the findings indicate that relying exclusively on knowledge about DDPA is insufficient to empower citizens to either engage with or avoid data-driven political advertisements.

8.1.3 Summary and Contributions of Study 2

With it being established that citizens' understanding of DDC alone does not explain citizens' engagement or avoidance of political ads, Chapter 6 (Minihold, Lecheler, Gibson, de Vreese & Kruikemeier, *accepted at Mass Communication and Society*), focuses on the interaction of understanding and evaluation. For this purpose, this study (a) outlined a data-driven political advertising literacy typology based on theory, (b) ascertained which theoretically deduced types are observable in real-world data, and (c) examined how different profiles behave during campaigns by focusing on their ad engagement and ad avoidance. Data for this study were collected with a two-wave

panel survey study conducted during the 2021 German federal elections. Chapter 6 focuses on a specific form of DDC, namely, data-driven political advertising (DDPA). It first presents an a priori typology consisting of six possible groups with either a high or low understanding of DDPA and positive, negative, or neutral evaluations thereof. Next, through extensive measurement scales of citizens' conceptual understanding and evaluative perceptions of DDPA, a latent profile analysis was conducted to investigate which “real-world” groups emerge. It was found that citizens cluster into five profiles which partially fit the theoretical conceptualization of DDPA literacy. Most people could be considered conceptually literate in DDPA because they demonstrated some subjective and factual DDPA knowledge, but they evaluated it as neutral or negative. Most notably, none of the five profiles evaluated DDPA positively, and no voter profile actively engaged with ads in the political campaign. However, the loathing group, characterized by high understanding levels and a strong distrust toward DDC, exhibited a greater tendency to avoid campaign ads as compared to the moderate group, which maintained a neutral overall evaluation of DDPA despite having moderate understanding levels.

The findings in Chapter 6 constitute three important contributions. First, citizens share a basic understanding of DDPA, yet they tend to perceive its threats rather than its potential benefits, resulting in a uniformly negative-to-neutral evaluation of DDPA. Second, citizens believe DDPA impacts others more than themselves, revealing a challenge in accurately assessing its influence on their lives and thus underscoring the need to enhance educational efforts to bolster citizens' competencies. Third, citizens require a certain level of understanding and a particularly negative evaluation of DDPA to avoid political advertising, suggesting the existence of a critical threshold for taking action.

8.1.4 Summary and Contributions of Study 3

Lastly, Chapter 7 (Minihold, Lecheler, de Vreese & Kruikemeier, *submitted*) goes beyond understanding and evaluations, additionally incorporating citizens' skills concerning DDC. Using a pre-registered online survey intervention experiment in Austria, this **solution-oriented study** compared the effectiveness of different educational interventions in increasing citizens' DCC. More specifically, intervention formats (reading a voter guide vs. playing a campaign game) and content framing (emphasizing the risks vs. benefits of data-driven campaigning) were contrasted. The results suggest that it is important for citizens to acquire information to increase their understanding of DDC regardless of the format (game or guide) or the framing (benefit or risk). Moreover, the non-interactive guide decreased perceptions of appropriateness compared to the interactive game. In the examination of the interaction between

format and framing, the voter guide, which emphasized the risks of DDC, resulted in higher levels of understanding and aided in the development of skills to detect highly targeted ads when compared to the control condition. In comparison to the game, which had a similar emphasis on risk, the voter guide resulted in citizens who were more skeptical and who were more likely to regard DDC with dislike and disapproval.

The findings in Chapter 7 provide the following three contributions. First, to increase citizens' knowledge, any format and frame suffices, and elaborate designs may not be necessary. Second, although any format increases understanding, the evaluation of DDC differs between formats, with the guide being more effective than the game in leading citizens to judge DDC as inappropriate. This prompts the question as to the extent to which citizens should perceive DDC as inappropriate. Third, risk framing was effective in combination with either format, but compared to the guide, the game tended to create a more positive perception of DDC, making them seem likable and more trustworthy. Although this might initially appear problematic, skepticism levels were quite high across all groups. Given this, ways to educate citizens on DDC without excessively raising their skepticism should be explored.

