



Master's thesis

***Balancing Perspectives in Public
 Participation: The Effect of Opinion-
 Based Diversity on Public Acceptability
 of Climate Policies***

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Are there deviations of the Master's thesis from the proposed plan?

☐ No

☒ Yes, please explain below the deviations

In deviation to the plan set out in the proposal, data collection via SONA and via the researchers' private network was started simultaneously, as registration for and implementation into SONA took more time than expected. By doing so, we wanted to ensure that the necessary sample would be reached in the time available.

Abstract

Climate change necessitates climate policies enabling sustainable transitions, yet public acceptability of them often remains limited. Public participation increasingly complements representative decision-making in policymaking and is expected to enhance public acceptability. However, specific design features, such as the composition of public forums, are important to achieving public acceptability of outcomes. This study examines how different forms of diversity – demographic and opinion-based – influence public acceptability, whether this is mediated by citizens’ perceptions of representation and procedural fairness, and whether participants’ own opinion about the policy topic moderates these relationships. We hypothesized that a public forum encompassing demographic representativeness as well as different opinion-based diversity on the policy – equally or representatively distributed – would lead to higher public acceptability of its recommendations than those of a forum involving demographic representativeness alone. We expected this relationship to be mediated by perceived representation and perceived procedural fairness and moderated by citizens’ opinion on the policy topic. We conducted an online vignette experiment (N = 306), introducing participants to the policy topic nuclear power before randomly assigning them to one of three public forum diversity conditions. The additional consideration of both forms of opinion-based diversity had no effect on perceived representation, perceived procedural fairness and public acceptability of the forum’s recommendations, suggesting citizens may not be as sensitive to specifics of forum composition as assumed. Both perceived representation and perceived procedural fairness were positively associated with public acceptability. Participants’ prior opinion on nuclear power did not moderate the impact of diversity type on public acceptability.

Keywords: climate policies, public acceptability, public participation, diversity

Balancing Perspectives in Public Participation: The Effect of Opinion-Based Diversity on Public Acceptability of Climate Policies

Anthropogenic climate change increasingly affects ecosystems and human life with adverse outcomes for water and food security, health and well-being, and cities and infrastructure (European Environment Agency, 2024; IPCC, 2022a, 2022b, 2023). Climate change is projected to exacerbate heat-related health issues, malnutrition, relocation of communities, mental health problems, and extreme weather events (IPCC, 2022b). While individual actions can support sustainable change, broader societal transformations and climate policies are necessary to effectively address climate change (Chater & Loewenstein, 2022; IPCC, 2022a). A key mitigation strategy is reducing both energy production and consumption from fossil fuels (European Environment Agency, 2024; International Energy Agency, 2021). Climate policies play a crucial role in enabling this transition by providing regulatory frameworks and setting clear targets (IPCC, 2023). Over the last decades, climate policy initiatives, improving energy efficiency and security have increased (European Environment Agency, 2024; IPCC, 2023; Schmidt & Fleig, 2018). Stechemesser et al. (2024) report a rise in climate policy adoption, with an average of four to eight climate policies per country in 2022. However, current policy efforts fall short of net-zero emissions, demanding further short- and long-term action (International Energy Agency, 2021; IPCC, 2022a; Schmidt & Fleig, 2018).

Climate and environmental policies operate at multiple levels and can target various societal actors, including individuals and companies (Schuitema & Bergstad, 2019). At the international level, agreements like the Paris Climate Agreement establish overarching goals and enable international cooperation (IPCC, 2022a; Perlaviciute & Squintani, 2020). National and regional policies, such as the Dutch Climate Plan, translate these international commitments into more concrete strategies (Perlaviciute & Squintani, 2020). At the local level, policies may take the form of energy projects, such as wind parks (Perlaviciute, 2021).

Beyond technical and economic feasibility, successful policy implementation also depends on public acceptability, as public resistance can deter policymakers from pursuing climate policies (Bergquist et al., 2022; De Groot & Schuitema, 2012; Demski et al., 2015; Perlaviciute, 2021). Despite the need for climate policies, objections to them are relatively common. Policies may be perceived as unfair or evoke negative emotions fueling low public acceptability or even active resistance (Carattini et al., 2019; Cass & Walker, 2009; Gross, 2007). Prominent examples include mobilizations against wind parks or the Yellow Vest movement (Carattini et al., 2019; Cass & Walker, 2009). The relatively widespread opposition to climate policies is also reflected in the affective polarization surrounding them. Herold et al. (2023) report that 44% of respondents in the Netherlands consider current climate policies as insufficient, while 37% lean towards thinking that they go too far.

Public acceptability refers to the degree to which people favour or oppose a policy outcome (Liu et al., 2020). It can be expressed through opinions, behavioural intentions or behaviour (Perlaviciute & Steg, 2014), and is shaped by multiple factors: Policy-specific beliefs such as perceived distributional fairness and effectiveness were found to be the most influential determinants, but other factors, such climate change beliefs (e.g., concern about climate change) and psychological factors (e.g., trust in implementing institutions) also shape public acceptability (Bergquist et al., 2022; Bergquist, 2024).

To ensure effective and supported climate policy implementation, public acceptability is a crucial consideration for policymakers. Even well-designed policies may fail to achieve their aspired outcomes if they lack public acceptability, highlighting the challenge of developing climate policies that are both effective and acceptable.

The Potential of Public Participation

Public participation is widely seen as a way to enhance public acceptability of climate policies (IPCC, 2023; 2022c; Liu et al., 2020). This aligns with the Aarhus Convention, an international agreement currently ratified by 47 parties, which enshrines three interdependent

procedural rights in environmental decision-making: Access to information, public participation, and access to justice (United Nations, 1998; Weaver, 2023).

While public participation can take a variety of forms such as referendums or social movements (Garry et al., 2022; Perlaviciute, 2021), the present study focuses on deliberative forms of public participation organized by responsible actors such as elected officials which directly engage the public in planning, developing and implementing policies via deliberative formats (Dietz & Stern, 2008; Perlaviciute, 2021). In these formats, citizens are typically randomly selected to represent the broader public and meet to deliberate and formulate policies or policy recommendations (OECD, 2020; Pow, 2023). These public participation procedures can vary along several dimensions such as participant number, intensity, frequency, and duration (Ernst, 2019; Fritz et al., 2024; OECD, 2020), with common formats including citizens' juries or citizens' assemblies (Bedock & Pilet, 2021; OECD, 2020). In the following, these formats of public participation will be referred to as public forums¹.

In recent years, public forums have gained traction across policy domains, including climate policymaking (Dryzek et al., 2019; OECD, 2020; Paulis et al., 2020) due to expected positive outcomes such as more locally appropriate and socially acceptable solutions, improved decision quality, increased perceived procedural fairness and enhanced democratic legitimacy (Boulianne, 2018; Liu et al., 2020; Liu et al., 2022; OECD, 2020; Van der Does & Jacquet, 2023). Evidence shows that decision-making involving public forums elicits higher perceived fairness and acceptability than procedures that do not (Germann, 2025; Jacobs & Kaufmann, 2021, Werner & Marien, 2022).

¹ 'Public forum' was chosen as the term to refer to these deliberative formats in this study. In research and participatory practice, these formats are referred to with various labels, a prominent one being '(deliberative) mini-public' (e.g. Curato et al., 2021; Pow, 2023). In this study, the term 'public forum' is used consistently. This choice is informed by arguments in the literature that technical terms like deliberative mini-public are not widely understood by the general public and may introduce bias in data collection (Paulis et al., 2024). To avoid confusion due to inconsistent terminology, we therefore use the term 'public forum' throughout the study.

Several design features of public forums were found to be crucial in shaping public acceptability of public forums and their outcomes (Christensen, 2020; Goldberg & Bächtiger, 2023). For instance, citizens tend to prefer moderate decision-making power (i.e., being informed or having a say) over full decision-making power (i.e., the ability to decide; Christensen, 2020; Goldberg & Bächtiger, 2023; Perlaviciute & Squintani, 2020). Such findings challenge normative assumptions stating that strengthening normative aspects such as inclusiveness or decision-making power results in policies better reflecting citizen perspectives and reaches broader public acceptability (Perlaviciute, 2021; Smith, 2009). Thus, the relationship between normative standards and public acceptability seems to be less straightforward, underscoring the need for behavioural science research to identify the mechanisms linking public forums to public acceptability.

Diversity in Public Participation

One relevant, yet underexplored, design feature of public forums is diversity and its effect on public acceptability. Diversity in public forums has been identified as a central criterion and refers in this study to the extent to which individuals from various backgrounds are included in decisions that affect them (Perlaviciute, 2021; Smith, 2009). As public forums are increasingly employed and complement traditional policymaking (OECD, 2020), the question of who gets to participate gains importance. Based on the democratic principle of equal political participation, all citizens should have an equal opportunity to influence decisions that concern them (Dryzek, 2002). Accordingly, diversity, sometimes also referred to as inclusiveness, has been highlighted as a central criterion for the legitimacy of participatory processes (Dahl, 1989; Gastil & Wright, 2018; Perlaviciute, 2021; Smith, 2009). Beyond this normative foundation, research from organizational settings suggests that group diversity has important positive consequences which are especially relevant in decision-making contexts: For instance, diverse groups tend to be more creative, innovative and make higher-quality decisions than homogenous groups (Ellemers & Rink, 2016).

