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Deliberation, Polarization, and Emotion: A Deliberative Process about Climate Change with Young Participants

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Abstract

In light of the increase in democratic innovation processes in recent decades, there is ongoing debate as to whether deliberative participation reduces levels of affective and issue-based political polarisation. This field study analyses the role of emotions in a deliberative process about climate change conducted by the AOS! Programme in Spain in 2022. 137 participants aged 10–12 years organised into mixed and enclave groups answered a survey to determine their level of concern about climate change and both affective and issue-based polarisation, in order to assess whether feeling worried about climate change could influence their level of political polarisation. The results show that neither the enclave nor the mixed groups had significant effects on their affective polarisation, as the children only answered according to their level of concern about climate change. However, participation influenced their levels of issue-based polarisation, depolarising less worried participants. These findings demonstrate that emotions have an impact on cognition through participation and that feelings about political topics should be considered in deliberative studies.

Keywords Deliberation · Political polarisation · Climate change · Child participation

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1 Introduction

Democratic Innovations (DI) may be defined as institutions designed to enhance citizen participation in the political decision-making process. DI is based on the principles of deliberative and participatory democracy, which maintain that plurality in the public and political space is a core value for democratic theory. The objective of this study is to contribute to the ongoing discussion in the literature regarding the role of participation in like-minded and mixed groups. It seeks to analyse the role of emotions in deliberative participation across various group compositions and their relationship with both the affective and issue-based dimensions of political polarisation. This study also innovates in this field by including children as participants in the deliberative process.

Recent DI studies have begun to consider whether deliberation could impact other political issues such as political polarisation (Grönlund et al., 2015). This is a challenging topic for contemporary democracies because its affective and ideological mechanisms deepen divisions in society (Iyengar et al., 2019). From the perspective of social psychology, some of the mechanisms behind this process are related to social identity formation (Tajfel & Turner, 1979). Studies have shown that the greater the identification with a certain group, the greater the level of polarisation (Iyengar et al., 2012). This identification has an emotional dimension (Levendusky & Malhotra, 2016), given that social identities refer to members who share a common category and have an emotional investment in defining themselves as part of the group. Social psychology also offers insights into the role of emotions in deliberative settings (Andrews, 2022; Knobloch & Gastil, 2022; Thompson & Hoggett, 2015), although this is still an unexplored subject.

Deliberation advocates that dialogue between different opinions helps to overcome participants' prior attachments to identities. Therefore, is deliberation enough to reduce the distance between groups with different points of view? The response to this question is controversial, with some research supporting mixed opinion groups (Fishkin et al., 2021), while others question whether this plurality is necessary (Strandberg et al., 2019).

This paper contributes to the empirical literature regarding the effects of DI and explores the role of emotions in deliberation. According to our research, it is also the first study of political polarisation involving children participating in a deliberative process.

Our objective is to determine whether participation by children (10–12 years old) in a deliberative programme affects the relationship between the level of concern about climate change and levels of affective and issue-based political polarisation. Furthermore, we also assess how this effect may vary depending whether the participation is in homogeneous or heterogeneous groups.

To do so, we conducted a field experiment to compare levels of political polarisation among children participating in a democratic programme known as Ágora OS! (AOS) carried out by Coglobal[1] and evaluated by an independent research group. AOS is inspired by the minipublic model and other participatory democracy pro-

[1] Coglobal is a non-profit organisation that design and executes DI processes.

cesses such as participatory budgeting. It consists of an adaptation for children applying a structured methodology. Coglobal also develops other similar programmes such as Ágora Infantil. Although both are based on DI and AOS is inspired by Ágora Infantil, AOS includes a phase for technical staff to provide insights and information about climate change based on international consensus. Previous research based on the Ágora Infantil programme shows that participation in the programme increased group cohesion, democratic skills and group identification (Albornoz-Manyoma et al., 2020, 2021).

2 Young People as Political Participants

Historically, children have been portrayed as innocent, dependent and incapable of participating in political and social life (Burman, 2017). Nonetheless, in 1989 the United Nations Convention on the Rights of the Child (UNCRC) marked a shift, recognising children as citizens with the right to express their views freely in all matters that affect them (see article 12). More recent studies highlight that political socialisation begins at an early age, challenging the notion that young children should be viewed solely as the "future" of democracy (Reifen-Tagarisat & Cimpian, 2022; Van Deth et al., 2011). Young peoples' opinions regarding political issues such as climate change have assumed pivotal importance in democratic activism (Eide & Kunelius, 2021; Novak, 2024). Their political attitudes may also threaten democratic values, as recent data demonstrate that young people are less likely to support democracy (Open Society Foundation, 2023). Including youth in social and political scenarios before their legal voting age can also prevent radicalisation and risk behaviour (Feddes et al., 2019). Finally, Tyler and Iyengar (2022) point out that children and teenagers may develop a partisan preference. This is in line with social psychology studies, which demonstrate that children can develop ingroup preferences and outgroup discrimination at an early age (Nesdale & Flesser, 2001). Even though children's political opinions are associated with parental voting (Gidengil et al., 2016), there is evidence that children as young as five years old and adolescents can be reflexive citizens and partners in community political processes (Dias & Menezes, 2014). Studies of young people's councils confirm this conclusion (Wyness, 2001). In light of this increasing evidence of the importance of political participation by children and adolescents to foster democracy, we decided to conduct this study with young people. In line with the literature advocating the role of children as political actors, this article argues that children may exhibit political polarisation both in terms of their differing viewpoints and the affective distance between them.

3 Political Polarisation

The literature clearly demonstrates that political polarisation divides many countries into two groups which are often partisan-based (Somer & McCoy, 2018). Arbatli and Rosenberg (2021) point out that political polarisation hurts democracy because it makes it more likely that people support undemocratic elites. In this case, the dis-

course of "us" versus "them" is employed as a manipulative strategy (González, 2022) predicated on the assumption that ultimately only one side can prevail. Although the phenomenon is better documented in the USA (e.g. Democrats versus Republicans), it also affects multi-party systems such as Spain (Orriols & León, 2021). Apart from partisan polarisation, authors have also addressed divisions regarding political issues such as climate change (Tyagi et al., 2020).

Iyengar et al. (2019) identified out two types of political polarisation which should be evaluated independently: affective and issue-based. According to these authors, affective polarisation is the tendency of ingroup members to feel negatively about outgroup members, while at the same time feeling more positive about their own. Issue-based polarisation is defined as the difference in policy preferences between members of different groups (Fishkin et al., 2021). Even though both have increased in the last decade and a connection between them has been identified (Rogowski & Sutherland, 2016), studies demonstrate that extremity of opinions regarding issues is not a requirement for affective polarisation (Mason, 2018). Furthermore, affective polarisation has more harmful consequences for democracy, producing toxic effects such as group dehumanisation (Moore-Berg et al., 2020) and negative stereotypes about the outgroup (Levendusky & Malhotra, 2016). Recent studies of affective polarisation draw from social psychology theories (Iyengar et al., 2012, 2019; Wojcieszak & Garrett, 2018), particularly social identity theory (Tajfel & Turner, 1979), in order to understand intergroup dynamics. This study investigates both levels of political polarisation, adapting instruments for adult samples to enable their use with children (10–12 years old). While some authors argue that political polarisation is not prejudicial per se (Balinhas, 2023), others question whether it is possible to sustain a democratic society with deep divisions between citizens and a high level of distrust in governmental institutions (Dryzek et al., 2019; Fishkin et al., 2021). In this context, researchers are exploring ways to strengthen democracy by fostering closer connections among citizens who are intensely polarised.

4 Deliberative Group: Relevant Issues

Deliberation has been suggested as a strategy to approach controversial issues and reduce social disintegration (Caluwaerts et al., 2023; Fishkin et al., 2021), as in the case of abortion policies in Ireland (Elkink et al., 2020) and climate change in Australia and France (Willis et al., 2022). According to deliberative theory, communication should focus on the merits of the arguments, offering a structured environment grounded on values such as respect and tolerance (Ganuza & Mendiharat, 2020).

