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ORIGINAL PAPER

'The Way Enthusiasm Builds': Frame Amplification and Emotional Reinforcement in Participatory Policymaking

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Abstract
To create policies about complex environmental challenges, it is vital to involve multiple stakeholders. Whilst research has shown how emotions may influence multi-stakeholder collaborations, the role of emotions in participatory policymaking is not sufficiently understood. This study focuses on the role of emotions during a series of citizen workshops that feed into urban tree management policies. Specifically, we explore how emotions are related to the deliberation of citizens' frames (i.e. sensemaking schemata). Our findings demonstrate inherent interconnections between participants' frames and emotions. We identify a chain of mechanisms by which the expression of frames and associated emotions during interactions led to an intertwined amplification of citizens' frames and reinforcement of their emotions. We also explain the cases of 'separation' where this did not occur. Our model extends prior insights into the relationship between frames and emotions and demonstrates how citizen workshops serve not only to gain citizens' input into public policies, but also to cultivate their frames through emotional reinforcement.

Keywords Participatory policy · Deliberation · Deliberative democracy · Collaborative governance · Stakeholder collaboration · Frames · Emotion

Introduction

Today's environmental crisis must be tackled at multiple fronts and requires concerted efforts by many parts of society. One area of necessary change is the conservation and improvement of urban treescapes. Urban trees help to fight rising temperatures in cities, air pollution, carbon emissions, and biodiversity loss. Beyond such ecological functions, they provide green space for leisure, relaxation, and social activities, amongst other benefits. This study focuses on citizen workshops that were tasked with deliberating the values of urban trees to inform decisions on the future of urban treescapes.

Citizen workshops are a key vehicle for participatory policymaking. To tackle complex challenges, public policymakers increasingly use this approach, drawing on the input of citizens from diverse walks of society. This aims at policy solutions that include diverse perspectives and interests, have broad ownership, and approach the ideal of deliberative democracy (see Reed et al., 2018; Orchard-Webb et al., 2016). Research on participatory policymaking and collaborative governance has often examined how stakeholders can bridge their diverse perspectives, values, and interests to reach agreements (DeWulf & Bowen, 2012; Fan & Zietsma, 2017; Ferraro et al., 2015; Kenter, 2016; Ranger et al., 2016; Stepanova et al., 2020). One approach is to discern stakeholders' 'frames', i.e. mental schemata for making sense of the world (Goffman, 1974) and examine how stakeholders deliberate these frames

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to achieve solutions that can be supported by all (Zimmermann et al., 2022; Zimmermann & Kenter, 2023). Frame deliberation is occurring when interactants apply and reflect on their frames, leading to increased salience, elaboration, and potential adjustment (i.e. modification or change) of frames (Zimmermann et al., 2022).

Perspectives concerning the environment are often emotionally charged. Stakeholders are unlikely to judge environmental problems purely on a rational basis, but they tend to be emotionally engaged (Baudoin & Arenas, 2023; Isacs et al., 2023). Surprisingly, participatory policymaking research has not paid due attention to emotions in the deliberation of environmental issues. To address this gap, this study explores how emotions relate to frame deliberation during citizen workshops.

Emotions have been defined broadly as feelings or 'valenced responses to stimuli' that concern 'specific targets', such as people, objects, or events (Kleef and Côté, 2022). We can presume that emotions play a role in frame deliberation, because they have been identified as components (Goffman, 1974; Klein & Amis, 2021), antecedents (Gray et al., 2015) and consequences (Giorgi, 2017) of frames. Frames are thus not purely 'cold' or rational but often emotionally charged. Values in particular (such as beauty or peace) tend to be associated with emotions (Fan & Zietsma, 2017). Emotions may help or hinder deliberations (Thompson & Hoggett, 2001), and they may function without participants' awareness (Lieberman, 2007). Understanding the role of emotions in frame deliberation is important, because it helps facilitate such deliberation. Moreover, given that that emotions underscore people's motivation (Weiner, 1985), it should help foster stakeholders' engagement in environmental initiatives (see Milfont & Schultz, 2016).