While diversity in public participation is normatively grounded and has been linked to better deliberative outcomes, its effect on public acceptability, particularly among non-participants, remains less understood as most research focuses on the experiences and perceptions of participating citizens, rather than those of non-participants (Christensen et al., 2023; Germann, 2025). Still, some studies suggest that the composition of public participation impacts broad public evaluations (Boulianne, 2018; Christensen et al., 2023; Werner & Marien, 2022). Since public acceptability is vital for policy implementation, it is crucial to understand how non-participants perceive the diversity in public forums and how it affects their acceptability. Moreover, existing research often emphasizes demographic diversity, the inclusion of demographic groups, putting less emphasis on opinion-based diversity, the inclusion of different opinion stances, which may also be important in shaping public acceptability as some scholars argue (Germann, 2025; Paulis et al., 2024). Beyond, most studies examine the direct impact of diversity in public forums on public acceptability, focusing less on underlying psychological mechanisms such as perceptions of representation and procedural fairness as well as individual-level factors, such as citizens' opinion on the policy topic. Yet, these elements may offer a more nuanced understanding of non-participants' public acceptability. Addressing these gaps, the present study seeks to address the following research questions:

1. Does the additional consideration of opinion-based diversity next to demographic diversity in a public forum impact
 - a. perceived representation of oneself and other citizens,
 - b. perceived procedural fairness of the decision-making process,
 - c. and public acceptability of the recommendations of the public forum among non-participating citizens?
2. Does an individual's opinion on the policy topic moderate the effect of the emphasized diversity on public acceptability of the recommendations of a public forum?

The Impact of Demographic and Opinion-Based Diversity on Public Acceptability

Diversity, both within public forums and in organizational contexts, is typically understood through demographic diversity capturing characteristics such as age, gender, and socio-economic status (Martin-Alcázar et al., 2011; Perlaviciute, 2021; Van Knippenberg & Schippers, 2006). In this study, demographic diversity refers to the extent to which a public forum includes members of different demographic groups from the broader population. In representative political systems, public forums are typically expected to achieve demographic representativeness and mirror the population across key demographic attributes (Curato et al., 2021). Thus, demographic representativeness entails the inclusion of participants based on sociodemographic attributes such as age, gender, and education in proportions reflecting their societal distribution (Curato et al., 2021). To achieve this, sortition-based procedures typically rely on random selection and ensure demographic stratification (OECD, 2020; Pow et al., 2020). Participants reported higher perceptions of procedural fairness and decision acceptance when a public forum was described as demographically representative. Even minor deviations from demographic representativeness by 5% or 20% leading to the overrepresentation of individuals with university degree reduced these positive evaluations (Germann, 2025). Similarly, some studies show that citizens prefer random selection of participants over non-participatory processes or those based on self-selection (Goldberg, 2021; Goldberg & Bächtiger, 2023).

However, demographic representativeness does not consistently translate into higher public acceptability. In a conjoint analysis, Christensen (2020) found that people did not view a participatory process with a representative sample more favourably than one involving all willing to participate or only key stakeholders. Similarly, Pow (2023) found that respondents did not perceive a sortition-based selection for a public forum resulting in demographic representativeness of age, gender, social class, and religious and community background as more legitimate than public forums formed through election or composed of 50% politicians

and thus not representative of broader society. These findings suggest a potential gap between the normative ideal of demographic representativeness and public evaluations.

In comparison to demographic diversity, opinion-based diversity has received less attention. Here, opinion-based diversity refers to the inclusion of participants with different viewpoints on topics related to the policy under deliberation. While demographic representativeness is central to participatory design, theorists also stress the importance of incorporating competing discourses and claims to foster fairness and legitimacy (Dryzek, 2002; Dryzek & Niemeyer, 2008). Although scholars have underscored the value of opinion-based diversity (Dryzek & Niemeyer, 2008; Itten & Mouter, 2022; Paulis et al., 2024), sortition-based procedures rarely incorporate opinion-based diversity in selection procedures, as seen in the Dutch citizens' assembly on energy or the Danish climate citizens' assembly (Ejsing et al. 2023; Paulis et al., 2020; Perlaviciute, 2021; Perlaviciute et al., 2024).

Yet, citizens sometimes seem to perceive public forums as biased towards certain opinions. In the case of the French Convention for Climate, 49% of the surveyed uninvolved citizens perceived the process as unrepresentative, most of them citing a perceived overrepresentation of environmentalists and pro-government voices (Fabre et al., 2021). Such perceptions related to opinion-based diversity may shape evaluations of both the process and its outcomes.

Few studies have explicitly examined how opinion-based diversity influences public acceptability of public forums and existing findings are mixed. Paulis et al. (2024) found that neither demographic nor opinion representativeness of a public forum was generally central in shaping acceptability. On the other hand, Germann (2025) reported that deviations from opinion representativeness negatively impacted perceptions of procedural fairness and decision acceptance as compared to representative procedures – similar to the effects observed for demographic representativeness. Analogous to demographic representativeness,

opinion representativeness refers to the inclusion of participants whose opinions reflect the distribution of opinions in wider society.

Taken together, these findings highlight the potential theoretical and practical relevance of both demographic and opinion-based diversity in public forums in shaping public acceptability. To date, research has yet to systematically examine the effects of opinion-based diversity alone and in combination with demographic diversity as current evidence remains limited. The present study addresses this gap by investigating whether considering opinion-based diversity next to demographic representativeness increases public acceptability among uninvolved citizens. While the consideration of demographic representativeness is a central criterion of public forums, the additional consideration of opinion-based diversity may also contribute to public acceptability by ensuring that the decision-making process considers specific perspectives and opinions. We argue that the inclusion of opinion-based diversity alongside demographic representativeness may signal a more balanced and topic-focused deliberation, thus increasing public acceptability among uninvolved citizens.

Opinion Representativeness and Opinion Diversity

While the potential of opinion-based diversity to enhance public acceptability is increasingly acknowledged, it remains open for further investigation how this form of diversity should best be implemented alongside demographic diversity. Existing research remains too limited to draw firm conclusions. We focus on two approaches to incorporating opinion-based diversity, namely opinion representativeness and opinion diversity². As presented, opinion representativeness involves matching the distribution of opinion stances in a public forum to those in the broader population. On the other hand, in this study, we

² The term ‘opinion diversity’ is used specifically to distinguish it from opinion representativeness. It should be clearly distinguished from the broader definition of ‘opinion-based diversity’ as defined above.

understand opinion diversity as the equal distribution of opinions in a public forum regardless of their prevalence in society.

Deliberative democratic ideals emphasize equal participation and equal consideration of all perspectives, typically operationalized through representativeness (Dryzek, 2002). Thus, representativeness is widely regarded as a cornerstone of deliberative participatory processes (Barnes et al., 2003; Curato et al., 2021). As representativeness, though mostly operationalized as demographic representativeness, is a central normative ideal and is institutionally promoted via sortition procedures, we argue that the consideration of opinion representativeness may further increase acceptability among uninvolved citizens. Previous research suggests that opinion representativeness may be crucial in enhancing public acceptability (e.g., Germann, 2025). This may be achieved by signalling a more nuanced reflection of the citizenry to uninvolved citizens, which is not restricted to demographic criteria, but also to opinions directly connected to the topic under deliberation. Knowing that a public forum is representative not only in terms of demographic groups, but also in terms of opinions, may therefore improve acceptability among uninvolved citizens.

However, while striving for opinion representativeness is normatively appealing, it risks marginalizing minority perspectives (Barnes et al., 2003). This raises the question of whether alternative approaches to opinion representativeness, such as opinion diversity, might also contribute to public acceptability, challenging traditional ideals of representativeness. Moreover, empirical studies suggest that citizen preferences do not always align with normative standards. Evidence on demographic and opinion-based diversity – as well as other design features such as decision-making power – demonstrates a potential mismatch between normative expectations and public evaluations (e.g., Christensen, 2020; Paulis et al., 2024; Perlaviciute & Squintani, 2020), prompting the investigation of alternatives. Furthermore, past studies testing alternatives to opinion representativeness often framed these variations in terms of distortions by actively communicating an over- or underrepresentation of certain

groups, possibly contributing to the observed negative effects on public acceptability (Paulis et al., 2024; Germann, 2025).

Therefore, it seems relevant to examine whether alternative models of opinion-based diversity, characterized by opinion diversity, could also enhance public acceptability. Specifically, citizens might perceive the deliberation in a public forum emphasizing opinion diversity as balanced, such that the prevalence of different opinions is equal. Unlike quotas, this approach can seek to involve a wide range of perspectives, including minority and dissenting voices (Barnes et al., 2003), which are equally heard and considered in the decision-making process. This, in turn might be positively evaluated by uninvolved citizens, thereby enhancing public acceptability.

Given the normative justification but limited and diverging empirical findings, it remains open for investigation which form of opinion-based diversity better promotes acceptability, which justifies exploring both approaches. We propose that both forms of opinion-based diversity, when combined with demographic representativeness, may increase the acceptability of public forum outcomes beyond that of a public forum only considering demographic representativeness.