8.2 Overall Contributions

In the following section, I discuss the collective contribution of all three studies to scholarly debates on the role of citizens in DDC. I find it important to start by drawing attention to the *normative* background of DDC from a citizen perspective, which serves as the context for all three studies. I then focus on the implications of this dissertation for the study of individual-centered competence and the empirical assessments for research on DDC.

8.2.1 Unpacking the Normative Background

This dissertation aims to further examine the extent to which citizens can meet democracy's requirements of being an informed and engaged citizen and, importantly, identify what citizens think of the obstacles they face within a DDC context. To do this, each chapter of this dissertation foregrounds the potential of information asymmetry in DDC for citizens.

Normative discussions are common in studies researching DDC because, from a citizen-centric perspective, DDC affect their deliberative possibilities (Aagaard & Marthedal, 2023; Odzuck & Günther, 2022) and may also influence citizens' chances to learn and participate in politics. This means that by relying on voter data to inform

who will be exposed to which political content, an oft-employed DDC strategy, political parties decide on behalf of citizens what they should see and who should be excluded. The technological infrastructures of (social media) platforms facilitate the algorithmic classification of citizens to restrict those who are invited to determine future political directions (Bennett & Lyon, 2019, p. 3). Thus, in DDC, information asymmetry for citizens is, to some extent, an inherent implication. If political parties aim to reach all citizens, efforts such as identifying specific groups, specifically those most likely to support them, and tailoring messages accordingly, would be unnecessary.

All three studies in this dissertation assessed the knowledge of citizens regarding DDC tactics and implications, which includes citizens' awareness of political parties selectively providing information to some citizens but not to others. Chapter 7 outlines the specific advantages (e.g., as to not overwhelm certain citizens with too much information) and risks (e.g., minimizing voter turnout of people with lower education levels) of these strategies. Since citizens tend to have low knowledge of DDC strategies (see also Jungherr et al., 2020), citizens are likely not aware that information asymmetry is an (un)intended possibility. The findings show that citizens have limited knowledge concerning how technology can affect their exposure to targeted campaign advertisements. Consequently, citizens have limited awareness of how their data facilitates a potential information asymmetry, such as through the collection of cookies or tracking of their behavior. Additionally, citizens are neutral to negative toward political parties targeting some groups of citizens with political information while ignoring others during campaigns. Therefore, this dissertation not only discusses the normative background but also raises citizens' awareness of the normative implications of political parties' new campaigning practices.

8.2.2 Digital Campaign Competence as Citizen Empowerment

Considering the normative implications of DDC, this dissertation focuses on the means to empower citizens as its first research gap. Citizens are not only the targets of data-driven politics but also the enablers, as their data fuel many decisions in DDC. Citizens are regarded as central figures by virtue of their role as “free data laborers” (Helberger et al., 2020, p. 391). With the shift in political campaigns to data-driven endeavors—and the consequent transformation of the information environments—came new public concerns and revived discussion of what makes a “good citizen” (Mihaïlidis & Thevenin, 2013; Schudson, 1998). From a political science perspective, to do their participatory role justice within the context of most democratic models, citizens should be knowledgeable of current political issues and know how to influence political decisions (Strömbäck, 2005). However, scholars have recently criticized the emphasis on political knowledge as the most important prerequisite for a competent

electorate (Cramer & Toff, 2017; Lupia, 2016). Considering that citizens in the fourth era of political campaigning have acquired certain political information from online platforms (Roemmele & Gibson, 2020), I see the importance for citizens to not only recognize political but also corporate agendas through their digital and media literacy (Hobbs, 2010, p. 17). In other words, citizens may be exposed to a given political ad on Facebook not simply because a political party believes the ad addresses an important social issue but also because the platform identifies them as a suitable audience and monetizes this categorization.