We derived our empirical findings from citizen workshops on urban treescape management in three cities of the United Kingdom. Through an iterative-abductive analysis, we observed how frames and emotions concerning urban treescapes were inherently intertwined. Moreover, we identified a chain of mechanisms that explains how, during interactions, the expression of frames and associated emotions led to a combined amplification of citizens' frames and reinforcement of their emotions. Our findings contribute to prior research on frames and participatory policymaking by introducing the role of emotions for frame deliberation. Citizen workshops, we argue, are important not only for gaining citizens' input into policies, but also for cultivating their frames through emotional reinforcement, strengthening their support for environmental policies and initiatives. In what follows, we provide the theoretical background to the study, methods, and key findings. The discussion highlights theoretical contributions, implications for policy makers, limitations of the study, and future research.

Background

Frames and Frame Deliberation

Frames have been defined as sensemaking devices (Goffman, 1974). In the context of participative policymaking, they shape the (more specific) views that actors contribute to a policy (Zimmermann et al., 2022). The verb 'framing', in turn, is commonly used to describe the action of applying a frame to interpret a situation. For example, people's values, such as safety or beauty, can serve as 'frames' to judge the value of old trees, leading to 'framing' of the trees as either dangerous or aesthetically pleasing. This framing can incite divergent actions, such as felling a tree or looking after it.

Frames are commonly regarded as dynamic structures that are socially constructed and transformed during social interactions (Benford, 1997; Goffman, 1974). At the same time, frames are not entirely dynamic, but reach certain resting points. People do not completely change all their frames continuously but also hold relatively stable frames which are then modified during social interactions. In the case of participatory policymaking, the interactions between participants (e.g. during workshops) are key for 'frame deliberation', i.e. the use and reflection on frames that leads to greater frame salience, -elaboration, and potentially -adjustment (Zimmermann et al., 2022). Frame deliberation is important for actors to individually and jointly make sense of the issues at stake and bridge contrasting views. We can hence assume that people's input into a policy will be influenced by the deliberation of their frames.

Early framing theory (Goffman, 1974) has described the social construction of frames during interactions in detail. Interactants are seen to exchange cues (verbal or non-verbal signals) indicating how they want their message to be understood. This activates others' frames for interpreting the message and actions. Misunderstandings arise when interactants use different frames. Frames can be elaborated and adjusted during interactions, for example by aligning frames. In our study, we apply Snow et al.'s (1986) widely used frame alignment categories to distinguish between: frame 'bridging', which occurs when two divergent frames are linked; frame 'amplification' meaning that a frame is invigorated; frame 'extension' which refers to the boundaries of a frame being widened; and 'transformation' that happens when the understanding of a frame is altered.

Emotions and Frames

Our focus on the role of emotions for frame deliberation is justified by prior insights into the relation of emotions

with frames. Framing research has suggested a close interconnection between the two. For example, Goffman (1974) posits that frames organise not only actors' perceptions and actions, but also their 'involvement', for example how 'engrossed, caught up, enthralled' actors become during an activity, because frames include normative expectations 'as to how deeply and fully the individual is to be carried into the activity organised by the frame' (Goffman, 1974, p. 345). Frames differ in the degree of involvement they prescribe, illustrated by frames of traffic systems as opposed to frames of sexual intercourse. Frames are also seen to have 'emotional arrays' (Klein & Amis, 2021), characterised by constituent sets of emotions, the level of intensity at which each emotion is expressed, and the language that corresponds to each emotional array. Emotional arrays thus describe emotions as characteristics or *constituents* (rather than merely antecedents or consequences) of frames. Similarly, 'emotional frames' appeal to audiences' sentiments (Raffaelli et al., 2019) and signify emotions the audience should feel regarding the framed issues.

Emotions have also been regarded as *antecedents* and *consequences* of frames and framing, implying a greater distinction between the two. Emotions are antecedents of frames in the case of 'emotional intensification', whereby emotional arousal during interaction leads to frame amplification (Gray et al., 2015). Emotions are also consequences of frames, for example when framing has emotional 'resonance', i.e. 'an appeal to audiences' feelings, passions, and aspirations' (Giorgi, 2017). Emotions created through such resonance tend to impinge back upon audiences' frames. Emotions thus have a key function in influencing audiences' frames. Social movements often use this mechanism strategically when arousing emotions (e.g. moral emotions) to gain followers and mobilise action (Giorgi, 2017; Jasper, 2011; Snow et al., 1986). For example, religious groups intentionally elicit emotions such as empathy and guilt to convert people to their beliefs (Tracey, 2016). Similarly, nongovernmental organisations have been found to purposefully evoke emotions of discomfort over moral issues to construct a corporate social responsibility frame (Reinecke & Ansari, 2016), and a shocking press image changed public emotions and discourse on migration in the UK (Klein & Amis, 2021).