The Effect of Perceived Representation

Although deliberative formats of public participation such as public forums differ from traditional representative decision-making by directly involving ordinary citizens, they typically rely on a relatively small, selected group of citizens to deliberate on behalf of the broader public (Nonami et al., 2015; Paulis et al., 2024). As most citizens remain uninvolved, they must rely on these participants to represent both their own interests and those of other citizens – making representation a central quality of public forums (Gül, 2019; Pow, 2019). Arguably, the diversity incorporated in public forums, both demographic and opinion-based, is therefore directly connected to the aim of representation.

While representation is an aspiration of public forums, it is essential to consider whether uninvolved citizens also perceive themselves and other citizens as being represented as this may not always be the case. Nonami et al. (2015) previously found that the impact of representatives' participation on perceived procedural fairness and public acceptance was stronger when those representatives were described as holding similar opinions as the respondents. However, it is not just the actual similarity that matters but also whether people perceive it as such. Survey evidence by Pow et al. (2020) showed that citizens evaluate public forums as more legitimate and acceptable when they perceived the participants to be 'like them', for example, in terms of lived experiences. According to the authors, this perceived connection between uninvolved citizens and forum participants is an underlying psychological mechanism, linking public forums to the citizenry. They also stress that that representation, as in their study, can evolve from more than demographic attributes and the most central attribute will depend on the issue discussed.

Perceptions of representation may not only relate to the self. They may also capture the extent to which people think that the participants involved in a public forum represent different members of society, typically attempted to be achieved through sortition procedures (Curato et al., 2021). Still, it is essential to examine whether this is also achieved in practice or whether it might not evoke perceptions of representation among non-participating individuals.

These arguments and empirical findings suggest that perceiving oneself and other members of society to be represented by participants may be an important factor shaping the public acceptability of outcomes from public forums. While previous studies emphasize perceived similarity and lived experience as foundations of psychological representation (Pow et al., 2020), opinion-based diversity may serve a similar function. Citizens may feel more represented by a public forum when it emphasizes opinion-based diversity, through opinion representativeness or opinion diversity, because this signals that their own stance and those of

other citizens are, in addition to demographic representativeness actively considered. Thus, including opinion-based diversity may strengthen the perceived representation experienced by uninvolved citizens thereby enhancing public acceptability.

The Effect of Perceived Procedural Fairness

Perceptions of fairness are key determinants of public acceptability and were previously found to be a stronger predictor of policy acceptance than perceived policy effectiveness, environmental concern, or individual values (Gross, 2007; Jagers et al., 2019; Povitkina et al., 2021; Isaacson et al., 2024). In particular, perceived procedural fairness, so “the extent to which the public evaluates the decision making as fair, open, transparent and taking different interests into account” (Liu et al., 2020; p.1), plays an important role in shaping the public acceptability of participatory processes (Ernst, 2019; Ohnuma et al., 2022). It is widely recognized as a key precondition for public acceptability and often examined alongside public acceptability in assessments of political legitimacy (Esaiasson et al., 2019; Germann, 2025; Perlaviciute & Steg, 2014; Schuitema & Bergstad, 2019). Research shows that perceived procedural fairness can mediate the relationship between public participation and public acceptability when compared to a procedure not involving the public, with higher perceived procedural fairness enhancing public acceptability (Liu et al., 2020).

Diversity within public participation can also shape perceptions of procedural fairness. Ernst (2019) found that participant diversity (i.e., the inclusion of all affected interests) predicted perceived procedural fairness. However, empirical findings overall remain mixed, not yet providing a clear-cut conclusion of whether opinion-based diversity in public forums impacts perceived procedural fairness and in turn public acceptability. Germann (2025), for instance, showed that deviations from representativeness in a public forum led to less positive perceptions of procedural fairness and decision acceptance compared to a representative forum.

In sum, both theory and evidence underscore the importance of perceived procedural fairness in fostering public acceptability. As shown, public forum diversity can shape perceptions of procedural fairness. Building upon the extensive body of evidence underscoring the role of procedural fairness, we argue that the additional implementation of opinion-based diversity through opinion representativeness or opinion diversity beyond demographic representativeness may enhance public acceptability indirectly by influencing perceived procedural fairness such that inclusion of opinion-based diversity will result in the process being evaluated as fairer which in turn enhances public acceptability.

The Effect of Individuals' Opinions

Individual-level characteristics, such as personal opinions, have been shown to impact public acceptability of the decisions of public forums. For instance, Germann (2025) reports that a representative public forum was generally perceived as more procedurally fair and the decision more acceptable, than a decision not involving the public. However, these positive perceptions were less nuanced when a public forum slightly overrepresented (i.e., by 5%) citizens with a different initial viewpoint, compared to a fully representative public forum. Importantly, both formats were still evaluated as fairer and the decision as more acceptable than a procedure not involving the public. However, when people with a different opinion were largely overrepresented (i.e., by 20%) in a public forum, the process was not perceived as fairer and the decision not as more acceptable than a process without public involvement. While interpreted by the author as a general support for the importance of representativeness, this might also indicate that citizens are unfavourable to deviations from representativeness when it is associated with an underrepresentation of their own stance.

Other research similarly suggests public forums are more likely to be accepted when the outcome corresponds with citizens' own preference regarding the outcome which can arguably interact with the distribution of favourable and unfavourable opinions in a public forum (Goldberg & Bächtiger, 2023). However, Garry et al. (2022) found that 75% would

still accept the decision of a public forum which was the opposite of their own opinion. Importantly, they investigated this for positions directly related to the topic under deliberation, which was of ethno-national nature. They still report differences between citizens with high versus moderate ethno-national ideology; while 82% with medium ideology reported they would accept the decision, only 42% with a strong ideological stance were ready to accept a decision opposite to their opinion.

In sum, these findings suggest that individuals' stances on a topic can impact how acceptable they find a procedure or outcome. In the context of our investigation of different forms of diversity, we therefore argue the following: Although a public forum emphasizing opinion diversity may be viewed as acceptable in general, individuals whose opinions are underrepresented may experience less representation, perceive the process as less fair, and evaluate the outcome as less acceptable than they would for a public forum emphasizing opinion representativeness. They may assume their viewpoint is inadequately considered, thereby reducing their acceptability. Conversely, individuals whose opinions are well or overrepresented in a public forum emphasizing opinion diversity may experience more representation, perceive the process as fairer, and find the outcomes more acceptable than in a public forum emphasizing opinion representativeness.

The Present Research

Together, the theoretical considerations and empirical findings lead us to expect that both opinion representativeness and opinion diversity, when considered next to demographic representativeness, may enhance public acceptability. While opinion representativeness shows citizens that their views are statistically reflected, opinion diversity ensures that all relevant perspectives, including minority viewpoints, are explicitly included in deliberation. Both forms of opinion-based diversity may enhance perceived representation and procedural fairness, understood as psychological mechanisms shaping citizens' evaluations of public forums. Finally, these relationships may be moderated by citizens' opinions on the topic under

deliberation. Based on the provided argumentation and evidence, we formulate the following hypotheses:

Hypothesis 1. Recommendations from a public forum that is demographically representative and includes opinion-based diversity, either through opinion representativeness or opinion diversity, will result in higher public acceptability than recommendations from a public forum that is only demographically representative.

We further explore which type of opinion-based diversity leads to greater public acceptability. As existing evidence does not support a clear directional prediction this comparison remains exploratory.

Hypothesis 2. Perceived representation will mediate the relationship between the diversity in a public forum and public acceptability of its recommendations. Adding opinion-based diversity, opinion representativeness or opinion diversity, to demographic representativeness in a public forum will lead to higher perceived representation than for a public forum which only considers demographic representativeness, which in turn will be associated with greater public acceptability of the recommendations.

Hypothesis 3. Perceived procedural fairness will mediate the relationship between the diversity in a public forum and public acceptability of its recommendations. Adding opinion-based diversity, opinion representativeness or opinion diversity, to demographic representativeness will lead to higher perceived procedural fairness than a public forum which only considers demographic representativeness, which in turn will be associated with greater public acceptability of the recommendations.

Hypothesis 4. The indirect effects of forum diversity type on public acceptability via perceived representation and perceived procedural fairness will be moderated by participants' own opinion on the policy. Participants will report greater acceptability in a public forum emphasizing opinion diversity (vs. opinion representativeness) when their opinion is well- or overrepresented relative to societal proportions. Participants will report lower acceptability in

a public forum emphasizing opinion diversity (vs. opinion representativeness) when their opinion is underrepresented relative to societal proportions.

To test these hypotheses, we conducted an online vignette experiment. We selected nuclear energy as policy topic due to its salience in the Netherlands: In May 2024, the Dutch government announced plans to build four nuclear power plants and extend the operation of the existing plant in Borssele beyond 2033, marking a shift from previous plans to build only two new plants, highlighting the issue's relevance for public deliberation (International Atomic Energy Agency, n.d.). Moreover, we had reference data available from a survey on Dutch public opinion about nuclear power by the Centraal Bureau voor de Statistiek (CBS, 2023) which could be incorporated into the vignettes, grounding the scenarios in existing public attitudes.

Method

Design

This study employed a between-subject design using an online vignette experiment. Participants were randomly assigned to one of three public forums conditions: (1) demographic representativeness, (2) demographic and opinion representativeness, or (3) demographic representativeness and opinion diversity. All conditions emphasized demographic representativeness, while the latter two varied in their incorporation of opinion-based diversity to assess their additional impact on public acceptability of policy recommendations. Ethical approval was granted by the ethics committee from the Faculty of Behavioural and Social Sciences.