DI processes are designed to implement deliberative values in political debate (Escobar & Elstub, 2017). However, there is no consensus regarding their application. There is a substantial body of research which criticises citizens' lack of motivation to participate, the prevalence of prejudices and stereotypes during deliberation and the resulting social exclusion of certain marginalised groups (Collingwood & Reedy, 2012; Martin, 2012; Santos, 2019). Some authors have also questioned whether enclave (i.e., like-minded) groups could also decrease political polarisation, since polarisation theory predicts that enclave groups tend to polarise (Sunstein,

2000). Grönlund et al. (2015) carried out a deliberative experiment in Finland in 2012 which sought to consult citizens' opinions regarding immigration, a highly controversial issue in the country. The experiment compared deliberation in (a) enclave groups, comprising only subjects in favour (pro) or against (con) immigration policies and (b) mixed groups incorporating people with different perspectives regarding immigration. The design included control groups and moderators were excluded, with the survey consisting of items measuring opinion change and political knowledge of the issue. Their results do not show shifts of opinion for mixed and enclave groups within con and pro-immigration ideological camps. Nonetheless, the control group for both con and pro showed changes. The authors concluded that participants in the con enclave group became more permissive as a result of the deliberation. Their interpretation of the data was that the con enclave group had sufficient level of disagreement to facilitate the change. Nonetheless, the con participants in mixed groups showed a much higher level of opinion change, supporting the idea that plurality of debate is an important principle for democratic deliberation. Compared to the con groups, there was only a slight change in the pro groups. According to the authors, this shows that the depolarisation was unilateral. In the mixed group only people with anti-immigration attitudes shifted towards the mean. This result is in line with other studies such as Fishkin et al. (2021) showing that Republicans shifted towards Democrats, but the inverse movement is milder for certain political issues. Lindell et al. (2017) analysed the same data from the experiment in Finland in 2012. Their results show that 16% of the participants polarised their opinion, whereas 15% depolarised their opinion. In contrast to Grönlund et al. (2015), they found that polarisation and moderation occurred within both ideological camps (conservative and liberal). Moreover, their conclusions show that neither enclave nor mixed groups drive polarisation nor moderation, and that although the participants do change their opinions it is difficult to identify the exact cause. There were no findings of group pressure, differing levels of empathy or differences in perceived deliberativeness between the groups. This difficulty determining the causes for opinion change during deliberation was also identified in the study by Sanders (2012), which assessed the results of a three-day deliberative poll on immigration and climate change conducted in 2009. The design consisted of two parallel panel surveys, one for participants and another for the control group, with the results showing a significant increase in the score for all experimental groups between the pre and post-survey. However, the measure for combating climate change changed significantly for the control group as well. The test group became more liberal regarding immigration and greener in relation to climate change, with the average rating of importance for immigration and climate change increasing as well. To seek to explain these results, factors such as the influence of political knowledge, discussion quality, social desirability, documentation of the process, contact with experts, contact with politicians and informal conversation with other participants during deliberation were assessed. The general conclusion was that none of the combinations of these variables had any influence on the results.

In relation to the affective dimension of political polarisation, Myers (2021) investigated qualitative data collected from a Rural Climate Dialogue programme, consisting of three days of deliberative sessions held in rural Minnesota (USA). The group was mixed and represented the demographic and political diversity of the

zone. To complement this data, a feeling thermometer was also applied in the pre and post-deliberation in two of the sessions. The results show that it remained essentially unchanged. However, Shen and Yu (2021) researched a 90-minute deliberative session in Hong Kong consisting of a mixed group of individuals who strongly supported a given political policy and individuals who strongly opposed the same policy. Affective polarisation was analysed by measuring levels of favourableness toward those who held similar views and those who held opposing views. Their results show that their affective polarisation was reduced even one month after the experiment, and therefore their feelings about the outgroup became more positive. Based on both studies, it could be argued that the duration of deliberative sessions may have an influence on significant changes in the results of instruments used to measure affective polarisation. Thus, it remains to be answered whether a mixed group of participants is necessary to reduce affective polarisation.

In short, these results highlight the lack of clarity regarding the influence of group composition (mixed versus enclave) and also the difficulty of identifying which factors influence changes in group opinion and depolarisation. In addition, Grönlund et al. (2015) and Sanders (2012) both found significant changes for the control group, which is also difficult to explain.

In light of this literature review, our aim is to determine whether the levels of political polarisation in mixed groups decrease more in comparison to enclave groups. We also assess how emotions may affect this process. Research has demonstrated that partisanship and political ideology (left-right) may predict one's beliefs about climate change (Fielding et al., 2012). Therefore, groups serve as a reference for how their members act, think and feel. Given this context, we raise questions regarding the role of emotions in deliberation, namely (a) whether there is a difference between participants who are more worried about climate change and those who are less worried, and (b) how feeling worried about a political issue can affect the way one group perceives another.

5 Contributions by Social Psychology

Recently, social psychology has been used to explain the underlying dynamics of political polarisation, particularly the use of social identity perspective (SIP) to interpret the data of affective political polarisation (Iyengar et al., 2012, 2019).

Social psychology describes political polarisation as a group phenomenon (Wetherell, 1987). Polarisation results when the predominant response escalates as a result of group interaction. This happens because the group members' response after discussion increasingly aligns in the direction they were already tending. This is the key argument for authors such as Sunstein (2002), who argue that debates in like-minded groups may lead to group polarisation as its members would reinforce themselves. According to this theory, enclave discussions may amplify cognitive errors and biased beliefs.

On the other hand, Wetherell (1987) analysed polarisation based on self-categorisation theory, an aspect of SIP which also includes social identity theory. Essentially, this theory maintains that when people are in relevant intergroup situations, they do

not interact only as individuals but as members of their groups. Belonging to a group shapes the process of one's self-conception (Tajfel & Turner, 1979), because people perceive themselves as members of a common social category that is different from others. These features create a division between "us" and "them". Although group differentiation is part of this process, it does not imply discrimination nor competition (Reicher et al., 2012). Therefore, the extension of intergroup discrimination in the dynamic of political polarisation depends on what is valued at a group, societal and cultural level. Therefore, group norms are a guide to how its members will present their thoughts, arguments and feelings. Categorisation and comparison are interconnected given that inter and intragroup stimuli emerge because of comparison, but only because they have also been categorised. Thus, the salience of a category causes a perceptual accentuation of intragroup similarities and intergroup differences.

Self-categorisation theory applied to polarisation identifies group membership as a necessary factor for the emergence of polarisation. When a social category is made salient, the processes of self-categorisation and social comparison are activated. Accordingly, individuals will seek to present themselves as being as close as possible to the ingroup norm or prototypical intergroup differences, producing a meta-contrast between them. Polarisation only occurs to the extent that the dominant response of the group is perceived as a stereotypical group characteristic (Postmes et al., 2005).

5.1 Climate Change and the role of Emotions

Reasoning based on argumentation is the basis of deliberative theory (Thompson, 1983). However, authors such as Young (2001) assert that deliberative processes should open up spaces for other forms of expression of opinion such as narratives and personal experiences. This could be a way to reduce inequalities, although this result is not guaranteed (Saam, 2018). As proposed by Johnson et al. (2017), emotionally evocative narratives and stories may also provide a basis for participants to develop their arguments.

There is limited discussion in the literature regarding the influence of emotions in deliberation (Thompson & Hoggett, 2015), although studies by social psychologists (Johnson et al., 2019; Leino & Kulha, 2023; Wang et al., 2018) highlight the complexity and dynamics of their role in deliberation. Andrews (2022) identified the presence of mixed feelings during deliberation, with the participants showing high levels of excitement and hopefulness and a significant reduction in level of worry by the end of the process.