Emotions also have an important function in unintended, situationally produced change of frames. For example, during a politically motivated occupation, the location of St. Paul's cathedral was found to trigger a frame change (from anti-capitalist to religious frame) and create emotional attachment to the new frame (Reinecke and Ansari, 2021). In the same vein, serendipitous experiences of social impact were found to create new purposes for a research project (Rauch & Ansari, 2022).

Emotions and Frames in the Context of Participatory Policymaking

As mentioned, participatory policymaking has become increasingly common, allowing multiple stakeholders to contribute to public decisions that address today's complex environmental challenges. The aim of participatory policy is to reach policy decisions that incorporate diverse knowledge, address multiple interests, and are more widely supported across stakeholder groups, approaching the ideal of deliberative democracy (see Goodin & Dryzek, 2006; Habermas, 1990). Participation can be initiated from top down or bottom up, and it ranges from mere communication by policy makers to consultation, deliberation, and the co-creation of decisions (Reed et al., 2018).

So far, research has paid only cursory attention to the role of emotions in the context of participatory policymaking. Studies that examine frames in this setting have focused predominantly on cognitive aspects. For example, the framing lens has been applied to explain how participants in multi-stakeholder workshops use shared frames to deal with divergent views, but without examining emotions (DeWulf & Bowen, 2012; Zimmermann et al., 2022). Research has also demonstrated how stakeholders can reach rational consensus on controversial issues, by considering diverse evidence and knowledge types (Stepanova et al., 2020). A large set of studies has illuminated the deliberation of stakeholder 'values' in participatory policymaking (Kenter et al., 2016; Ranger et al., 2016), sometimes acknowledging their emotional significance (Hagen & Gould, 2022; Isacs et al., 2023) but again without exploring the role of emotions. As an exception, Isacs et al. (2023) describe emotional responses to value conflicts in a multi-stakeholder deliberation, albeit without exploring the role of emotions for frames.

Studies in different but related contexts signify the importance of emotions for participative policymaking. Firstly, political deliberation theorists have argued against the dichotomy between reason and emotion, understanding emotions as evaluation devices. Specifically, there are claims that deliberation should involve 'passion' and its in-built cognitive interpretation of the object of deliberation as deeply valuable (Hall, 2007); that 'moral' emotions motivate people to engage in deliberation and help them decide whether an issue is important (Dewey, 1967; Habermas, 1990; Neblo, 2020); and that passionate rhetoric is justifiable as a form of logical demonstration during deliberations (Gutmann & Thompson, 2004). These assertions remain, however, largely theoretical. As exceptions, Castelló and Lopez-Berzosa (2023) show how civil society actors in online deliberations on plastic waste expressed 'moral emotions' to maintain their own position and blame corporations, and 'solidarity emotions' to make corporations feel included in their cause and retain engagement; and Loodin (2024) demonstrates

the role of emotionality in transnational negotiations, albeit without analysing the in-depth mechanisms of influence.

Secondly, studies of collaborations between diverse actors more broadly (beyond participative policymaking and political deliberation settings) show the crucial functions of emotions for (a) motivating collaborators to put effort into the collaboration and (b) reach compatible frames. Closest to our focus, Fan and Zietsma (2017) explain the function of emotions for actors embedded in disparate logics across organisational fields to co-create a new, shared logic for the governance of the Okanagan watershed. The authors suggest how positive 'social emotions' (trust and liking) facilitated members' willingness to be open and reflexive of their logics during social interactions, entailing greater group cohesion, thereby helping actors to overcome their 'home logics' and reach consensus. 'Moral emotions' in turn (pride and satisfaction in doing the right thing) motivated members' commitment to constructing a shared logic.