Participants

Participants were recruited via two channels: 243 first-year psychology students were recruited through the University of Groningen's SONA participant pool and received 0.4 SONA credits as compensation. SONA IDs were collected solely for credit allocation and

removed before analysis. 103 participants were recruited from the researcher's student network via study-related groups. No demographic data were collected due to the expected relative homogeneity of the sample and the non-centrality of demographic characteristics to the research questions. English proficiency was communicated as inclusion criterion.

A total of 346 people completed the survey. 40 participants were excluded due to missing or denied consent to participate or process data (either in the beginning or when asked to reaffirm at the end of the survey; $n = 33$) and/or failing the attention check ($n = 8$), resulting in a final sample of 306. Participants were distributed as follows: 106 in the demographic representativeness condition, 96 in the demographic and opinion representativeness condition, and 104 in the demographic representativeness with opinion diversity condition.

Procedure

The study was conducted via Qualtrics between April 2 and April 26, 2025, and completion took approximately 10-15 minutes. After providing informed consent, participants were introduced to the topic of nuclear power in the Netherlands, including the current number of reactors, government plans for expansion, and public opinion distribution. They were then asked about their own opinion on the topic. Next, participants were randomly assigned to one of three experimental conditions describing a fictional public forum established by the Dutch government to develop recommendations on the nuclear energy strategy. They were informed that the government would be required to justify deviations from the recommendations, reflecting moderate decision-making power, which prior research suggests is generally acceptable to the public (Perlaviciute & Squintani, 2020). While the policy context aligns with reality, the public forums were fictional.

Condition descriptions were presented via text-based vignettes (see Table 1), supplemented by AI-generated images (see Acknowledgements) of the public forums and visualizations of the opinion distributions in the two opinion-diverse conditions (see

Appendix A). Prior research suggests such visualizations improve participant comprehension of public forum composition (Pow, 2023).

Table 1

Descriptions of the Public Forum in the Three Diversity Conditions

Condition	Description
Demographic Representativeness	To make sure the public forum reflects Dutch society, the government has chosen participants based on demographics. The group includes people of different ages, education levels, genders, and regions of the Netherlands. The goal is to ensure that all layers of society have a voice in the recommendations.
Demographic and Opinion Representativeness	To ensure a variety of perspectives, the government has selected participants based on both demographics and opinions about nuclear power. The public forum includes people of different ages, education levels, genders, and regions of the Netherlands. Moreover, participants proportionally represent different opinions on nuclear power: supporters of expanding nuclear power, those wanting to maintain the current level, the opponents of nuclear power, as well as people with no opinion. The distribution of opinions in the public forum reflects that of Dutch society.

Demographic Representativeness and Opinion Diversity	To ensure a variety of perspectives, the government has selected participants based on both demographics and opinions about nuclear power. The public forum includes people of different ages, education levels, genders, and regions of the Netherlands. Moreover, participants equally represent different opinions on nuclear power: supporters of expanding nuclear power, those wanting to maintain the current level, the opponents of nuclear power, as well as people with no opinion. All opinions are equally distributed.
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After the description, participants completed a questionnaire including three manipulation check items, a factual attention check and the main variables perceived representation (of themselves and citizens in Dutch society), perceived procedural fairness of the decision-making process, and the public acceptability of a potential policy recommendation by the public forum. Participants were thanked, debriefed, and asked to reaffirm their consent for participation and data processing.

Materials

A full set of research materials is provided in Appendix A.

Manipulation Check

Three items assessed the effectiveness of the experimental manipulation and participants' perception of the diversity in the public forum. Two items were adapted from Perlaviciute et al. (2024), one was self-developed. On a 7-point Likert scale (from 1 to 7), participants rated the extent to which public forum participants were (1) a good reflection of different societal groups for example for different incomes, educational levels, ages, or

genders (i.e., demographic representativeness), (2) a good reflection of diverse opinions and standpoints in society (i.e., opinion diversity), and (3) representative of the existing opinions and standpoints in society (i.e., opinion representativeness).

Factual Attention Check

To assess attention, participants were asked to identify the topic of the public forum, with response options ‘meat tax’ and ‘nuclear power’.

Own Opinion on Nuclear Power

Participants were asked to indicate their opinion on what the Netherlands should do regarding its nuclear power use (based on the categorization by CBS (2023)). Response options included: ‘completely stop nuclear power’, ‘reduce nuclear power’, ‘maintain current level’, ‘increase’, ‘significantly expand nuclear power’, and ‘no opinion’. The additional response option (‘significantly expand nuclear power’) was included to treat responses as continuous variable. The option ‘don’t know this source’ from CBS (2023) was excluded as irrelevant.

Perceived Representation

Perceived representation was measured with four items: one adapted from Pow et al. (2020), two adapted from Jans et al. (2024), and one self-developed. On a 7-point Likert scale (from 1 to 7), participants indicated how much they perceived public forum members as (1) people like them, (2) having similar opinions like them, (3) representing well people in society and (4) promoting the interests of people in Dutch society.

We expected that responses to the first two items might diverge from the latter two due to a likely high share of international students, who may not strongly see themselves as part of Dutch society and therefore not perceive the forum participants to be ‘like them’. Reliability analysis showed that item one and two had limited reliability ($\alpha = .66$), items three and four demonstrated acceptable reliability ($\alpha = .70$). Reliability for all items combined had acceptable reliability ($\alpha = .73$). Correlations ranged from medium to strong across all items.

Items one and two were strongly correlated ($r(306) = .50, p < .001$), as were items three and four ($r(306) = .53, p < .001$). Item one had medium correlations with item three ($r(306) = .35, p < .001$) and four ($r(306) = .32, p < .001$). Similarly, item two showed medium correlations with item three ($r(306) = .37, p < .001$) and item four ($r(306) = .37, p < .001$). Given acceptable internal consistency and meaningful correlations, the four items were aggregated.

Perceived Procedural Fairness

Four items adapted from Liu et al. (2020; Study 2) assessed procedural fairness using a 7-point bipolar scale (from -3 to +3). Participants were asked to rate the decision-making process from (1) ‘very unfair’ to ‘very fair’, (2) ‘totally not open’ to ‘very open’, (3) ‘totally not transparent’ to ‘very transparent’, and (4) ‘not at all taking different interests into account’ to ‘very much taking interests into account’. Previously, these items showed good reliability (Liu et al., 2020; $\alpha = .89$). In the present study, internal consistency was acceptable ($\alpha = .76$), and items were aggregated.

Public Acceptability

Public acceptability was measured with four items from Liu et al. (2020; Studies 1 & 2) on a 7-point bipolar scale (from -3 to +3). Participants were asked to which extent they would evaluate a policy recommendation from the public forum from (1) ‘very unacceptable’ to ‘very acceptable’, (2) ‘very bad’ to ‘very good’, (3) ‘very negative’ to ‘very positive’, and (4) ‘very unnecessary’ to ‘very necessary’³. Liu et al. (2020) previously reported good to excellent reliability ($\alpha = .81, \alpha = .92$). Internal consistency in this study was good ($\alpha = .86$) and items were aggregated.

³ A mistake in the survey was identified 24 hours after data collection had begun. One item assessing public acceptability had the response scale labelled ‘very unnecessary’ at both ends, instead of ‘very unnecessary’ and ‘very necessary’. By the time the error was corrected, the survey had received 51 responses (47 via SONA and 4 via the researcher’s private network). It was assessed as unlikely that participants noticed this mistake or that it influenced their response behaviour; therefore, the impact of this error is considered negligible.

Analysis

The analysis was conducted in R 4.3.2 (R Core Team, 2023). Although mediation and moderated mediation analysis were initially planned, the analytic approach was revised due to the absence of a significant main effect of diversity type on public acceptability, rendering the planned analysis inappropriate. The original analysis plan is available in Appendix B.

Preliminary analyses included manipulation checks, missing data, and descriptive analyses. For the main analysis, a one-way Analysis of Variance (ANOVA) was conducted to assess the effect of diversity type on public acceptability. As this effect was not significant, we conducted separate one-way ANOVAs to examine whether diversity type influenced perceived representation and perceived procedural fairness. We conducted simple linear regressions to test whether perceived representation and procedural fairness were independently linked to public acceptability. A multiple regression analysis including both variables assessed their unique contribution to the public acceptability of forum recommendations. Finally, we tested for moderation by participants' opinions on nuclear power.

Sample Size Consideration

A priori power analysis conducted with G*Power indicated the following required sample size. To detect a medium-small effect size for ANOVA, (Cohen's $f^2 = 0.20$) with 80% power, $n = 246$ was needed. For the mediation analysis, $n = 244$ was required for a small effect (Cohen's $f^2 = 0.04$). For the moderated mediation analysis, $n = 304$ was needed for a small effect (Cohen's $f^2 = 0.04$). With $N = 306$, the sample size was sufficient for all planned analyses.

Results

Descriptive Results

Across the full sample, perceived representation of oneself and other Dutch citizens ($M = 4.53$, $SD = 0.86$), perceived procedural fairness of the decision-making process ($M =$

0.98, $SD = 0.89$) and public acceptability of potential policy recommendations of a public forum ($M = 0.89$, $SD = 0.98$) all had means above the scale midpoint. For mean scores in each condition, see Table 2. The distributions of these three variables were slightly left-skewed, kurtosis indicated relatively normal distributions. As all variables showed outliers, the corresponding observations were examined. None showed signs of straight-lining, and in some cases, responses across all three variables were consistently higher or lower than the mean which did not raise concerns for analysis. Thus, all were kept for further analysis. Descriptive analysis of opinions on nuclear power indicated that the sample was less supportive of nuclear power compared to the reference data (CBS, 2023; see Figure 1). Correlations among all variables included in the model were computed (Table 3).