Feelings of being worried and anxious have been identified in the case of deliberation regarding climate change. Bliuc et al. (2015) argued that climate change should be approached as an intergroup conflict because of the division identified between climate change believers *versus* sceptics. In this context, social identities play a significant role in shaping cognitive, emotional and behavioural aspects, leading to the formation of opinion-based groups with conflicting views on how a particular issue should be addressed. According to the authors, that is the reason beliefs about climate change go beyond being mere opinions to become integral aspects that define individuals and the groups with which they align. In this context, Bliuc et al. (2015) found that group identification (like partisanship) predicted pro-environmen-

tal behaviour and intensified group-based emotions. Moreover, believers were more likely to engage in pro-environmental behaviour and express more fear and guilt and less hope about the future of the planet in comparison to sceptics.

The role of emotions in intergroup conflicts about climate change has not received enough attention. Wang et al. (2018) found that feeling close attachment to a topic (often described as "caring about something") elicits stronger emotions compared to those who feel more psychologically distant from the same topic. This is the case of climate change, because feeling negative emotions when this theme is relevant is related to self-reported pro-environmental behaviour and more support for climate change policies. The study by Wang et al. (2018) explored the relationship between emotions and policy support for climate mitigation with three different groups: scientists, students and the public. The most common emotions were concern and worry, with their results finding a relationship between emotions, beliefs about climate change and support for policies. Scientists were the most worried about climate change and believed in the anthropogenic causes of this phenomenon. Therefore, the authors emphasised that social identity encompasses beliefs and emotions about climate change.

Gregersen et al. (2020) conducted a study in Israel and 22 countries in Europe. In the participating countries, political orientation moderates the relationship between climate change beliefs and concern regarding this issue. Worrying is a personal emotional reaction to a perceived threat, guiding the behaviour and actions of individuals. It is one of the measures used to study climate change risk perception and is related to pro-environmental behaviour and policy action to mitigate climate change. In general, thinking about the anthropogenic causes of climate change is associated with increased concern, regardless of political orientation. However, for participants from the far left it had the strongest effect. This supports self-categorisation theory, because it highlights that group membership mediates the relationship with emotions.

Belonging to a group is also correlated with pro-environmental behaviour (Videras et al., 2012). For instance, the territory as a common category reinforces the environmentalist identity (Estrada et al., 2017). Thus, making salient categories such as citizenship and locality allows the creation and activation of a common category among individuals with different backgrounds. The creation of a common social category is a way of deepening deliberation and reducing the distance between participants.

In our case, this study explores deliberative processes relating to climate change among children who belong to the same school class and territory. The participants designed communication policies on climate change to be implemented in the town where they live, thereby reinforcing territorial categorisation. These previous categories shared between the participants such as the group (i.e. the class) and the territory (i.e. the town) are reinforced under the programme. In a deliberative setting, these salient categories could potentially bring together participants with different viewpoints.

6 The Current Study

In light of this scientific debate, this study examines the impact of emotions on political polarisation levels in a deliberative process involving children. More specifically, we explore whether their participation (target or control group) affects the connection between their climate change-related concern and levels of political polarisation (affective and issue-based) and if the type of group (enclave or mixed) has any influence on the results. To answer this, we carried out a field experiment that builds on the data from two processes conducted in Spain during the 2022/2023 academic year. Both of them consisted of deliberative processes adapted for children between 10 and 12 years of age known as ÁgoraOS! (AOS).

The participants' responses were measured in the first and last deliberative sessions for the target and control group. The pre-test was used to confirm the equivalence of the group characteristics. A 2×2 field experiment was used with "concern about climate change" (low and high worry) as the assigned variable and "participation in the deliberative programme" (control versus target) and "group composition" (enclave versus mixed) as independent variables. The measures for affective and issue-based polarisation are the dependent variables. Combinations of all the variables were not conducted.

AOS is a Spanish political initiative designed by Coglobal and funded by local governments which seeks to allow children and teenagers to influence decision-making processes at a local level. The main objective of AOS is to activate the students' class group and territory as common categories to create a superordinate goal through deliberation. The end goal is for children to propose and decide on a plan to mitigate climate change in their town. To achieve this, the technical moderators previously establish rules regarding taking turns, non-discrimination and promotion of tolerance during the debate. The local council chooses the topics for the process design and provides the necessary financial resources. AOS is then planned and applied in the classroom with the school's consent, with the overriding aim of emphasising the role of students as the main actors in the process. Because classroom formation is carried out randomly in Spain, this deliberative process has the potential for political inclusion. Every AOS process is composed of seven sessions lasting at least 90 min carried out twice a week. As a result, there are three and a half months between the first session (pre-test) and the last session (post-test). The process begins with a presentation on the subject to be discussed. The studies analysed address deliberations on climate change. Afterwards, the children learn basic facts about the topic and prepare to visit the local council to personally interview the local government. During this task, the children question the local council's political and/or technical advisors regarding climate change policies in their territory. Next, based on the previous steps the children discuss the information and design communication policies for the topic through a group effort with interdependent goals. Following deliberation and voting, the students decide among the viable proposals. Finally, the plans are presented to the local council for their execution.

6.1 Hypothesis

6.1.1 General objectives

Firstly, we sought to determine whether feeling worried about climate change is related to pre-deliberation emotions and attitudes regarding the topic. The next question was whether participation by children (10–12 years old) in a deliberative programme influences the relationship between emotions (level of concern about climate change) and levels of affective and issue-based political polarisation. Finally, we analysed the effect of the group type, namely homogeneous or heterogeneous groups. This study and its hypotheses were pre-registered in the study plan presented to the university postgraduate programme.

Hypothesis 1 The intensity of feeling worried about climate change before deliberation has a direct effect on attitudes and emotions:

1.1. There is a direct relationship between level of concern about climate change and levels of issue-based attitudes, i.e. the more the participants worry about climate change, the higher the level of issue-based attitudes.
1.2. There is a direct relationship between levels of concern about climate change and levels of affective polarisation, i.e. the more the participants worry about climate change, the higher the level of affective polarisation.

Hypothesis 2 The relationship between previous concern about climate change and issue-based and affective polarisation will be influenced by participation in the AOS programme:

2.1. Participation in the programme influences the relationship between previous concern about climate change and issue-based polarisation in comparison to the control group.
2.2. Participation in the programme decreases the intensity of the relationship between concern about climate change and affective polarisation in comparison to the control group.

Hypothesis 3 The group type in which the participants deliberate can influence levels of polarisation:

3.1. Participating in mixed groups will depolarise issue-based polarisation in comparison to enclave groups, which are expected to polarise.
3.2 Participating in mixed groups will depolarise affective polarisation in comparison to enclave groups, which are expected to polarise.

Table 1 Description of the sample according to the level of worry about climate change and the assignation to group participation

Highly worried		Low worried	
Target	Control	Target	Control
49.6%	33.6%	10.2%	6.6%

Table 2 Description of the sample according to the level group participation and to the type of group

Enclave (highly worried)		Mixed (highly worried + low worried)	
Target	Control	Target	Control
27.7%	22.6%	32.1%	17.5%

6.1.2 Participants

The sample consisted of 137 children: 44.5% were girls, 51.8% were boys and 3.7% did not identify with either. The mean age was 11.9 years (SD = 0.94). The sample was described according to the main variables of the study: level of worry (low *versus* high worry about climate change), participation in the programme (control *versus* target) and group type (mixed *versus* enclave). Each group belonged to a different classroom. There was one enclave group (participants highly worried about climate change) and one mixed group (participants with mixed levels of worry about climate change), each with a control group. The description is set out in Tables 1 and 2.

6.1.3 Instruments

The questionnaire was based on adaptations of political polarisation measures used with adult samples. It includes questions with sociodemographic data, measures for issue-based and affective polarisation and a measure of concern about climate change. These measures are described below.

1. Concern about climate change: we asked to what extent the participants agreed with the statement "I am worried about climate change" according to a 4-point scale ranging from 1 "I totally disagree" to 4 "I totally agree". As can been seen below (Fig. 1), the responses of the participants in the enclave group ranged between 3 and 4 on the Likert scale for concern about climate change, whereas the responses in the mixed group were more diverse. A *t*-test with level of significance of 0.01 reveals that they are different: $t\,(135) = -5.90$.