Given citizens' significant role in DDC but their concurrent lack of awareness of its implications, as well as the possibility to technologically constrain their access to information, what can be realistically expected of citizens to enact social change remains unclear, as this cannot be defined by a single standard or criterion (Mihailidis & Thevenin, 2013). This dissertation, drawing on ideas from a variety of sources that address the idea of critical thinkers, defines DCC as the combination of the understanding, evaluation, and skills related to DDC.

The three studies of this dissertation employed a step-wise approach by first investigating citizens' understanding of DDC (Chapter 5), then examining their understanding and evaluations (Chapter 6), and finally determining how citizens' understanding, evaluation, and skills can be influenced (Chapter 7). The purpose of this dissertation is not to validate a DCC scale but rather to explore how a competent citizenry could be conceptualized in a data-driven campaigning context. Chapter 5 offers a rather broad conceptualization of DDC by looking at four components of citizens' understanding of data-driven political advertising (DDPA). The results indicate that DDPA is a multi-faceted concept, and even seemingly similar components can be predicted by different voter attributes. For example, politically interested citizens tended to have more understanding of online behavioral advertising, but this did not hold for general personalization knowledge, social media personalization knowledge, or privacy and data-collection knowledge. This tells us that while certain individual characteristics, such as political interest, may be important to understanding one of the many ways in which DDC can be carried out, it does not tell us who is aware of other DDC tactics, such as the use of individuals' social media networks to determine how to target citizens with content. Although political sophistication is undoubtedly important, **answering new political challenges** cannot be reduced to a single voter characteristic and instead **requires the consideration of multiple elements**.

Chapter 6, offers further insights into citizens' understanding of DDC by looking at (a) a broader range of knowledge categories than the four dimensions offered in

Chapter 5 and (b) by specifically differentiating between subjective and objective understandings across this broader range of knowledge categories. The latter point allows for gaining insights into the self-perceived awareness and actual awareness of campaigning tactics, as well as their implications, and confirms that the level of self-perceived understanding among citizens is higher than the actual level of understanding. This dissertation thus extends the findings by Nelson et al. (2021) from the political advertising literacy context to the data-driven political context, leading to the conclusion that people believe they know more than they actually do. Years of advertising literacy research have identified two dimensions of influence: conceptual understanding and evaluative perceptions. Using multiple components for understanding and evaluations helps to explain the persuasion process, which aligns with the suggestions for future research (Boerman et al., 2018). Chapter 6 thus uses different components that vary in the level of complexity. To the best of my knowledge, this study is the first of its kind to employ such an extensive set of items in the data-driven political advertising context. These items served as input for a latent profile analysis. Upon examining the five resulting voter profiles, I noticed significant differences in socio-demographics. Various voter attributes play a crucial role in determining profile membership. For instance, while younger individuals exhibited greater familiarity with personalization techniques for advertising (Chapter 5), they were also more likely to belong to the moderate and informed profiles, characterized by moderate-to-high levels of knowledge and neutral evaluative perceptions. There appears to be a generational gap in attitudes toward data-driven campaigns. Older individuals tended to have to a profile characterized by an understanding of DDC but were also highly distrustful of them. Following this, the investigation of what citizens know about DDC and how they evaluate it can inform us about their stance toward DDC and explain their behavior in relation to it. Thus, in addition to investigating the conceptualization of competence components in the context of DDC, this dissertation also examined to what extent competence is crucial for behavior (see for example Balkin, 2004; Norris, 2000; Zaller, 1992) and whether this competence–behavior relationship translates to the DDC context.

Citizens facilitate some forms of DDC through their data. To act in one's own best interest in DDC (e.g., Carpini & Keeter, 1996; Jackson & Marcus, 1975), it is necessary to have the ability to consciously assess a given situation and react to it according to one's abilities. Since citizens often encounter political advertisements as manifestations of DDC, citizens should be able to recognize these persuasive messages and, if so desired, mitigate their impact on their own behavior. With reference to what extent knowledge and evaluation of data-driven tactics are consequential to engagement with or avoidance of political ads, in Chapter 5, I report that DDPA knowledge neither affects