Table 2

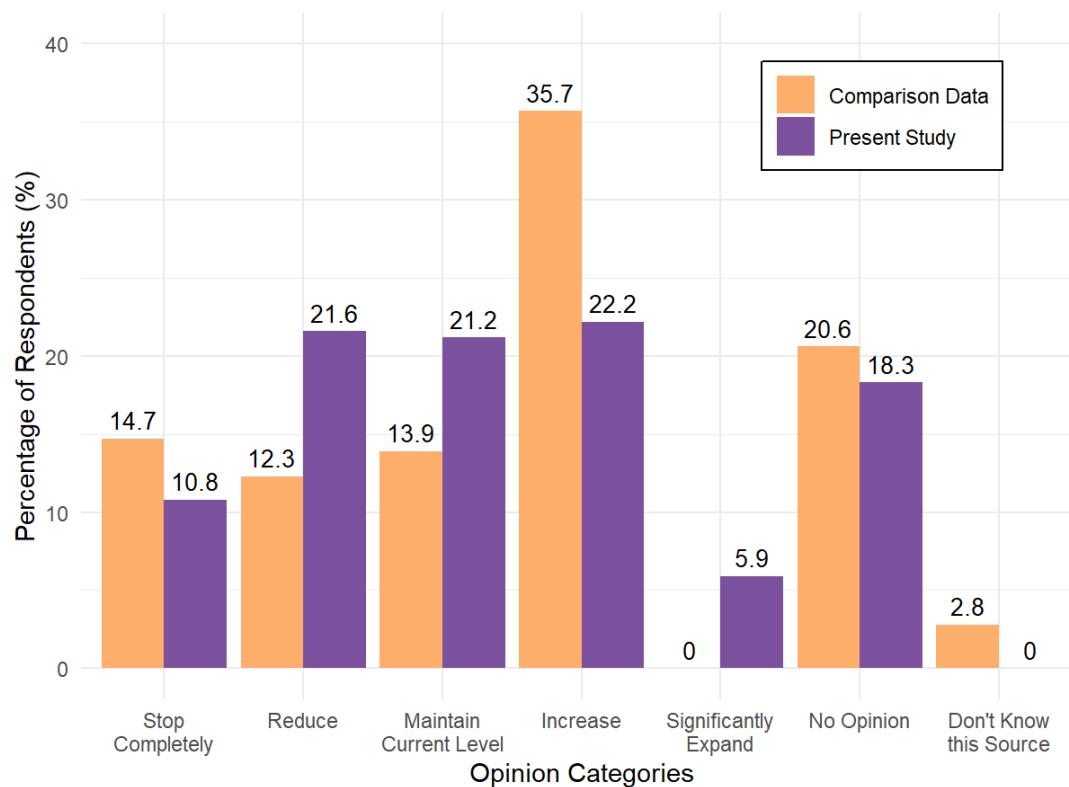
Mean Scores of Perceived Representation, Perceived Procedural Fairness and Public Acceptability across Conditions

		<i>M</i>	<i>SD</i>
Perceived Representation	DR	4.58	0.84
	DR + OR	4.55	0.81
	DR + OD	4.45	0.92
Perceived Procedural Fairness	DR	1.06	0.86
	DR + OR	0.88	0.91
	DR + OD	0.97	0.89
Public Acceptability	DR	1.03	0.86
	DR + OR	0.80	1.05
	DR + OD	0.83	1.00

Note. DR = Demographic Representativeness, OR = Opinion Representativeness, OD = Opinion Diversity.

Figure 1

Opinion Distribution in This Study and the Comparison Data



Note. For the two answer options, ‘significantly expand’ and ‘don’t know this source’, data are available from either the present study or the comparison data only, as these categories were not included in the respective other data collection.

Table 3*Correlations between Main Variables*

	1	2	3	4
1 Perceived Representation	-			
2 Perceived Procedural Fairness	0.50***	-		
3 Opinion on Nuclear Power*	0.09	0.10	-	
4 Public Acceptability	0.48***	0.63***	0.11	-

Note. *Opinion on Nuclear Power coded as: 1 = ‘stop completely’, 2 = ‘reduce’, 3 = ‘maintain current level’, 4 = ‘increase’, 5 = ‘significantly expand’. ‘No opinion’ option was excluded for calculating correlations, correlations between opinion on nuclear power and other variables were computed with $n = 250$, correlations with opinion on nuclear power are Spearman correlations. *** $p < .001$.

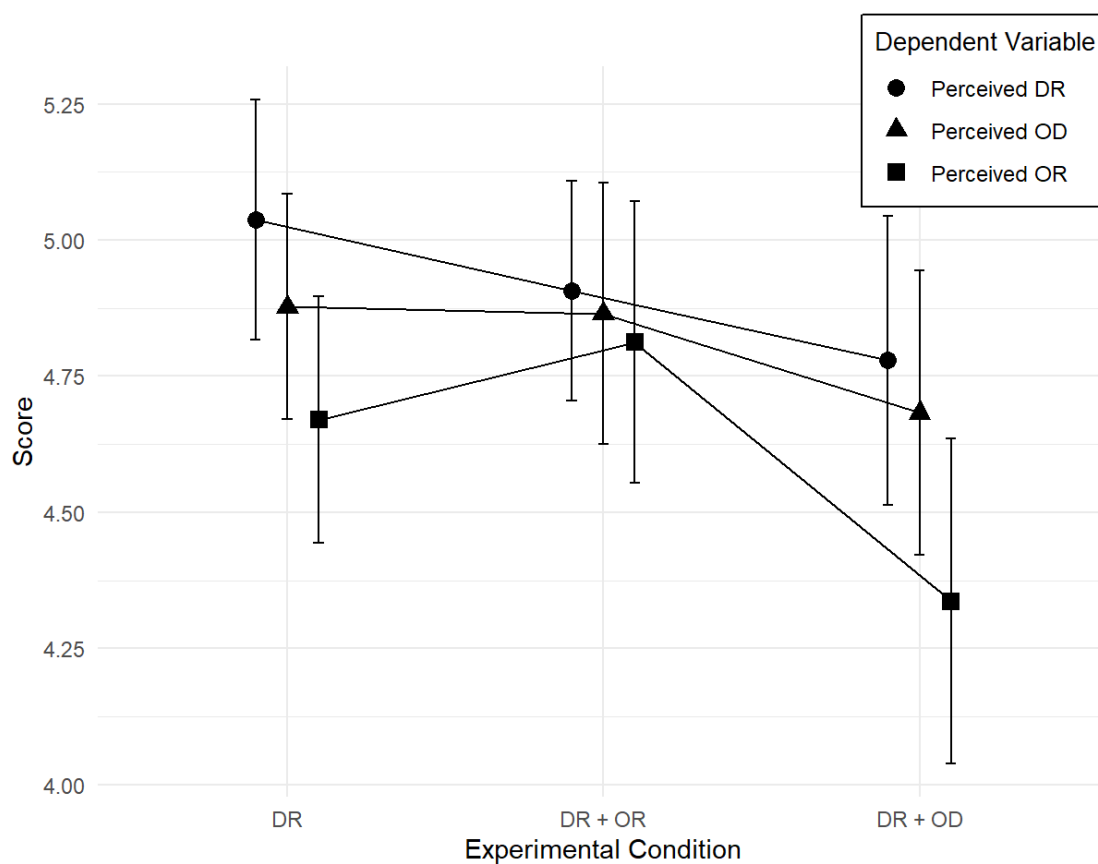
Manipulation Checks

The results of the three manipulation check items across conditions are visualized in Figure 2. No differences were found in perceived demographic representativeness, $F(2, 303) = 1.26, p = .286$. This aligns with the study’s design, in which demographic representativeness was implied in all three conditions. No group differences emerged in the perception of opinion diversity either, despite the expectation that participants in the condition emphasizing opinion diversity would perceive higher opinion diversity than those in the other conditions, $F(2, 303) = 0.84, p = .432$. We found a statistically significant difference between conditions in perceptions of opinion representativeness, $F(2, 303) = 3.37, p = .036$. Post hoc Tukey test indicated that participants in the condition emphasizing demographic representativeness and opinion diversity ($M = 4.34, SD = 1.54$) had assessed opinion representativeness significantly lower than participants in the demographic and opinion

representativeness condition ($M = 4.81$, $SD = 1.28$; $p = .033$, 95% CI [-0.92, -0.03]). No significant differences were observed between the other conditions. While not part of the main analysis, we found that participants' answer to the three manipulation check items significantly predicted the assessment of public acceptability.

Figure 2

Mean of Manipulation Check Items per Condition with 95% Confidence Intervals



Note. DR = Demographic Representativeness, OD = Opinion Diversity, OR = Opinion Representativeness.