2. Issue-based polarisation: this dimension was measured with a survey consisting of questions about a given issue. While Fishkin et al. (2021) used a 10-point scale, to take into account the young age of the participants we reduced it to a 6-point scale from 1 ("I totally disagree") to 6 ("I totally agree"). The study posed three questions on climate change based on Fielding et al. (2020) and Fielding and Hornsey (2016), which were presented as a cause for controversy and division between different groups: (a) "Climate change affects my daily life", (b) "Climate change is a matter we should address urgently", and (c) "Human action is responsible for climate change".

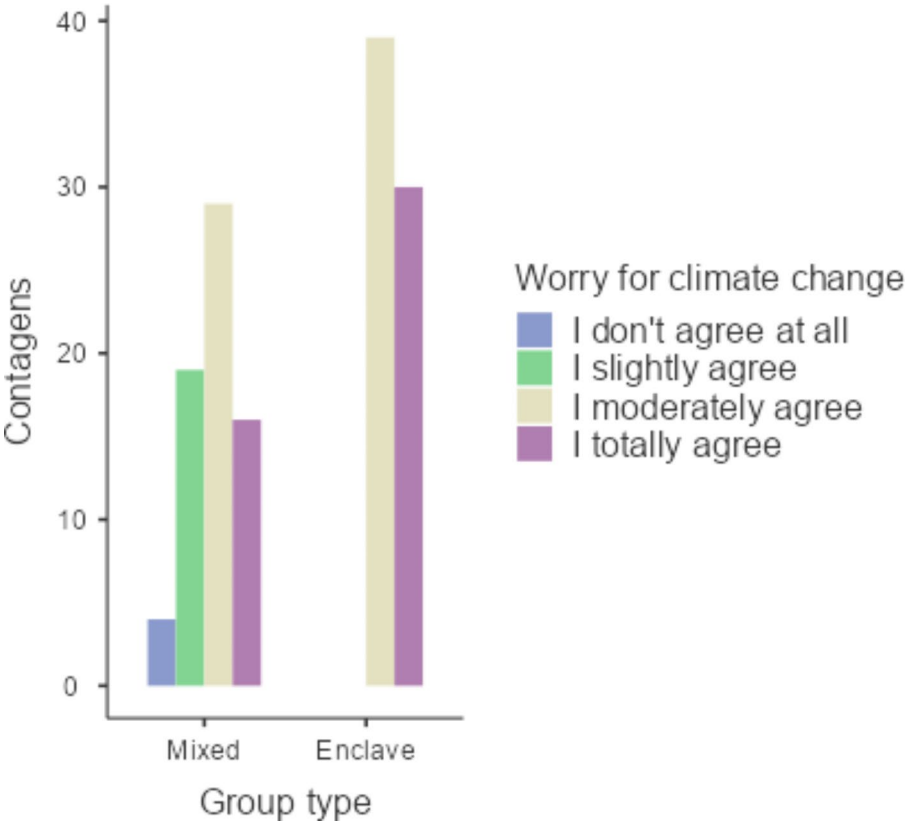

Fig. 1 this bar graph illustrates the distribution of worry between different group types. The x-axis represents group types, and the y-axis represents the percentage of respondents with varying levels of concern

3. Affective polarisation: to measure affective polarisation, we used a feeling thermometer adapted from a self-report survey of the American National Election Study (ANES) (2018). The children were asked to evaluate their feelings regarding "children who are interested in climate change" and "children who are not interested in climate change". The scale ranged from 10 "cold" to 50 "warm". They were instructed that temperatures between 10 and 29 are negative feelings towards the group, 30 meant neutral feelings and 31 to 50 degrees indicated positive emotions.

6.1.4 Procedure

Coglobal was responsible for executing the programme, including contacting the local councils and involving local schools in the agreement. By mutual agreement, universities also carried out external evaluations of the programme. After Coglobal had contacted each of the schools, the teachers were given guidelines for implemen-

tation of the projects. The survey was applied in the first session (pre-test) and last session (post-test) for both the target group and the control group. Before the students answered, the researchers read all the questions and clarified any doubts. All the responses were voluntary and anonymous. The study was carried out in accordance with the Helsinki Declaration and the protocol described was approved by the corresponding Ethics Committee with identification code CEUMA: 71-2020-H.

6.1.5 Statistical Analysis

A *t*-test was conducted to analyse the interactions between the level of concern about climate change and affective and issue-based attitudes (dependent variables). A two-factor ANOVA test was then performed to explore the relationship between level of concern (high *versus* low worry) about climate change and participating groups (target *versus* control). Next, a repeated measures ANOVA was employed to examine the influence of participation on the dependent variables. In this case, previous concern and participation were set as independent inter-group variables. Pre and post data for each measure of affective and issue-based polarisation were used as an intra-subject measurement. To test the influence of group type (enclave *versus* mixed), we maintained the intra-subject measurement but set participation in the programme and group type as inter-subject independent variables. The Bonferroni correction was applied to identify changes in the comparisons of the different moments of the intervention. The data gathered were processed using Jamovi 2.3.21 software.

7 Results

The results are organised by the dependent variable to facilitate the narrative. The first step of the analysis was to recode the measure "feeling worried about climate change" (measured on a 4-point Likert scale) as follows: those who scored between 1 and 2 were considered as low worry (-1; $n=22$) and those who scored between 3 and 4 with high worry (+1; $n=107$). This was used throughout the analysis.

7.1 Issue-based Polarisation

In this section we assessed the hypotheses focusing on issue-based attitudes. Initially, we verified hypothesis 1.1 which predicts a direct relationship between level of concern about climate change and levels of issue-based attitudes, both for the control and target group. Firstly, a *t*-test was performed to determine whether there was a relationship a priori between feeling worried about climate change and the ratio of issue-based items. Significant results were obtained, with those more worried about climate change scoring significantly higher for all three items, as can be seen in Table 3.

Next, we tested hypothesis 2.1, which predicted that participation in the programme would reduce the strength of the relationship between concern about climate change and issue-based polarisation relative to the control group. We employed a repeated measures ANOVA to examine whether participation in the programme had any impact on the issue-based items of polarisation, considering the level of prior

Table 3 Mediums and standard deviations in function of level of worry and items of issue-based polarisation

Item	t	gl	*p*	Highly worried medium (SD)	Low worried medium (SD)
a) Climate change affects my daily life	4.461	134	< 0.001	4.21 (1,41)	2.73 (1.60)
b) Climate change is a matter we should address urgently	7.127	135	< 0.001	5.17 (1,10)	3.17 (1.72)
c) Human action is responsible for climate change	8.672	135	< 0.001	4.95 (1,16)	2.43 (1.72)

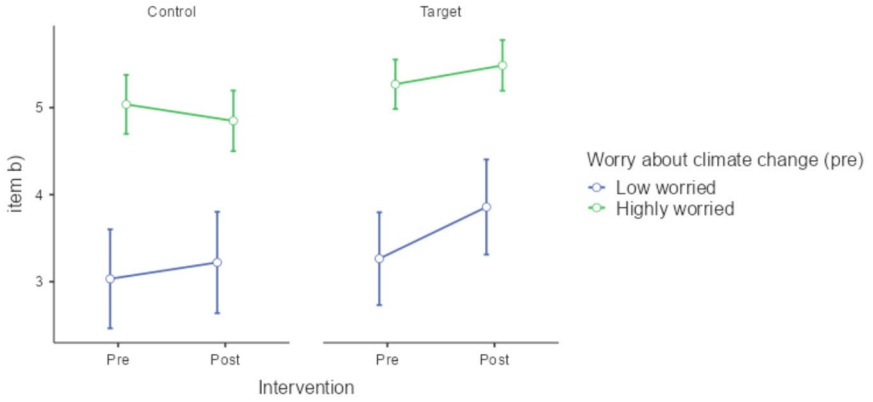

Fig. 2 this graph compares data pre and post intervention for control and target groups of low and highly worried participants responses in item b) (1 to 6-scale)

concern about climate change. In this case, previous concern and participation were set as inter-group independent variables. Pre and post data were also used for each item of issue-based polarisation as an intra-subject measurement. The results are organised per item, while the means and standard deviations are set out in Figs. 2 and 3 respectively for items b) and c).