Similar functions of emotions are identified in Baudoin and Arenas' (2023) study of multi-stakeholder negotiations for collaborative governance of French river basins. Differences in stakeholders' emotional attachment to the environment here underlay unceasing differences in their understanding of ecological problems, and perpetuated members' inability to resolve their disagreements, despite their motivation to do so. In the same vein, research on cross-sector-partnerships has found that 'shared emotion' and emotional trust were instrumental for developing shared understanding (Tu & Xu, 2020), and 'critical emotional incidents' served as turning points for cross-sector partners to overcome initial mistrust and construct new meaning (Sloan & Oliver, 2013).

Whilst these studies demonstrate the importance of emotions for motivating collaboration and creating shared understanding, they do not explore their function for the deliberation of frames. These studies are also different to ours by focusing on contentious collaborations where diverse actors have to arrive at agreements. We by contrast focus on the frequent and important type of participatory policymaking where diverse actors do not need to resolve conflicting frames, but their input is essential for ensuring that the resultant policy reflects diverse frames.

Research Focus

In sum, frame research suggests that emotions are antecedents, consequences, or constituent parts of frames. Research on participatory policymaking in turn has given little explicit attention to the role of emotions. Theories of political deliberation have argued for the function of emotions for evaluation and motivation, but empirical examination remains scarce. This literature has also not taken the lens of frames in relation to emotions. Further, research on diverse actors' collaboration indicates how emotions are important for motivating participants to collaborate and develop shared understanding, albeit without considering the deliberation of frames, or less conflictual setting. We do not know of any research on the intersection between frames, emotions, and participatory policymaking.

We address these gaps by examining the role of emotions for frame deliberation in the context of non-conflictual participatory policymaking. Specifically, we use a series of citizen workshops to assess (1) how emotions are related to participants' frames and (2) to the deliberation of frames during interactions, and (3) what underlying mechanisms explain these relationships.

Methods

This study followed an interpretivist epistemology (Burrell & Morgan, 1979) aiming to arrive at an intersubjectively plausible explanation of social events and experiences. To reveal the 'dependability' of our findings (Lincoln & Guba, 1999), we define the conceptual starting point that guided the categorisation of constructs (see Grodal et al., 2021). To achieve credibility, we show the links between the data, concepts, and the grounded model through explanations and quotes (Gioia et al., 2013) and providing a 'thick' description of our research context (Lincoln & Guba, 1999, p. 420).

Research Setting

We examined three citizen workshops which were part of a larger, interdisciplinary research project on urban treescape values (www.valueoftrees.co.uk). The workshops aimed to gain citizens' input into the development of public policy for urban treescapes in three cities in the United Kingdom: Milton Keynes, Cardiff, and York. Participants had been recruited to represent diverse social groups, including different socio-economic background, ethnicity, age groups, and degree of prior engagement with and interest in trees; they received incentive payments of £100 to avert self-selection bias. 27 citizens took apart in the Milton Keynes (MK) workshop, 28 in Cardiff, and 30 in York.

The observed workshops took place in January 2023, the first stage in the larger project. The main objective of this stage was to gain citizens' evaluations of 'how trees mattered' to them. The workshop would inform future policy for urban treescapes, through several pathways. Another workshop would give participants the opportunity to discuss their views with decision makers involved in urban tree management. Citizens were here going to identify treescape needs and make suggestions for their management. The research team would use the citizens' input to develop archetypal visions for urban treescape management. These would subsequently be evaluated and prioritised by citizens in another

stage of workshops, with the outcomes discussed in a final joint panel of citizens and decision makers. Through these mechanisms, the values expressed by citizens in the examined workshop would provide input to decision making on what aspects of the treescapes should be prioritised, or addressed simultaneously, in the future city planning. Citizen's evaluations would also have wider impact as they were to be fed back to other policy sectors relevant to treescape management, such as wellbeing-, flood management-, and transport sectors. Citizens did not have to reach any consensus at this stage. By contrast, the facilitators encouraged openness about views and emotions, including deviating and negative ones, to achieve inclusive policy making. The process was based on an established model of deliberative value formation (Kenter et al., 2016).

Workshop Procedure

Citizens were split into five discussion tables, with 4–7 participants each (Fig. 1). The workshops took place during after-work hours, starting with a buffet dinner and a warm-up exercise. After this, researchers on the project provided presentations about the aims and agenda for the evening as well as the overall project. Ground rules were explained by asking everyone to be respectful, let each other finish speaking, balance the turns of speaking, and allow all views to be voiced, to *'be as inclusive as possible'*.