ad engagement nor ad avoidance. However, political interest and self-efficacy are crucial for ad engagement and ad avoidance, respectively. In Chapter 6, I report that the *loathing* group, with high understanding levels and pronounced distrust toward DDC, tended to avoid campaign ads more than the *moderate* group, which exhibited medium understanding levels and evaluated DDC as neutral overall. Interestingly, the low understanding levels coupled with negative evaluations present in the *uninformed* profile were not found to affect ad avoidance behavior. The encouraging observation here is that the rejection of data-driven ads is not uniform, nor can it be solely attributed to high or low levels of knowledge. Rather, it stems from higher levels of knowledge coupled with negative evaluations, particularly among older demographics. In short, neither understanding DDC alone nor in combination with citizens' evaluations of DDC affects political ad engagement. However, the right balance of understanding DDC and distrust toward it can lead to ad avoidance. Knowing this is important because citizens' (negative) evaluations might spillover (Strycharz & Segijn, 2022) to, for example, a political party. Especially in the upcoming years, citizens will have more opportunities to learn how they are targeted, as highlighted by the EU regulations on transparency (Van Drunen & Noroozian, 2023), and considering that 2024 is a year full of elections for many citizens, many would have the chance to transfer their negative evaluations to voting decisions.

This dissertation offers ways to think about being a "good citizen" (Schudson, 1998) within an evolving political environment. It emphasizes that it is important for citizens to be mindful of political developments. However, this does not mean that citizens need to be experts in DDC. Citizens' DCC can be viewed as an extension of good citizenship at the intersection of technology and politics. To facilitate the development of their DCC, it is vital that political parties and governments actively support citizens in their pursuit of good citizenship by making information about DDC easily accessible to citizens. The good news here is that, as Chapter 7 demonstrates, informing citizens about DDC increases their understanding regardless of how the information is presented, and their skills to react to DDC are best trained in a non-interactive format. Thus, the need for content can be satisfied without the use of innovative approaches.

8.2.3 Empirical Insights into the European Context

In addition to addressing the research gap of individual-centered competence, this dissertation aims to contribute to the debate regarding the extent to which the country or region where DDC is researched is relevant. Specifically, I add case studies of DDC in Europe, with each study in this dissertation being embedded in different national contexts: the Netherlands (Chapter 5), Germany (Chapter 6), and

Austria (Chapter 7). Despite DDC being a global phenomenon, it has been researched in the Global North rather than in the Global South, most prominently in the United States (Dommett et al., 2023). While studies on DDC are also being conducted in other countries, for example Australia (Kefford et al., 2022), the Netherlands (Chu et al., 2023), and the United Kingdom (Dommett et al., 2024), the debates around DDC are still heavily influenced by the sophisticated campaigning context of the United States, consequently, it remains to be determined to what extent the concerns and promises can be applied to European countries (Zuiderveen Borgesius et al., 2018).

First, politically, the United States has a majority electoral system, while Austria, Germany, and the Netherlands operate with multi-party-systems. This means that on a very basic level, it is much easier to use data-driven strategies in the United States to predict which voter group is more likely to vote for one of the two parties, whereas in multi-party systems, the likelihood of getting it right is smaller. Second, from an organizational viewpoint, the United States has better access to high-quality voter data. This is due to administrative records of voting behavior (Hersh, 2015). These records are considered dependable and are readily available to political parties in the United States. Furthermore, campaigning in the United States is an industry that is not only rich in resources but also in personnel (Baldwin-Philippi, 2017). European election campaigns have smaller budgets and thus less personnel and less services that could provide reliable voter data (Dommett et al., 2024; Zuiderveen Borgesius et al., 2018). Third and last, the regulatory conditions in the United States are less strict than those in Europe (Bennett, 2016). This relative lack of data regulations (Solove & Hartzog, 2014) allows for the extensive collection of citizens' data, the merging of data-sets, and the sale and purchase of data records (Hersh, 2015; Rubinstein, 2014). European countries, on the other hand, are well known for their strict data protection laws (Anstead, 2017; Bennett, 2016; Kruschinski & Haller, 2017). Discussing regulatory conditions is challenging because they are always in flux. The most influential data-protection frameworks are 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). For citizens, this means that they need to be informed which data are used for which purpose. This exemplifies the fact that the political, organizational, and privacy-protective structures determine **under which boundary conditions citizens become aware of DDC**. Citizens' understanding of DDC likely depends on whether the use of data-driven campaigning strategies is regarded as the norm (due to readily available voter data) and whether the media finds DDC has news value and thus reports about it, thereby affecting the chances of whether citizens hear about DDC and its use or not.