a) Climate Change Affects my Daily life

For item a), there were no significant results for previous concern [F (1.333) = 0.099, $p = 0.754$, $n^2 = 0.003$] nor participation [F [1.333) = 3.473, $p = 0.065$, $n^2 = 0.000$], nor for the interaction between previous concern and participation [F (1.333) = 0.004, $p = 0.952$, $n^2 = 0.000$].

b) Climate Change is a Matter we should Address Urgently

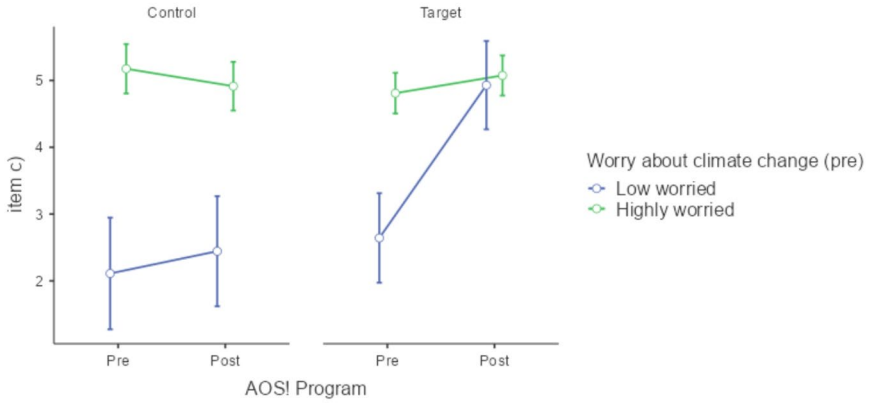

Fig. 3 this graph compares data pre and post intervention for control and target groups of low and highly worried participants responses in item c). (1 to 6-scale)

For item b), the results show a depolarisation of the participants in the programme who were less worried about climate change. In other words, after the intervention the mean increased significantly above the middle of the scale for this group, as can be seen in Fig. 2. The analysis found a significant effect for the interaction of feeling worried about climate change and participation (or not) in the programme [$F(1.133) = 13.328$, $p < 0.001$, $n^2 = 0.009$]. To understand exactly where the significance occurred, we conducted a post-hoc test corrected by the Bonferroni test. This showed that the depolarisation occurred only for those less worried about climate change [$t(133) = -3.872$, $p = 0.005$]. Those highly worried about climate change did not present any significant changes post-participation ($t(133) = -0.488$, $p = 1.00$].

c) Human Action is Responsible for Climate Change

The results for item c) were similar to item b). It can be seen that depolarisation also occurred for participants less worried about climate change. A significant effect was found for the interaction between previous concern about climate change and participation in the programme [$F(1.133) = 4.249$, $p = < 0.05$, $n^2 = 0.004$]. We conducted a post-hoc test corrected by the Bonferroni test to understand the differences in the data for low and highly worried groups. As in the case of item b), the effects described were only significant for the children in the target groups with low levels of concern about climate change [$t(133) = -5.78$, $p < 0.001$]. Highly worried children did not show significant changes as a result of participation [$t(133) = -1.47$, $p = 1.00$]. Figures 3 and 4 shows the data for item c).

7.1.1 Group type and issue-based Polarisation

Finally, we tested hypothesis 3.1 affirming that participation in mixed groups depolarises issue-based polarisation compared to enclave groups. Firstly, an ANOVA was conducted to explore the pre–deliberation data. We found a significant result for the

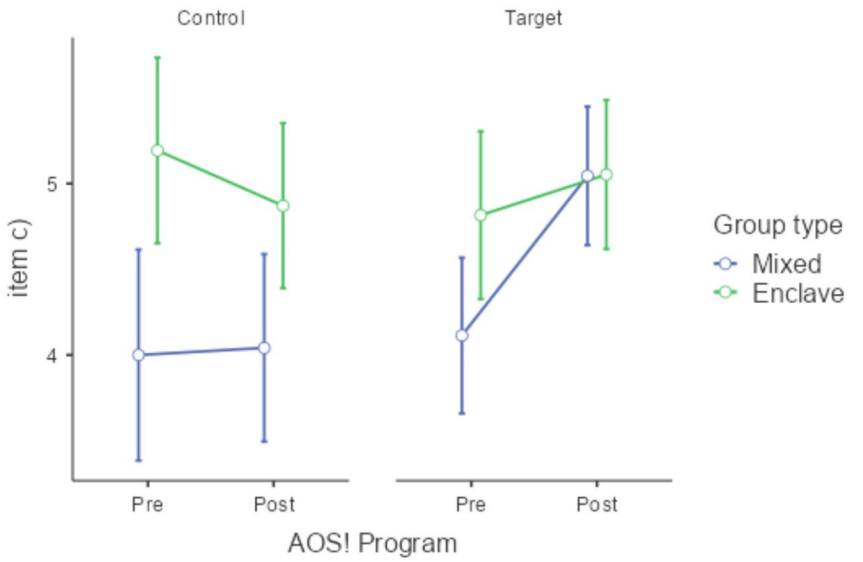

Fig. 4 this graph compares data pre and post intervention for both mixed and enclave groups, contrasting target and control data for item c) (1 to 6-scale)

Table 4 Mediums and standard deviations pre-deliberation per issue-based item for mixed and enclave group

Item	Mixed group m (SD)	Enclave group m (SD)	*p*
a) *	3.42 (0.176)	4.47 (0.174)	<0.001
b)	4.62 (0.172)	5.06 (0.171)	0.072
c) *	4.10 (4.95)	4.95 (0.185)	0.002

*Note: items that are significant at $p<0.005$

group type for item (a) [F (1.131) = 18.111, $p<0.001$] and item c) [F (1.131) = 10.500, $p<0.05$, but not for item (b) [F (1.131) = 3.280, $p=0.072$). The scores were higher for the enclave group, which consisted of people more worried about climate change. The means and standard deviations can be seen in Table 4.

After the programme a repeated measures ANOVA was performed, setting participation and group type as the Independent Variable (IV). For item a) only participation was significant [F (1.131) = 5.709, $p<0.05$, $n^2=0.004$], as can be seen in the comparison of the mean for the target group (pre $\bar{x} = 3.92$, SD = 0.161; post $\bar{x} = 4.47$, SD = 0.172). The control group did not show significant changes when comparing the pre ($\bar{x}$= 3.94, SD = 0.198) and post ($\bar{x}$= 3.85, SD = 0.213), as was demonstrated by a post-hoc test [t (131) = 0.43, $p=1.00$]. The data indicate that the only effect was on participation and that there was no influence of participating in the enclave or mixed group.

For item b), there is no main influence for participation [F (1.133) = 3.641, $p=0.059$, $n^2=0.002$), nor for the group type [F (1.133) = 0.219, $p=0.64$, $n^2=0.000$).

Finally, for item c) we found a positive effect of participation [F (1.133)=6.900, $p=0.01$, $n^2=0.006$]. The post-hoc analysis shows significant changes for the target group [t (133) = -3.35, $p<0.01$] (pre target $\bar{x} = 4.46$, SD=0.169; post target $\bar{x} = 5.05$, SD=0.150), but not for the control group [t (133)=0.65, $p=1.00$]. There were no significant results for the group type [F (1.133)=3.684, $p=0.057$, $n^2=0.003$]. The interaction between both variables was also statistically insignificant [F (1.133)=0.359, $p=0.55$].

7.2 Affective Polarisation

Firstly, we tested hypothesis 1.2 predicting that the greater the level of worry about climate change, the higher the level of affective polarisation. We verified whether before deliberation the independent variable "concern about climate change" had an effect on affective political polarisation.