Main Effect of Diversity Type on Public Acceptability of Policy Recommendations

To examine whether and to what extent the type of diversity influenced public acceptability of a public forum's hypothetical recommendations (Hypothesis 1), a one-way ANOVA was conducted. Assumption checks indicated a violation of normality based on visual inspection of the Q-Q plot and the Shapiro-Wilk test, $p = .014$. As ANOVAs are generally robust to such violations, especially with large sample sizes, the impact of this violation was assessed as negligible (Blanca et al., 2017).

The main effect of diversity type was not significant, $F(2, 303) = 1.712, p = .182$, and no significant group differences were found. Public acceptability of public forum recommendations in the conditions additionally emphasizing opinion diversity ($p = .301$, 95% CI [-0.52, 0.12]) and opinion representativeness ($p = .212$, 95% CI [-0.55, 0.09]) was not significantly higher than in the condition only emphasizing demographic representativeness, providing no support for Hypothesis 1. Acceptability in the condition considering demographic representativeness and opinion diversity did not significantly from the condition including demographic and opinion representativeness, $p = .97$, 95% CI [-0.29, 0.36].

The Role of Perceived Representation and Perceived Procedural Fairness in Shaping Public Acceptability

We found that diversity type predicted neither perceived representation ($F(2, 303) = 0.618, p = .540$) nor perceived procedural fairness ($F(2, 303) = 1.065, p = .346$) not supporting the predicted impact of the diversity condition on both variables as hypothesized in Hypothesis 2 and 3. Perceived representation of oneself and Dutch citizens was significantly positively associated with public acceptability across conditions, $b = 0.55, t = 9.53, p < .001$, 95% CI [0.43, 0.66] and explained 23% of the variance (Adj. $R^2 = .23$). The more people felt represented, the higher was their acceptability of policy recommendations, providing support for the expected relationship between perceived representation and public acceptability,

thereby providing partial support for Hypothesis 2. In this analysis, normality was violated as indicated by the Q-Q plot and a significant Shapiro-Wilk test ($p = .002$).

Similarly, perceived procedural fairness significantly predicted acceptability, $b = 0.70$, $t = 14.33$, $p < .001$, 95% CI [0.60, 0.80] explaining 40% of the variance in public acceptability (Adj. $R^2 = .40$). The more people perceived the process as fair, the more acceptable they were of potential policy recommendations. This supports the expected relationship, providing partial support for Hypothesis 3. Normality was violated, as indicated by visual inspection of the Q-Q plot and a significant Shapiro-Wilk test ($p < .001$).

Beyond planned analyses, we included both predictors in a model to examine the unique effects of both variables. The overall model was statistically significant, $F(2, 303) = 118.4$, $p < .001$, and explained 44% of the variance of public acceptability. Both perceived representation ($b = 0.25$, $t = 4.38$, $p < .001$, 95% CI [-0.14, 0.36]) and perceived procedural fairness ($b = 0.58$, $t = 10.61$, $p < .001$, 95% CI [0.47, 0.69]) remained statistically significant predictors of public acceptability.

The Role of Nuclear Power Opinion in Shaping Public Acceptability

Again, due to the absence of a main effect of diversity type on public acceptability, the planned analysis including participants' opinion on nuclear power as a moderator was no longer applicable. Instead, we examined whether participants' opinion on nuclear power influenced public acceptability investigating whether there were different patterns in acceptability. First, we compared participants who indicated having an opinion on nuclear power to those who did not. The overall difference in public acceptability between these two groups was not significant, $b = -0.21$, $t = -1.46$, $p = .144$, 95% CI [-0.49, 0.07]. We then included diversity type to test for an interaction effect with opinion presence. None of the effects on public acceptability were significant, $F(5, 300) = 1.69$, $p = .136$. Based on these results, we excluded participants having indicated to have no opinion from all subsequent analyses, resulting in 250 remaining observations. Next, we examined whether the content of

participants' opinions moderated the effect of diversity type on public acceptability. Opinion, treated as continuous variable, did not significantly impact public acceptability $b = 0.14$, $t = 1.58$, $p = .116$, 95% CI [-0.03, 0.30], nor were there any significant interaction effects with diversity type. These results are against our expectation that citizens' opinion would moderate the effects of diversity on public acceptability (Hypothesis 4).

As an additional analysis, we recoded opinions into two categories: supporters ($n = 151$; favored maintaining, increasing, or significantly expanding nuclear energy) and opponents ($n = 99$; favored reducing or phasing out nuclear energy). Again, neither the main ($b = 0.17$, $t = 1.34$, $p = .182$, 95% CI [-0.08, 0.42]) nor any interaction effect was significant. Finally, we examined each of the three diversity conditions individually with respect to the effects of opinion both as a continuous variable and as a binary categorization (i.e., supporter vs. opponent) on public acceptability. None of these effects were statistically significant.

Discussion

This study examined whether the diversity in public forums affects public acceptability of their potential recommendations among non-participating citizens. We investigated whether extending the composition of a public forum beyond demographic representativeness to also include opinion-based diversity in two different variations enhanced perceptions of representation and procedural fairness, and whether these perceptions were linked to higher public acceptability of the potential recommendations of the forum. We also explored whether participants' own opinions on the forum's policy topic – nuclear power – impacted these effects.

We expected that a public forum which is both demographically representative and involved opinion-based diversity, either via opinion representativeness or opinion diversity, would enhance perceptions of representation, procedural fairness, and acceptability of the forum's recommendation, compared to public forums solely emphasizing demographic representativeness. While participatory procedures typically ensure demographic

representativeness, we were particularly interested in whether including opinion-based diversity would increase acceptability among uninvolved participants.

Contrary to our expectations, the recommendations of a public forum emphasizing only demographic representativeness were rated just as acceptable as those of forums also considering opinion diversity or opinion representativeness. Including different stances on the topic discussed did not significantly increase public acceptability. Likewise, perceptions of representation and procedural fairness were unaffected by the type of diversity emphasized. Thus, the anticipated psychological mechanisms – feeling represented and perceiving procedural fairness – did not contribute to understanding the effects of diversity on public acceptability in public forums. Both perceived representation and perceived procedural fairness were individually associated with higher levels of public acceptability when forum diversity was not considered. When examining their unique effects, both remained significantly associated with public acceptability. Finally, participants' own opinions on nuclear power did not shape how acceptable they found the potential recommendations of different public forums.

The absence of differences in public acceptability for the different public forums does not support the argument that the inclusion of opinion-based diversity enhances public acceptability. This partly aligns with previous studies suggesting that citizens may not be particularly sensitive to nuanced differences in forum composition (e.g., Christensen, 2020). However, our results contrast with findings by Germann (2025), who observed that even minor deviations from demographic or opinion-based representativeness reduced perceived fairness and willingness to accept the forum's outcomes compared to a representative public forum. Nevertheless, participants were on average rather accepting of the potential recommendations from all forum types, each of which was described as demographically representative. Due to the absence of a control group, we cannot draw conclusions about the role of demographic representativeness in shaping these evaluations.

Additional potential insights emerge from the results of the manipulation check, offering potential explanations for the absence of differences in participants' evaluations for the different public forums. Participants generally rated the presence of all three diversity facets as relatively high across all conditions. Moreover, they did not differ in their assessments of demographic representativeness and opinion diversity, only assessments of opinion representativeness varied across conditions. One possible explanation is that participants who read that the forum was demographically representative may have assumed this also implies opinion representativeness, even though this was not explicitly stated. This could account for the absence of difference in perceived opinion representativeness between participants in the demographic representativeness versus demographic and opinion representativeness conditions. However, the pattern appears more nuanced: participants in the condition emphasizing both demographic and opinion representativeness perceived higher opinion representativeness than those in the opinion diversity condition. This suggests that once the consideration of opinions is explicitly mentioned, participants are more attuned to evaluating whether opinions are distributed representatively. These findings imply that participants grasped the concept of representativeness – both demographic and opinion-based – while the description emphasizing equal opinion distribution, in this study framed as opinion diversity, does not evoke similarly clear assessments.

However, we also need to consider the potential shortcomings of the manipulation check which might also explain the unexpected answer to the items. Items may not have been distinct and precise enough in wording, which may have led to unintended interpretations. For example, the item asking whether the forum reflected 'diverse opinions and standpoints in society' may have been interpreted as another formulation assessing opinion representativeness. Although an item followed explicitly targeting opinion representativeness, participants may not have differentiated between the two, potentially contributing to the absence of condition differences for this item. This is supported by the finding that responses

to all three manipulation check items were significantly associated with public acceptability, which can indicate both a failed manipulation as well as poorly formulated manipulation checks.

In line with our expectation, both perceived representation and perceived procedural fairness were significantly associated with public acceptability in the expected direction, supporting the argument that perceiving oneself and other citizens as represented in a public forum as well as evaluating the process as fair is positively linked to higher public acceptability (e.g., Liu et al., 2020). Thus, the present findings further support the link of fairness perceptions – especially procedural fairness – with public acceptability in public participation as established by a substantial body of normative and empirical literature (e.g., Bergquist et al., 2022; Bergquist, 2024; Ernst, 2019; Isaacson et al., 2024; Werner & Marien, 2022). Beyond, the significant association between perceived representation and public acceptability is in line with previous findings by Pow et al., 2020 investigating ‘like me’ perceptions and was also found when procedural fairness was also considered. However, these perceptions were not evoked by the additional consideration of opinion-based diversity in a public forum, suggesting that the composition of public forum is not central in shaping perceptions of representation and procedural fairness. In sum, the results put forward that psychological evaluations are important in shaping public acceptability even though the methodological setup of the present study does not allow us to draw causal conclusions.