Other possibly determining factors, such as political interest, can only partly account for citizens' DCC. For example, findings from Chapter 5 suggest that political interest increases the likelihood that citizens know about personalization through online behavioral advertising but that it does not affect to what extent citizens know of how to limit their data so that it cannot be used by political parties. Furthermore, the context likely affects how citizens feel about the use of DDC. It may initially appear that the framing of discussions around DDC is consequential; for example, data-driven campaigning could be construed as a means to effectively win votes or as a potential threat to the privacy of citizens. However, as demonstrated in Chapter 7, only examining the framing of information about DDC in terms of risks or benefits does not affect citizens' evaluative perceptions of DDC. However, this one-time exposure intervention cannot reveal the long-term effects of framing DDC discussions. Chapters 6 and 7 report the evaluative perceptions of citizens and thus provide an empirically based understanding of these public concerns, which has long been missing from the related research (Aagaard & Marthedal, 2023, p. 14). Most notably, in the German case, none of the participants deemed data-driven political advertising to be positive (Chapter 6), with citizens holding predominantly neutral to negative views. Similarly, the Austrian sample (Chapter 7) emphasizes the overall skepticism citizens feel toward data-driven politics. This skepticism only appeared to dissipate when citizens played the campaign game, an interactive intervention.

Chapter 5 further shows that self-efficacy—individuals' perceived ability to protect themselves from online political data collection—predicts ad avoidance. In this case, the country context may be pertinent because if certain voter data are readily available from administrative records and if privacy regulations are lacking, then citizens have fewer avenues to influence the provision and amalgamation of data. Thus, the country context may matter in establishing citizens' self-efficacy and thus ad avoidance.

Considering the context is also essential for facilitating a precise mapping of the use, effects (Jungherr et al., 2020), and perceptions of DDC. By considering the context, researchers can delve into the nuances of why a particular phenomenon may be effective in one situation but not in another. However, DDC is not an isolated phenomenon in the political landscape and exists alongside other structural constraints. The added value of studying Austria, Germany, and the Netherlands lies in obtaining a more complete picture of DDC and also citizens' DCC. This dissertation is a small albeit important step in moving away from the simple equation that a new technological development equals a *fundamental* transformation of politics, which Jungherr et al. (2020) refer to as the “shiny new object syndrome” (p. 249).

8.3 Limitations and Avenues for Future Research

In this final section, I discuss some of the limitations of this dissertation and outline avenues for future research. Although each study's specific limitations are discussed in their respective chapters, this section aims to reassess which overarching gaps have (partially) been filled through this dissertation and where, based on this, I see the need for further research.