The pre-deliberation data was processed in search of a direct relationship between feeling worried about climate change (IV) and the affective dimension of political polarisation. To do so, we calculated the difference between feelings towards children who are not interested in climate change and feelings towards children who are interested in climate change, based on the feeling thermometer. In other words, we subtracted the score for feelings towards children who are not interested from the score for feelings towards children who are interested. The closer this score is to zero, the less the difference between a participant's feelings towards one group and the other. Positive scores indicate more positive emotions toward children who are interested in climate change, and negative scores indicate more positive emotions towards children who are not interested in climate change.

We did a *t*-test to verify whether the participants had different emotions for the ingroup and outgroup according to their previous level of concern about climate change, finding significant differences [t (132)=3.774, $p<0.001$]. In the case of participants who were highly worried ($\bar{x}$ =23.34; SD=14.03) the difference in emotions felt towards children who are interested and children who are not interested was greater than for participants who were less worried ($\bar{x}$ =10.22; SD=18.85). This means that participants who are more worried about climate change feel more positive towards children who are interested in climate change (ingroup) in comparison to those who are less worried (outgroup), as predicted in hypothesis 1.2. It also indicates that for the group who are less worried the difference between emotions towards children interested or not interested is smaller.

Afterwards, we analysed hypothesis 2.2 which posits that participating in the programme decreases the intensity of the relationship between previous concern about climate change and affective polarisation in comparison to the control group. The repeated measure ANOVA showed no significant differences for participation (target versus control group) [F (1.132)=0.103, $p=0.749$], nor for the interaction between participating and feeling less or more worried about climate change [F (1.132)=0.542, $p=0.463$]. However, we found significant differences based on the previous level of concern [F (1.132)=13.575, $p<0.001$, $n^2=0.108$]. This is in line with the pre-deliberation data, which indicated a predominant effect of the level of concern on the measures of affective polarisation regardless of participation in the

programme. This reinforces the main influence of the level of concern about climate change on the scores of the feeling thermometer [F (1.130) = 0.474, $p < 0.005$].

7.2.1 Group type and Affective Polarisation

In this section, we tested hypothesis 3.2 to identify whether participation in mixed groups depolarises affective polarisation in comparison to enclave groups. In the pre-intervention data there was a significant result [F (1.131) = 10.529, $p < 0.001$] for the group type. In the enclave group ($\bar{x}$=25.328, SD = 1.848) the difference between feelings for the ingroup and outgroup was higher than in the mixed group ($\bar{x}$=16.818, SD = 1.861). This indicates that the enclave group (composed of children who are interested in climate change) feels more warmth towards the ingroup compared to the mixed group (composed of children who are and who are not interested in climate change).

To test hypothesis 3.2 we conducted a repeated measures ANOVA, comparing the pre and post intra-subject scores for the difference calculated for affective polarisation as the measure and designating participation in the programme and group type as the inter-subject independent variables. The results indicate that there were no significant effects for group participation [F (1.127) = 1.183, $p = 0.279$], nor group type [F (1.127) = 0.022, $p = 0.883$], nor for the interaction between both variables [F (1.127) = 0.708, $p = 0.402$].

8 Discussion

This experimental field study involving children aged 10–12 years old seeks to determine whether participation in a deliberative programme influences the relationship between feeling worried about climate change and affective and issue-based political polarisation. We also hypothesised that the effect would vary depending whether the participation is in homogeneous (enclave) or heterogeneous (mixed) groups. The results show the direct effect of previous concern about climate change on issue-based attitudes and affective polarisation, therefore confirming hypotheses 1.1 and 1.2. Our findings also partially support hypothesis 2.1, given that participation in the programme led to depolarisation in two out of the three issue-based measures, particularly for those with lower levels of concern. However, participation did not yield any significant effect on affective polarisation, contradicting hypothesis 2.2. In relation to hypotheses 3.1 and 3.2, the data analysis reveals that the enclave group did not polarise, but there was no significant influence of the group type observed for either issue-based or affective polarisation.

Iyengar et al. (2019) suggested that affective and issue-based polarisation are independent variables. Accordingly, we investigated both dimensions, but separately. Our main contribution to this discussion is the clarification of the role of emotions in deliberative processes. In our study, pre-deliberation concern about climate change played a pivotal role in relation to the scores for measures of affective and issue-based polarisation.

In relation to issue-based polarisation, the statistical analysis reveals that the level of participants' concern about climate change before and during deliberation plays a significant role. Participants with high levels of concern scored higher on all three measures compared to participants with lower levels of concern. Regarding the influence of participation in the programme, we found significant changes in measures b) "Climate change is a matter we should address urgently" and c) "Human action is responsible for climate change". Both items showed depolarisation of those less worried about climate change. This is in line with previous research, which has found that significant changes in positions are greater for those considered more conservative (e.g. anti-immigration, Republicans etc.) (Lindell et al., 2017). In the case of climate change, it suggests that "believers" might undergo less change than "sceptics" (Estrada et al., 2017).

As for the role of the group type (enclave *versus* mixed), our data indicate that there was no influence. Contrary to what was expected, the enclave group did not polarise. This is in line with Grönlund et al. (2015) where the enclave group also did not polarise, with participants against immigration in mixed groups shifting towards the other side — although they did not exceed the threshold for depolarisation. It is important to note that no changes were observed in the control group in this study, which indicates more robust results than the study by Grönlund et al. (2015).

Based on the contributions of the social identity approach, we may also assume that because the participants already shared common backgrounds and social categories, participation in AOS caused an accentuation of perceived intraclass similarities. In this case, the salience of "pro-environmentalism" that AOS advocates probably caused a self-recategorisation of those with lower levels of concern about climate change to fit the group's prototype. Moreover, because AOS is a programme that focuses on local policies, the municipality as a shared social category relating to pro-environmentalist actions may have strengthened previous feelings such as worry and concern.

Although Fishkin et al. (2021) and Shen and Yu (2021) found that affective polarisation is reduced as a result of deliberation, this study did not find any significant results in this sense. Indeed, the participants chose negative or positive feelings towards children who are or are not interested about climate change according to their previous level of concern about climate change, supporting hypothesis 1.2. Participants who are highly worried have warmer feelings towards their ingroup, which is aligned with the ingroup preference according to social identity theory. It is interesting to note that although the distance between feelings for the ingroup and outgroup is greater for highly worried participants, less worried participants also have more positive feelings towards children who are interested in climate change. This could be attributed to the fact that being an environmentalist enjoys a valued social identity associated with specific norms and behaviour, suggesting that social values may influence this result. This is in line with the results of Gregersen et al. (2020), in which the left and right political spectrums showed a relationship between feeling worried about climate change and beliefs in anthropogenic causes. Nonetheless, political orientation was a moderator intensifying the relationship for participants from the left.

We also investigated whether the type of group of the participants (mixed or enclave) had any influence. In the pre-deliberation data there was a significant influence according to group type. This was mainly because the enclave group was made up of participants who were highly worried about climate change, therefore there was a higher preference for children who were interested in climate change. However, after the programme there was no significant interaction between participation and group type. This suggests that the programme was not successful at altering pre-deliberation emotions, as these emotions continued to have a primary impact on how the participants felt about children who were or were not interested in climate change during the deliberation, despite the depolarisation observed in the cognitive dimension.

This study represents a significant contribution to research on DI as it offers valuable insights into the role of emotions in deliberative processes, more specifically in the context of political participation by children. While prior studies have assessed feelings toward the ingroup and outgroup using the feeling thermometer, they have not delved into the role of specific emotions related to the discussion topic. As observed in previous studies, our results suggest that positive outcomes reducing both issue-based and affective polarisation may be attributed to the activation of group norms during deliberation. However, it does not necessarily guarantee a transformation of how members of the deliberative group perceive the topic post-deliberation. As argued by Wang et al. (2018), feeling a closer connection to a particular issue elicits more intense emfotions. Other authors such as Bliuc et al. (2015) also contend that political opinions cannot be solely reduced to cognitive dimensions as they are supported by social identities.