Finally, we did not find support for our expectation that citizens’ support for policies recommended by a public forum depends on their own opinion on the topic, providing no empirical support for the argument that individual aspects like opinions impact evaluations of public forums (e.g. Garry et al., 2022). Regardless of their opinion, citizens were not different in how acceptable they found public forum recommendations.

Implications

The findings have theoretical and practical implications. Theoretically, the study contributes to ongoing research on how the design of public participation processes shapes the perceptions of non-participating citizens (e.g. Christensen, 2020; Goldberg & Bächtiger, 2023; Werner & Marien, 2022). More specifically, it expands the growing literature on how the composition of public forums influences public acceptability (e.g., Germann, 2025; Paulis et al., 2024; Christensen, 2020). By examining the role of different facets of diversity – demographic and opinion-based – we provide new insights into whether the inclusion of opinions impacts perceptions of representation, procedural fairness, and acceptability. Our findings suggest that the additional consideration of opinions does not enhance these evaluations. This contributes to theory and evidence by challenging the importance of actively considering opinions and discourses in public participation (Dryzek & Niemeyer, 2008; Paulis et al., 2024).

Furthermore, by investigating psychological mechanisms – namely perceptions of representation and procedural fairness – we contribute to a deeper understanding of how design features may shape public acceptability. Our results suggest that these perceptions seem not to be directly influenced by the type of diversity emphasized but are linked to public acceptability. Moreover, we contribute to literature investigating individual-level factors, finding that the opinions assessed in our study do not shape public acceptability of different public forums. Finally, we contribute to a growing body of evidence investigating the perspective of nonparticipating citizens which is critical for designing participatory processes which foster acceptability among the wider public.

Practically, as public formats are increasingly used in policymaking, understanding how design choices affect public acceptability among the broader public is crucial. For participatory practice, our findings imply that sortition procedures focusing on demographic representativeness may be sufficient to achieve satisfactory levels of public acceptability. This aligns with the current practice where demographic attributes commonly guide public forum

composition (Curato et al., 2021). However, it is important to note that our study did not include a control group without public participation or without demographic representativeness. As prior research suggests, such comparisons are essential for assessing the effects of specific design features (Werner & Marien, 2022). Therefore, our findings should in sum be interpreted with caution.

Strengths

With its theoretical and methodological setup, the present study aimed to expand on previous theoretical and empirical insights from the literature on public participation in climate policymaking through a vignette experiment. The choice of this method built upon a systematic literature review conducted as part of a research assistantship prior to this study, in which we found that the current literature on the implementation of the four normative standards diversity, dialogue, deliberation, and decision-making power as differentiated by Perlaviciute (2021) is dominated by case studies and discrete choice experiments. As these methods do not allow for an isolated investigation of these aspects, the present study sought to fill this gap. By including the constructs of perceived representation and perceived procedural fairness, we aimed to gain insights into the psychological mechanisms explaining the relationship between diversity in public forums and public acceptability. While there is previous evidence investigating the role of public forum composition on public acceptability (e.g., Germann, 2025; Pow et al., 2020), these studies mostly do not focus on the underlying psychological mechanisms and individual-level factors such as citizens' opinions.

Limitations

This study has several limitations that should be considered for results interpretation. First, the sample was relatively homogenous, consisting solely of students in the Netherlands, limiting generalizability. Moreover, the inclusion of Dutch and international students may have introduced bias, as international students, particularly those who do not view themselves being part of Dutch society, may have perceived the decision-making process and its potential

outcomes more positively, being less affected by its outcomes due to the temporary nature of their residence. Due to the recruitment strategy through student-related channels, some respondents may not reside in the Netherlands, limiting the external validity of the findings.

We observed that participants were overall rather accepting of the outcomes. This may reflect our relatively young student sample, not allowing conclusions for the broader population as a previous study found that people younger than 30 were more supportive of deliberative democracy instruments than older people (Talukder & Pilet, 2021). A connected limitation is the absence of demographic data preventing control for demographic variation. While this reflected expectations of limited heterogeneity, unmeasured factors such as gender may still have influenced the results, affecting both internal and external validity. For instance, gender was previously found a predictor of pro-climate views which could plausibly extend to support for climate policies and correspond with support for public participation in their decision-making (McCright et al., 2016).

Moreover, the study has some conceptual shortcomings. First, only opinion content, not opinion strength, was assessed. Past research suggests differences in appraising public forums between individuals with strong ideological stances compared to those with moderate views (Garry et al., 2021). Moreover, while we used reference data (CBS, 2023), we added an opinion category intended to facilitate analysis. However, this did not allow us to match opinions in our sample exactly to the distributions in the public forums. Therefore, the results involving participants' opinions, in particular, should be interpreted with caution and require further investigation. Furthermore, the results of the manipulation check indicate that item wording may not have been distinct enough, particularly between the opinion diversity and opinion representativeness conditions, potentially contributing to the lack of observed differences and calling for improved item design in future studies. Further, although vignette experiments allow for controlled hypothesis testing, they cannot capture the complexity of real-world public forums. Participants responded to hypothetical scenarios rather than actual

decision-making processes, and they were also lacking actual recommendations for evaluation. Although nuclear power was chosen as a theoretically appropriate policy topic, the described public forum was fictional and did not directly correspond to currently ongoing public participation. This limits external validity, as reactions to real public forums may differ (Paulis et al., 2024). The absence of a control group representing the status quo (i.e., decision-making without public participation) is another limitation. Such a baseline is important for a nuanced assessment of the added value of public participation (Werner & Marien, 2022). Without, it is unclear whether the level of acceptability was driven by demographic representation across all conditions or general positivity toward public forums. Finally, the study focused on a single policy topic – nuclear energy. However, prior research shows that public acceptability varies by policy area (Boulianne, 2018) and is shaped by additional factors such as whether forum recommendations are implemented (Germann et al., 2024; Van Dijk & Lefevere, 2023).

Future Research

Future research should further investigate how diversity in public forums affects public acceptability to develop a more nuanced understanding of public evaluations. Given the limited heterogeneity of our sample, it is important to examine public evaluations of public forums among a broader and more diverse population. Prior research suggests that general attitudes toward public participation influence public acceptability (Paulis et al., 2024); thus, future studies should assess these attitudes or explicitly include more sceptical individuals to better understand the psychological processes at play.

Investigating other policy topics, such as wind energy or carbon taxes, could provide further insights into whether public forum diversity influences acceptability across topics (Boulianne, 2018). Furthermore, research could examine alternative forum compositions such as the overrepresentation of minority perspectives, either through a greater number of participants or by giving their views additional weight in the decision-making process to

establish a more nuanced understanding. Incorporating more realistic scenarios, such as presenting participants with forum recommendations could enhance external validity while maintaining experimental control. Such investigations might also consider whether recommendations of public forums were implemented by policymakers (Van Dijk & Lefevere, 2023).

Conclusion

This study highlights the complexities in how non-participating citizens evaluate public forums. Contrary to our expectation, the inclusion of opinion-based diversity alongside demographic representativeness did not increase public acceptability. While perceived representation and perceived procedural fairness were associated with higher public acceptability, participants' own opinions on nuclear power did not contribute to an understanding of the impact of diversity on public acceptability. As public forums increasingly complement representative climate policymaking, it is important to further examine how forum composition and other design features shape public acceptability. Understanding how different formats of public participation foster public acceptability for climate policies is vital for successful implementation of future climate policies.

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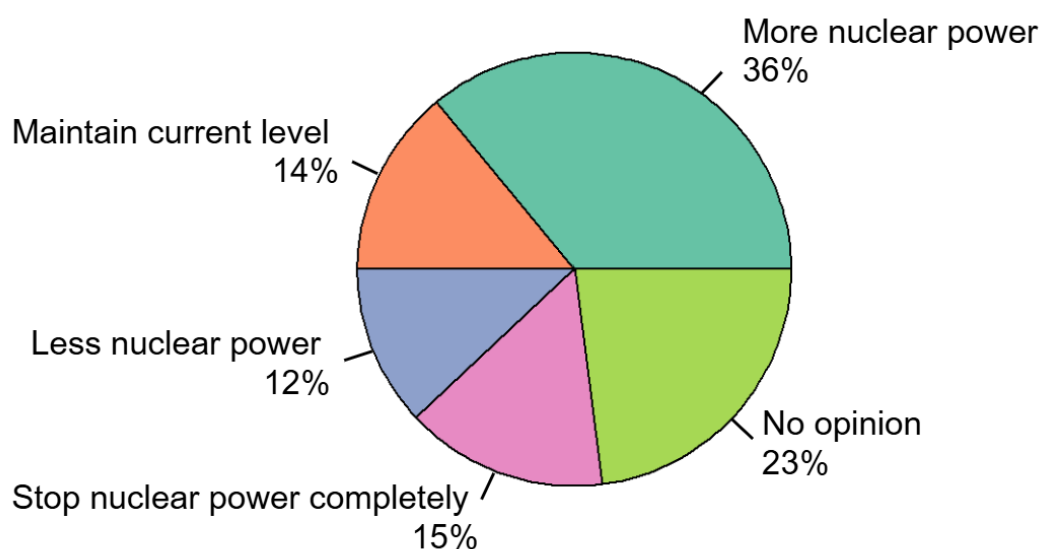
Appendix A

Research Materials

Introduction for All Participants

The Dutch government is considering to expand nuclear energy in the Netherlands. So far, nuclear power has played a modest role, with one reactor in Borssele providing about 3% of the country's electricity. The government considers building four new nuclear power plants and extending the Borssele plant's operation beyond 2033. A 2023 survey by the Dutch central office for statistics found that 36% of Dutch people support expanding nuclear power, while 14% think it should stay at its current level. On the other hand, 12% want to see less nuclear energy, 15% would like to stop it completely, and 23% have no opinion.