The first break-out exercise at each table was to share a "short personal story or experience to do with trees" in the city, for about 30 min. Everyone told a 'story', ranging from unusual anecdotes to everyday experiences of trees. Next, a researcher presented the results of a pre-workshop questionnaire that tapped on participants' treescape values (how trees mattered to them). The presented answers were structured into archetypal 'Life Frames' of values (Kenter & O'Connor, 2022; O'Connor & Kenter, 2019), intended to enhance the diversity of ways participants might think about trees.

Participants were then shown a video of 'stories from the past' (two traditional tales) including magical trees, told by a professional storyteller. This video was meant to prompt participants to think more laterally and encourage their expressions to become more diverse and creative. Next was a 'movement break' where participants formed a spectrum to indicate certain preferences regarding trees, and then enacted trees (see Fig. 2). This was followed by a coffee break, and a discussion at each table about takeaways from the preceding sessions. Participants were here prompted to reflect on whether the ways in which others expressed that trees matter matched their own experience. The facilitators stated that participants were welcome to also state negative feelings about anything that had been said and that all viewpoints were equally welcomed. Participants then agreed on a summary of their table discussion. The workshop ended with a short wrap-up and outlook on the next workshops. Throughout the work at the tables, some participants were naturally more vocal than others, but the facilitators asked everyone for their opinion on each point, hence no-one stayed entirely quiet.

Given the researchers' input on tree values and the video of the tree stories, facilitation was intentionally not neutral but encouraged emotion expression. It is accepted that the coupling of creative methods like storytelling (Sole & Wilson, 2002) and deliberation is inevitably non-neutral, because there is a trade-off between stimulating creativity and maintaining a form of neutrality (Edwards et al., 2016). The input of the concept of tree values and the shown stories about trees may have also created a certain normative expectation amongst participants that positive tree values and emotions were preferable, despite the facilitators' instruction to be open about divergent views. Some participants may have therefore, during the workshops, exaggerated their

Fig. 1 Photo of Workshop Tables

Fig. 2 Photo of movement break

expressed positive emotions concerning trees. Nevertheless, we observed that participants varied in how emotional they felt about trees, and some of them did not modify their frames or emotions (see findings on 'separation'). We are therefore confident that participants were generally not pushed to 'make up' emotions or frames.

Data Collection

The first author collected the data through observations and post-workshop interviews. She was an outsider to the larger project, whilst the other authors were project co-leaders of the and contributed their insiders' perspectives. In the workshops, the observer sat at one of the tables. For the analysis of conversations at the other tables, we relied on transcriptions. Between one and three weeks after each workshop, the same researcher conducted online, semi-structured interviews with 29 participants (MK: 8, Cardiff: 10, York: 11) lasting about 30 min each. To gain interviewees, we used the feedback sheet handed out at the end of the workshop to ask participants whether they agreed to be contacted for a follow-up interview. All those who had agreed were invited to an interview, and over half of those contacted responded. We offered a monetary incentive for the interviews to avoid that those citizens less interested in the topic would not respond. Whilst this may not have entirely eliminated selection bias, our interviewees included several who claimed to be less passionate about trees compared to other workshop participants. In line with established qualitative methods (Pratt et al., 2020) the interview guideline evolved during the course of data collection. The questions aimed at gathering interviewees' own experience of the discussions, frames, emotions, and how these had possibly changed.

Data Analysis

Our data analysis followed an abductive methodology (Kennedy & Thornberg, 2018). We used concepts from the literature as starting points to analyse the workshop and interview transcripts, but developed further categories to capture emergent findings. Firstly, we had to inductively develop categories to capture the frames behind participants' meanings of trees. We reconstructed participants' frames by identifying the rationale underlying their explanations, so that the identified frames would "account adequately for things and relations that the frame sponsor singles out for attention" (Schoen & Rein, 1994). For example, we defined 'Aesthetics', 'Wellbeing', and 'Encroachment' frames referring to the subject of discussion (treescapes). Using previous categories, we distinguished between 'value frames' (Le Ber & Branzei, 2010) that concerned values associated with treescapes (e.g. aesthetics) and 'issue' frames (Dewulf & Bowen, 2012) referring to issues associated with treescapes (e.g. encroachment; see Table 1). This distinction helped us discern frames that directed attention to positive as well as negative interpretations of treescapes (values and issues).