This study has certain limitations, including the lack of an enclave group composed of less worried participants. In previous studies with Ágora Infantil (Albornoz-Manyoma et al., 2020), identification with the deliberative group was included as a measure and the results showed that participation in the programme increased this value positively. While we did not incorporate this measure for the present study, it is recommended for future research because the data analysis suggests that climate change measures are related to social identity. We suggest that future research should focus on determining the longitudinal effects of deliberation on learning. Moreover, social identity measures should be included together with qualitative data to further clarify the ongoing debate in this area.

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Data Availability The dataset was not open access before publication of the article. Reviewers require access to the drive that contains the files (https://drive.google.com/open?id=1PKceGkkLCadK2xMdHqQofdPqSGzikMai&usp=drive_fs). Following publication, the dataset will be sent to the Institutional Repository of the University of Malaga.

Declarations

Ethical Approval The authors declare that human participant was submitted to an ethical approval before the field experiment.

Conflict of Interest The authors declare that they have no conflict of interest. The participation by the children was submitted to an ethical committee before the study.

References

Albornoz-Manyoma, N. G., García-Leiva, P., & Palacios-Gálvez, M. S. (2020). Participation as a mechanism to favour psychological empowerment and positive interaction: The Ágora Infantil participatory democracy programme. *Journal of Community Psychology*, *48*(5), 1347–1364. https://doi.org/10.1002/jcop.22328

Albornoz-Manyoma, N. G., García-Leiva, P., & Palacios-Gálvez, M. S. (2021). Longitudinal study of the Psychosocial effects of Political participation by children: The 'Ágora Infantil' Programme. *Child Indicators Research*, *14*(5), 2083–2096. https://doi.org/10.1007/s12187-021-09837-w

American National Election Studies (ANES) (2023). 2018 Pilot Study. https://electionstudies.org/data-center/2018-pilot-study/

Andrews, N. (2022). The emotional experience of members of Scotland's citizens' Assembly on Climate Change. *Frontiers in Climate*, *4*. https://doi.org/10.3389/fclim.2022.817166

Arbatli, E., & Rosenberg, D. (2021). United we stand, divided we rule: How political polarization erodes democracy. *Democratization*, *28*(2), 285–307. https://doi.org/10.1080/13510347.2020.1818068

Balinhas, D. (2023). Bringing critical social psychology to the study of political polarization. *Social and Personality Psychology Compass*, *17*(1). https://doi.org/10.1111/spc3.12721

Bliuc, A. M., McGarty, C., Thomas, E. F., Lala, G., Berndsen, M., & Misajon, R. (2015). Public division about climate change rooted in conflicting socio-political identities. *Nature Climate Change*, *5*(3), 226–229. https://doi.org/10.1038/nclimate2507

Burman, E. (2017). *Deconstructing Developmental psychology* (2nd ed.). Routledge.

Caluwaerts, D., Bernaerts, K., Kesberg, R., Smets, L., & Spruyt, B. (2023). Deliberation and polarization: A multi-disciplinary review. *Frontiers in Political Science*, *5*. https://doi.org/10.3389/fpos.2023.1127372

Collingwood, L., & Reedy, J. (2012). Listening and responding to criticisms of Deliberative Civic Engagement. In T. Nabatchi, J. Gastil, M. Leighninger, & G. M. Weiksner (Eds.), *Democracy in motion* (pp. 233–260). Oxford University Press. https://doi.org/10.1093/acprof:oso/9780199899265.001.0001

Dias, T. S., & Menezes, I. (2014). Children and adolescents as political actors: Collective visions of politics and citizenship. *Journal of Moral Education, 43*(3), 250–268. https://doi.org/10.1080/03057240.2014.918875

Dryzek, J. S., Bächtiger, A., Chambers, S., Cohen, J., Druckman, J. N., Felicetti, A., Fishkin, J. S., Farrell, D. M., Fung, A., Gutmann, A., Landemore, H., Mansbridge, J., Marien, S., Neblo, M. A., Niemeyer, S., Setälä, M., Slothuus, R., Suiter, J., Thompson, D., & Warren, M. E. (2019). The crisis of democracy and the science of deliberation. *Science*, *363*(6432), 1144–1146. https://doi.org/10.1126/science.aaw2694

Eide, E., & Kunelius, R. (2021). Voices of a generation the communicative power of youth activism. *Climatic Change*, *169*(1–2), 6. https://doi.org/10.1007/s10584-021-03211-z. 6.

Elkink, J. A., Farrell, D. M., Marien, S., Reidy, T., & Suiter, J. (2020). The death of conservative Ireland? The 2018 abortion referendum. *Electoral Studies*, *65*, 102142. https://doi.org/10.1016/j.electstud.2020.102142

Escobar, O., & Elstub, S. (2017). *Forms of Mini-publics*. www.newdemocracy.com.au

Estrada, M., Schultz, P. W., Silva-Send, N., & Boudrias, M. A. (2017). The role of Social influences on Pro-environment behaviors in the San Diego Region. *Journal of Urban Health*, *94*(2), 170–179. https://doi.org/10.1007/s11524-017-0139-0

Feddes, A. R., Huijzer, A., van Ooijen, I., & Doosje, B. (2019). Fortress of democracy: Engaging youngsters in democracy results in more support for the political system. *Peace and Conflict: Journal of Peace Psychology*, *25*(2), 158–164. https://doi.org/10.1037/pac0000380

Fielding, K. S., & Hornsey, M. J. (2016). A social identity analysis of climate change and environmental attitudes and behaviors: Insights and opportunities. *Frontiers in Psychology, 7*, 1–12. https://doi.org/10.3389/fpsyg.2016.00121

Fielding, K. S., Head, B. W., Laffan, W., Western, M., & Hoegh-Guldberg, O. (2012). Australian politicians' beliefs about climate change: Political partisanship and political ideology. *Environmental Politics*, *21*(5), 712–733. https://doi.org/10.1080/09644016.2012.698887

Fielding, K. S., Hornsey, M. J., Thai, H. A., & Toh, L. L. (2020). Using ingroup messengers and ingroup values to promote climate change policy. *Climatic Change, 158* (2), 181–199. https://doi.org/10.1007/s10584-019-02561-z

Fishkin, J., Siu, A., Diamond, L., & Bradburn, N. (2021). *Is deliberation an antidote to extreme partisan polarization? Reflections on 'America in One Room'*. https://helena.org/projects/america-in-one-room

Ganuza, E., & Mendiharat, A. (2020). *La democracia es posible. Sorteo cívico y deliberación para rescatar el poder de la ciudadanía*. Consonni.

Gidengil, E., Wass, H., & Valaste, M. (2016). Political socialization and Voting. *Political Research Quarterly*, *69*(2), 373–383. https://doi.org/10.1177/1065912916640900

González, Y. (2022). Political polarisation and the extension of government: A revisited concept. *Social Identities*, *28*(2), 252–266. https://doi.org/10.1080/13504630.2021.2006623

Gregersen, T., Doran, R., Böhm, G., Tvinnereim, E., & Poortinga, W. (2020). Political orientation moderates the relationship between climate change beliefs and worry about Climate Change. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.01573

Grönlund, K., Herne, K., & Setälä, M. (2015). Does Enclave Deliberation polarize opinions? *Political Behavior*, *37*(4), 995–1020. https://doi.org/10.1007/s11109-015-9304-x

Iyengar, S., Sood, G., & Lelkes, Y. (2012). Affect, not ideology: A social identity perspective on polarization. *Public Opinion Quarterly*, *76*(3), 405–431. https://doi.org/10.1093/poq/nfs038

Iyengar, S., Lelkes, Y., Levendusky, M., Malhotra, N., & Westwood, S. J. (2019). *The origins and consequences of affective polarization in the United States*. https://doi.org/10.1146/annurev-polisci-051117

Johnson, G. F., Black, L. W., & Knobloch, K. R. (2017). Citizens' initiative review process: Mediating emotions, promoting productive deliberation. *Policy and Politics*, *45*(3), 431–447. https://doi.org/10.1332/030557316X14595273846060

Johnson, G. F., Morrell, M. E., & Black, L. W. (2019). Emotions and deliberation in the citizens' Initiative Review. *Social Science Quarterly*, *100*(6), 2168–2187. https://doi.org/10.1111/ssqu.12707