First, the findings of this dissertation may not be generalized beyond the Western European context. Using Dutch (Chapter 5), German (Chapter 6), and Austrian (Chapter 7) samples contribute valuable insights to our knowledge about the perceptions around data-driven campaigning especially since most research on this topic has a US focus (Aagaard & Marthedal, 2023; Dommett et al., 2023). While this allows for some observations to be applied across countries, it does not allow for strict country comparisons, as the measurement items are not the same and should thus be considered as three case studies. Future research should pay attention to increasing the similarity in the study design to render the insights even more insightful, as comparative research is largely missing. Furthermore, this specific set of countries can be categorized as WEIRD (Western, Educated, Industrial, Rich, and Democratic; Henrich et al., 2010). This means that Austria, Germany, and the Netherlands provide citizens with different starting conditions. For example, higher education levels among the general public provide these citizens a head start to ease learning of more specific knowledge areas, such as political campaigns. Chapters 5 and 6 demonstrate that higher education levels contribute to a higher conceptual understanding of DDC. Considering the general Western bias in political communication research (Van Aelst et al., 2017) and DDC (Dommett et al., 2023), future research must focus its resources on non-Western countries, ideally in collaboration with non-Western scholars, to allow for insights that Western scholars might tend to overlook (see Jafari et al., 2012). Further investigations should also examine various (non-)democracies due to their different in ground rules for the relationship between politicians, citizens, and accountability (Baker, 2001). For example, in non-democratic regimes, fewer checks and balances on data use may result in greater abuse of power, including surveillance and repression of citizens. Centralized political control may further limit citizen participation and restrict the proliferation of different perspectives. Conducting case studies in such country contexts is important for two reasons (Klinger et al., 2023, p. 209): First, they can serve scholars as reminders of the necessity to protect citizens' political rights and freedoms, as we may find it easier to identify dynamics that lead to a crisis in other countries than to recognize similar dynamics within our country's context. Second, as citizens encounter DDC through social media platforms and search engines, examining case studies beyond the Global North serves as a reminder of the global influence wielded by these platforms.

They may have been programmed and designed in stable political contexts, and thus might not have initially considered the impact of their tools and decisions on politically unstable environments. Future research should investigate how different regulatory contexts affect citizens' privacy awareness and concerns. Relatedly, in countries where citizen surveillance and stricter limitations on free speech are more common, such as in China, future research could explore citizens' awareness and perceptions of DDC and explore which boundary conditions matter for them.

Second, the data supporting the findings of this dissertation were collected during the years 2021 to 2023. This constitutes a specific time frame for the study of DDC in several ways. First, important data regulations were implemented. While by 2021 the General Data Protection Regulation (GDPR; *GDPR*, n.d.) had been in place for three years, 2023 saw the introduction of the Digital Services Act and Digital Market Act (DSA and DMA; *DSA*, 2022) which more specifically focus on the need for transparency concerning data processing and its impact on society. The DSA requires that large platforms create ad libraries and thus reveal how political ads are targeted, giving researchers access to data and thereby providing the potential for oversight that hitherto had not existed (Van Drunen & Noroozian, 2023). The introduction of a new regulation in the European Union naturally comes with increased media coverage and thus public attention. Although the extent of this public attention is uncertain and likely limited in extent, it is more likely that attention to regulatory topics did exist in 2023 than in 2021. For citizens, this means that they might have acquired some knowledge concerning data regulation in 2023 that they were unaware of in 2021. Second, this period witnessed an increased use of generative artificial intelligence (AI), including large language processing models, such as ChatGPT, and deepfakes using DALL-E. This time has thus been characterized by increased public awareness of technological possibilities and at the same time increased insecurity about what information to trust if information is increasingly created, aggregated, and disseminated by algorithms, and used in politics (Bhuiyan, 2023; Newman et al., 2023)

Third, in line with this increased skepticism, the European Commission emphasized the need for digital skills and competences for citizens (*Literacy Guidelines*, 2023). This was implemented in Austria via the foundation of a national agency in 2023, which has been tasked with developing a framework for digital competences (*OEAD*, n.d.). This means that the public's awareness for tackling topics concerning the importance of data is growing, particularly in the European Union. With greater exposure, citizens might not only become more informed but also have a stronger foundation to assess DDC. Additionally, through educational material offered by national agencies promoting digital competences, as well as the work of NGOs focusing on topics like data-driven politics and data privacy, such as Tactical Tech (Macintyre & Cladis, n.d.) and noyb

(Noyb, n.d.), citizens will have increased opportunities to acquire practical skills in the future. Given the increased efforts of various stakeholders to raise awareness about the significance of data across various life domains, including highlighting both the potential benefits and challenges for democracy, future research should continue to evaluate citizens' DCC. Specifically, it should be determined whether a new regulatory world leads to differentiated views on DDC and thus affects whether citizens engage more or less with political ads.