We also inferred participants' emotions (e.g. 'Joy', 'Concern' and 'Love') concerning treescapes from their stories and discussions. Some of these matched two of the categories used prominently in emotion research: 'Social emotions', referring to feelings people have towards another (Fan & Zietsma, 2017, p.2327), and 'moral emotions', namely 'feelings of approval and disapproval based on moral intuitions and principles, as well as the satisfactions we feel when we *do* the right (or wrong) thing, but also when we feel the right (or wrong) thing' (Jasper, 2011, p.287). In line with established methods of coding emotions (Klein & Amis, 2021; Toubiana & Zietsma, 2017), we identified emotions and their intensity not just from the literal mention of the

emotion (e.g. 'joy', 'anger'), but from the meaning of actors' words in context, paying attention to linguistic (e.g. word repetitions) and non-verbal (voice, intonation, emphasis) signals. Key words used by participants (e.g. 'chiming', 'memory', 'exciting') often served as indicators of underlying frames or emotions. All categories were systematised when coding transcripts in NVivo software (see Appendix 1 for final coding tree).

More dominantly than expected, we obtained evidence of emotional contagion (whereby emotion expression triggers similar emotions in others, Kleef and Côté, 2022) and reinforcement between participants, which fed into the amplification and extension of their frames. To explain the mechanisms of frame amplification and emotional reinforcement, and cases of non-change, we had to combine extant insights into frame alignment (Snow et al., 1986) and deliberation (Zimmermann et al., 2022) with concepts from other research streams, for example on emotional contagion (Van Kleef & Cote, 2022) and the interlinkage between emotion and cognition (Strack & Deutsch, 2004). We added inductively derived elements (e.g. changes in awareness of frames and emotions, frame adoption) to complete the chain of mechanisms, resulting in a grounded model of 'Mechanisms of frame amplification and emotional reinforcement' (Fig. 3).

To scrutinise the emerging impression of links between frames and emotions, we conducted matrix searches in NVivo that highlighted the overlap of coding for frames and emotions. This helped us identify which emotions were most prominently associated with certain frames. To develop a precise way of describing the mechanisms, we listed all NVivo codes referring to mechanisms and read through linked text. Matrix searches in NVivo assisted in scrutinising the links between frame amplification/emotional reinforcement with these mechanisms. We compared the key characteristics of each workshop table, including expressed frames and emotions, their strength, and indications of change/non-change. After several rounds of iterating between the emerging model, data, and literature, the model captured what we saw in the data and thus seemed saturated.

Table 1 Frames and associated emotions

Frames	Associated emotions
Value frames:	
Aesthetic, sensory	Happiness, joy Peace, calm Love towards trees and nature Excitement
Social value of trees	*(Social emotions:)* Happiness, joy Love towards others Excitement
Memory, nostalgic	*(Can be social emotions:)* Happiness, joy Love Sadness
History and culture	Joy Excitement
Providing resources	Joy Excitement
Mental health	Happiness, joy Peace, calm Energy Feeling optimistic
Physical health	Happiness, joy Concern, worry
Spiritual	Happiness, joy Love towards nature
Issue frames:	
Encroachment	*(Moral emotions:)* Concern Frustration Sadness Loss Anger Shock Feeling pessimistic
Need to fight for trees	*(Moral emotions:)* Anger Passion
Managing trees	Concern, worry Anger Feeling pessimistic Feeling optimistic
Hassle	Relatively unemotional
Danger	Relatively unemotional

Findings

In the workshops and interviews, participants expanded on the meanings that urban trees had for them, indicating several underlying frames. Early on, it became clear that these frames concerning treescapes were closely linked to emotions. Accordingly, participants tended to express frames and emotion at the same time. Our observations also suggested that frames concerning trees were amplified through the interactions and, hand in hand, emotions were reinforced. We identified a chain of mechanisms that explains this conjoint frame amplification and emotional reinforcement (Fig. 3).