Knobloch, K., & Gastil, J. (2022). How deliberative experiences shape subjective outcomes: A study of Fifteen Minipublics from 2010–2018. *Journal of Deliberative Democracy*, *18*(1). https://doi.org/10.16997/jdd.942

Leino, M., & Kulha, K. (2023). Hopes over fears: Can democratic deliberation increase positive emotions concerning the future? *Futures*, *154*. https://doi.org/10.1016/j.futures.2023.103246

Levendusky, M. S., & Malhotra, N. (2016). (MIS)perceptions of partisan polarization in the American public. *Public Opinion Quarterly*, *80*, 378–391. https://doi.org/10.1093/poq/nfv045

Lindell, M., Bächtiger, A., Grönlund, K., Herne, K., Setälä, M., & Wyss, D. (2017). What drives the polarisation and moderation of opinions? Evidence from a Finnish citizen deliberation experiment on immigration. *European Journal of Political Research*, *56*(1), 23–45. https://doi.org/10.1111/1475-6765.12162

Martin, G. P. (2012). Public deliberation in action: Emotion, inclusion and exclusion in participatory decision making. *Critical Social Policy*, *32*(2), 163–183. https://doi.org/10.1177/0261018311420276

Mason, L. (2018). Ideologues without issues: The polarizing consequences of ideological identities. *Public Opinion Quarterly*, *82*(S1), 280–301. https://doi.org/10.1093/poq/nfy005

Moore-Berg, S. L., Hameiri, B., & Bruneau, E. (2020). The prime psychological suspects of toxic political polarization. *Current opinion in behavioral sciences* (Vol. 34, pp. 199–204). Elsevier Ltd. https://doi.org/10.1016/j.cobeha.2020.05.001

Myers, C. D. (2021). The Dynamics of Social Identity: Evidence from deliberating groups. *Political Psychology*. https://doi.org/10.1111/pops.12749

Nesdale, D., & Flesser, D. (2001). Social Identity and the development of children's Group attitudes. *Child Development*, *72*(2), 506–517. https://doi.org/10.1111/1467-8624.00293

Novak, A. N. (2024). News coverage of climate change and generation Z. *Climatic Change*, *177*(5). https://doi.org/10.1007/s10584-024-03731-4

Open Society Foundations (2023). *Open society barometer: Can democracy deliver*? https://www.opensocietyfoundations.org/publications/open-society-barometer-candemocracy-deliver

Orriols, L., & León, S. (2021). Looking for affective polarisation in Spain: PSOE and Podemos from Conflict to Coalition. *South European Society and Politics*, 1–29. https://doi.org/10.1080/13608746.2021.1911440

Postmes, T., Haslam, S. A., & Swaab, R. I. (2005). Social influence in small groups: An interactive model of social identity formation. *European Review of Social Psychology*, *16*(1), 1–42. https://doi.org/10.1080/10463280440000062

Reicher, S. D., Haslam, A., Spears, S., R., & Reynolds, K. J. (2012). A social mind: The context of John Turner's work and its influence. *European Review of Social Psychology*, *23*(1), 344–385. https://doi.org/10.1080/10463283.2012.745672

Reifen-Tagar, M., & Cimpian, A. (2022). Political ideology in early childhood: Making the case for studying Young children in political psychology. *Political Psychology*, *43*(S1), 77–105. https://doi.org/10.1111/pops.12853

Rogowski, J. C., & Sutherland, J. L. (2016). How ideology fuels affective polarization. *Political Behavior*, *38*(2), 485–508. https://doi.org/10.1007/s11109-015-9323-7

Saam, N. J. (2018). Recognizing the emotion work in deliberation. Why emotions do not make deliberative democracy more democratic. *Political Psychology*, *39*(4), 755–774. https://doi.org/10.1111/pops.12461

Sanders, D. (2012). The effects of deliberative polling in an EU-wide experiment: Five mechanisms in search of an explanation. *British Journal of Political Science*, *42*(3), 617–640. https://doi.org/10.1017/S0007123411000494

Santos, M. T. P. C. (2019). dos. *Participação pública institucional: a democracia segue dentro de momentos: uma perspectiva crítica dos orçamentos participativos* [Tese de doutoramento]. Instituto Universitário de Lisboa.

Shen, F., & Yu, W. (2021). Reducing political polarization in Hong Kong: A pilot experiment of deliberation. *Japanese Journal of Political Science*, *22*(4), 233–247. https://doi.org/10.1017/S1468109921000335

Somer, M., & McCoy, J. (2018). Déjà vu? Polarization and endangered democracies in the 21st Century. *American behavioral scientist* (Vol. 62, pp. 3–15). SAGE Publications Inc. 1https://doi.org/10.1177/0002764218760371

Strandberg, K., Himmelroos, S., & Grönlund, K. (2019). Do discussions in like-minded groups necessarily lead to more extreme opinions? Deliberative democracy and group polarization. *International Political Science Review*, *40*(1), 41–57. https://doi.org/10.1177/0192512117692136

Sunstein, C. R. (2000). Deliberative trouble? Why groups go to extremes. *The Yale Law Journal*, *110*(1), 71. https://doi.org/10.2307/797587

Sunstein, C. R. (2002). The law of group polarization. *Journal of Political Philosophy*, *10*(2), 175–195. https://doi.org/10.1111/1467-9760.00148

Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. *Social psychology of intergroup relations* (pp. 33–47). Brooks/cole.

Thompson, J. B. (1983). Rationality and social rationalization: An Assessment of Habermas's. *Theory of Communicative Action Sociology*, *17*(2), 278–294. https://doi.org/10.1177/0038038583017002010

Thompson, S., & Hoggett, P. (2015). The emotional dynamics of deliberative democracy. *Policy and Politics*, *29*(3), 351–364. https://doi.org/10.1332/0305573012501396

Tyagi, A., Babcock, M., Carley, K. M., & Sicker, D. C. (2020). *Polarizing tweets on climate change* (pp. 107–117). https://doi.org/10.1007/978-3-030-61255-9_11

Tyler, M., & Iyengar, S. (2022). Learning to dislike your opponents: Political socialization in the era of polarization. *American Political Science Review*, 1–8. https://doi.org/10.1017/S000305542200048X

Van Deth, J. W., Abendschön, S., & Vollmar, M. (2011). Children and politics: An empirical reassessment of early political socialization. *Political Psychology*, *32*(1), 147–174. https://doi.org/10.1111/j.1467-9221.2010.00798.x

Videras, J., Owen, A. L., Conover, E., & Wu, S. (2012). The influence of social relationships on pro-environment behaviors. *Journal of Environmental Economics and Management*, *63*(1), 35–50. https://doi.org/10.1016/j.jeem.2011.07.006

Wang, S., Leviston, Z., Hurlstone, M., Lawrence, C., & Walker, I. (2018). Emotions predict policy support: Why it matters how people feel about climate change. *Global Environmental Change*, *50*, 25–40. https://doi.org/10.1016/j.gloenvcha.2018.03.002

Wetherell, M. (1987). Social identity and group polarization. In J. C. Turner, M. A. Hogg, S. D. Reicher, & M. S. Whetherell (Eds.), *Rediscovering the social group* (pp. 142–170). Oxford.

Willis, R., Curato, N., & Smith, G. (2022). Deliberative democracy and the climate crisis. *WIREs Climate Change*, *13*(2). https://doi.org/10.1002/wcc.759

Wojcieszak, M., & Garrett, R. K. (2018). Social identity, selective exposure, and affective polarization: How Priming National Identity shapes attitudes toward immigrants Via News Selection. *Human Communication Research*, *44*(3), 247–273. https://doi.org/10.1093/hcr/hqx010

Wyness, M. (2001). Children, childhood and political participation: Case studies of young people's councils. *The International Journal of Children's Rights*, *9*(3), 193–212. https://doi.org/10.1163/15718180120494937

Young, I. M. (2001). Activist challenges to deliberative democracy. *Political Theory*, *29*(5), 670–690. https://doi.org/10.1177/0090591701029005004