Fourth, I have suggested the concept of DCC as a means to understand citizens' role in data-driven election campaigns, but this concept requires further conceptual unpacking and testing. This dissertation uses a conceptual trinity of understanding, evaluations, and skills, which are often used to assess competence and have been proposed by the European Commission in their digital competences framework (*EU Digital Education*, 2020). How understanding, evaluation, and skills can be assessed has, however, not been fully answered. **This dissertation is an important first step and explores the nuances in the data-driven political context from a citizen's perspective.** Although the content of these three components was carefully selected according to an expansive base of literature, as described in the studies, some items used to assess citizens' conceptual understanding may lose relevance over time, as they refer to technological options to limit data collection methods that may cease to exist. Given that I have provided the measurement scales and data analysis code, other researchers are invited to assess this conceptualization and to replicate the studies in their work. This would be important to assess the validity of DDC in other countries or within other time frames.

Fifth, in this dissertation, I investigated only some aspects of citizens' political participation behaviors. Chapter 5, describes predicting political ad engagement and ad avoidance using citizens' conceptual understanding, and Chapter 6 outlines using voter profiles derived from a combination of conceptual understanding and evaluative perceptions as predictors. The findings show that ad (dis-)engagement behaviors are skewed in the sense that few people reported that they did either. As it was found that self-efficacy predicts ad avoidance, future research could explore whether skill training correlates with various forms of online and offline political participation. Although the educational intervention described in Chapter 7 trained citizens to detect targeted advertisements, I did not assess whether these skills translate into behaviors (see Figure 3). It may thus be important to explore the behavioral consequences beyond the engage–avoid continuum (Kelly et al., 2020) using a variety of assessment strategies rather than self-reports. Linkage analyses connecting digital traces and survey responses seem to be promising avenues to assess media effects (Otto et al., 2023) and possibly the conditional effects of DDC on behaviors (Chu et al., 2024).

8.4 Final Thoughts

In summary, DDC is (to some extent; Dommett et al., 2024) here to stay, and citizens can be supported in navigating data-driven politics. With 2024 being the "the year of elections" (Ewe, 2023), it is now more important than ever to recognize that a competent citizenry consists of more than its level of political knowledge. **Political discourse takes place at the intersection of politics and technology**, and tech companies have developed business models that leverage voter data to facilitate political discussions online.

Political parties and policymakers need to **take citizens' evaluations of DDC into account** and realize that public **attitudes are notably not positive** but rather distrustful. Literacy initiatives may take heart in the fact that information about DDC, including potential issues of unequal access to information, **irrespective of its format or framing**, can **enhance citizens' understanding**. However, politicians, educators, and scholars face the problem of **informing citizens without provoking undue criticism** or generating the impression that everything is targeted, even when it is not. In studies on dis- and misinformation, a similar phenomenon is recognized, wherein excessive skepticism can impact the perceived credibility of reliable news sources (van der Meer et al., 2023). Hence, this presents an interdisciplinary challenge. Furthermore, encouraging citizens to **engage with political ads is difficult**. If citizens know more about DDC and distrust these practices and implications, they **avoid** them, which is arguably undesirable in democracies that thrive on political participation.

Citizens' perceptions and their agency in DDC are undoubtedly important. However, in the same way that solely relying on citizens to use paper straws cannot solve the issue of climate change either, citizens **do not bear the sole responsibility for DDC's (un)intended consequences**. **Supporting citizens** in becoming more digitally competent **matters beyond political contexts** but might be most noticeable during elections. Even though persuasive campaign ads may only have small effects, concerns persist that they could be the deciding factor between winning and losing elections (Coppock et al., 2020). Future research needs to determine whether countering these minor effects requires similarly small adjustments in citizen competence. Until then, regulators must continue to prevent powerful companies from bypassing privacy laws, forcing citizens into a "pay or okay" situation for data tracking (Lomas, 2024). Citizens' participation in online public (political) discourse should be ensured without them being required to pay or exchange personal data, especially if they lack control over tracked data.