Distribution of Opinions on Nuclear Power in Dutch Population



Opinion on Nuclear Power

Please indicate your opinion on the building of new nuclear power reactors in the Netherlands. You can only select one of the options below. Please note that the line visually separating the options is not an answer and can not be selected.

In my opinion, the Netherlands should...

- stop nuclear power completely
- reduce nuclear power
- maintain the current level of nuclear power
- increase nuclear power
- significantly expand nuclear power
- _____
- I have no opinion

Description Demographic Representativeness Condition

To involve Dutch citizens in the decision, the government has launched a public consultation process. A public forum will be created to provide recommendations on whether new nuclear power plants should or should not be built. By including the public, the government hopes to come to a decision that is acceptable to Dutch society. The government is required to consider the citizens' recommendations, and if it chooses a different path, it must explain why.



To make sure the public forum reflects Dutch society, the government has chosen participants based on demographics. The group includes people of different ages, education levels,

genders, and regions of the Netherlands. The goal is to ensure that all layers of society have a voice in the recommendations.

Description Demographic Representativeness and Opinion Representativeness

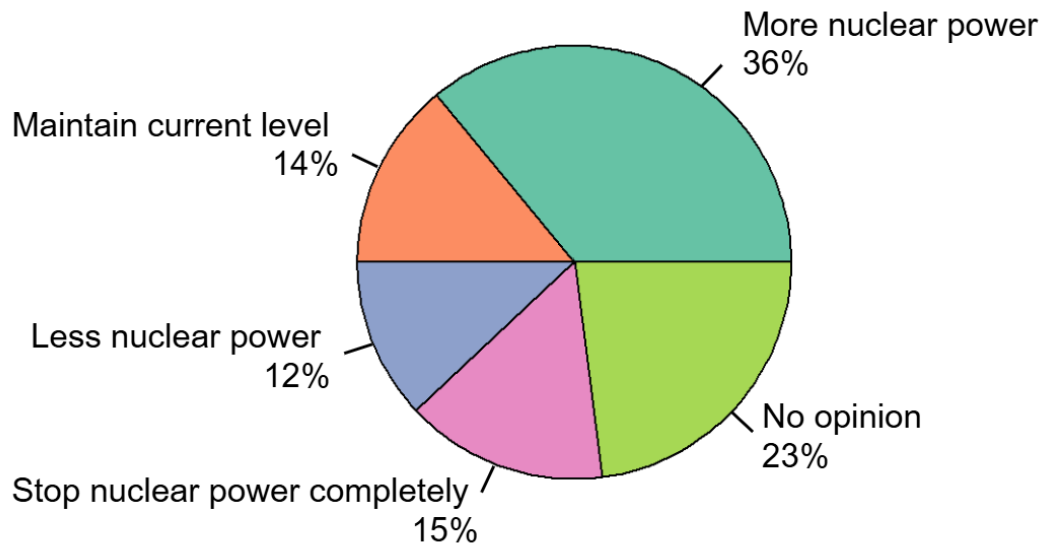
Condition

To involve Dutch citizens in the decision, the government has launched a public consultation process. A public forum will be created to provide recommendations on whether new nuclear power plants should or should not be built. By including the public, the government hopes to come to a decision that is acceptable to Dutch society. The government is required to consider the citizens' recommendations, and if it chooses a different path, it must explain why.



To ensure a variety of perspectives, the government has selected participants based on both demographics and opinions about nuclear power. The public forum includes people of different ages, education levels, genders, and regions of the Netherlands. Moreover, participants proportionally represent different opinions on nuclear power: supporters of expanding nuclear power, those wanting to maintain the current level, the opponents of nuclear power, as well as people with no opinion. The distribution of opinions in the public forum reflects that of Dutch society.

Distribution of Opinions on Nuclear Power in Public Forum



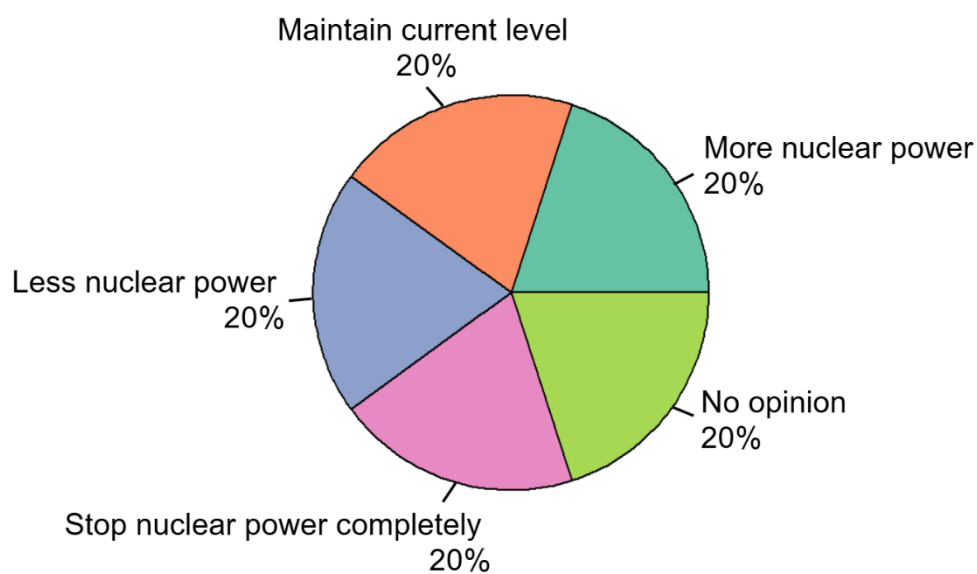
Description Demographic Representativeness and Opinion Diversity Condition

To involve Dutch citizens in the decision, the government has launched a public consultation process. A public forum will be created to provide recommendations on whether new nuclear power plants should or should not be built. By including the public, the government hopes to come to a decision that is acceptable to Dutch society. The government is required to consider the citizens' recommendations, and if it chooses a different path, it must explain why.



To ensure a variety of perspectives, the government has selected participants based on both demographics and opinions about nuclear power. The public forum includes people of different ages, education levels, genders, and regions of the Netherlands. Moreover, participants equally represent different opinions on nuclear power: supporters of expanding nuclear power, those wanting to maintain the current level, the opponents of nuclear power, as well as people with no opinion. All opinions are equally distributed.

Distribution of Opinions on Nuclear Power in Public Forum



Manipulation Checks

Please rate the following statements. Since you do not participate yourself in the public participation procedure, we can imagine that it might be difficult to rate the statements.

Please rate them based on your impression resulting from the description provided.

1. The participants of the public participation procedure were a good reflection of different societal groups (e.g., different incomes, educational levels, age, gender).
2. The participants of the public participation procedure were a good reflection of diverse opinions and standpoints in society.

3. The participants of the public participation procedure were representative for the existing opinions and standpoints in society.

(1 = Totally disagree, 7 = Totally agree)

Factual Attention Check

The public forum was launched to give recommendations on the topic of:

- Meat tax
- Nuclear power

Perceived Representation

While you as an individual will not participate in the citizen's forum, the outcome will affect you. Please consider this when answering the upcoming questions.

Based on the description you just read, please indicate to what extent you agree with the following statements.

1. The participants of the public forum are people like me.
2. The participants of the public participation procedure have similar opinions like me.
3. The public forum represents well people in Dutch society.
4. The public forum promotes the interests of people in Dutch society.

(1 = Completely disagree, 7 = Completely agree)

Perceived Procedural Fairness

While you as an individual will not participate in the citizen's forum, the outcome will affect you. Please consider this when answering the upcoming questions.

Based on the description of the public participation procedure you just read, please rate your impression of the decision-making process on these scales.

1. very unfair – Very fair

2. totally not open – very open
3. totally not transparent – very transparent
4. not at all taking different interests into account – very much taking different interests into account

(Bipolar scale from -3 to +3)

Public Acceptability

While you as an individual will not participate in the citizen's forum, the outcome will affect you. Please consider this when answering the upcoming questions.

Based on the description of the public participation procedure you just read, please indicate how you would rate a resulting policy recommendation by this public participation procedure.

1. very unacceptable – very acceptable
2. very bad – very good
3. very negative – very positive
4. very unnecessary – very necessary

Appendix B

Initial Analysis Plan

The analysis was conducted in R 4.3.2 (R Core Team, 2023). Further, all planned mediation and moderation analyses used the PROCESS macro for R (Hayes, 2022).

Preliminary analyses included examining manipulation checks, missing data, and descriptive analyses. For the main analysis, a one-way ANOVA was conducted to examine the main effect of diversity type on public acceptability. Mediation analysis examined the indirect effects on public acceptability via perceived representation and procedural fairness. Finally, a moderated mediation analysis added participants' opinion on nuclear power as a moderator.