Expressed Frames and Emotions

Our analysis concentrates on a set of prominent frames and related emotions (Table 1).

We observed, firstly, that participants used several frames referring to the values of trees. A prominent value frame concerned the *aesthetics* of trees and *sensations* associated with trees, visible in the description of treescapes. For

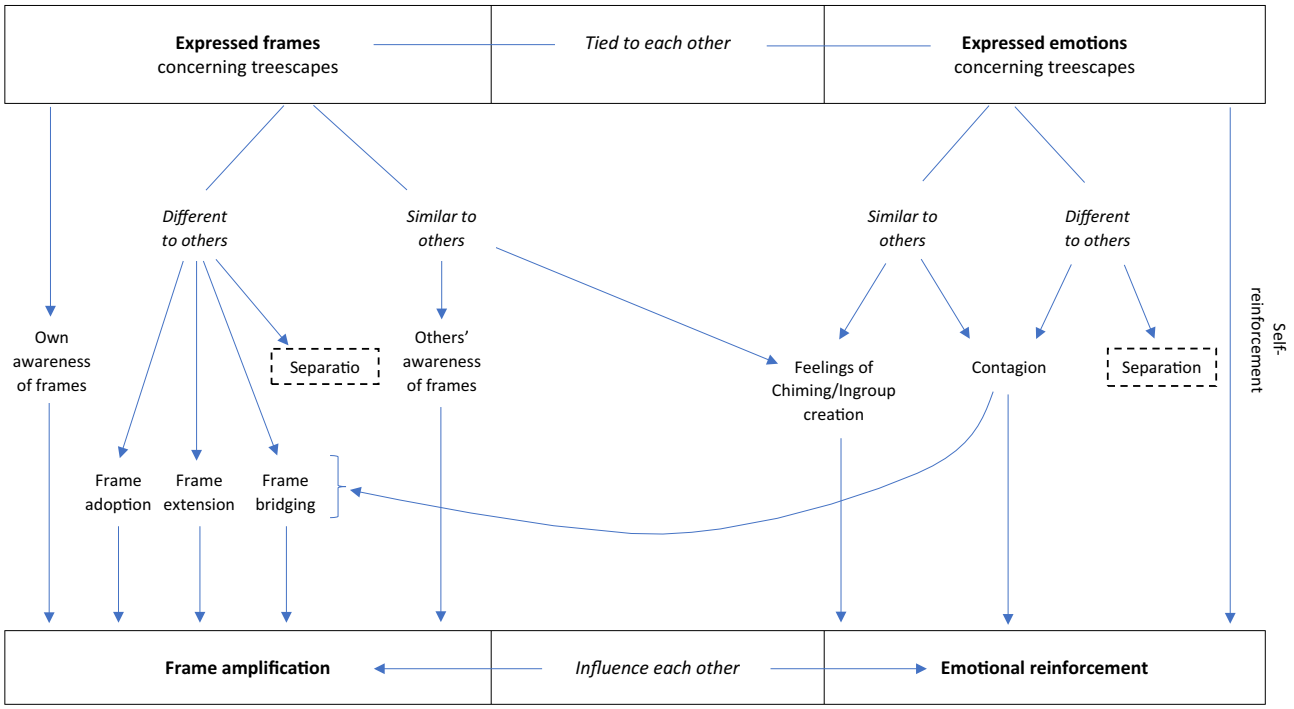

Fig. 3 Mechanisms of frame amplification and emotional reinforcement

example, several personal stories related to the beauty of individual trees, the colours of blossoms and autumn leaves, the imposing presence of large trees, and the visual enhancement of streets and gardens. Sensory descriptions included smell, sound of wind, cooling, touch associated with trees. When expressing such values, participants commonly reported on their experience of *happiness and joy, peace and calm,* and *love towards trees and nature*, and many expressed *excitement* (see Appendix 1 for definition of each emotion). The following description expresses the aesthetic and sensory frame along with emotions of joy, love towards nature, and excitement (emotion indicators underlined):

> *"See that colour there on that picture, it's like that all the way up the street, only brighter, brighter than that. And I love the cherries down Cathedral Road, in the spring they're the first ones to come out. I love the limes on … Embankment because they have the sweetest smell and I could go on. I love – there's a fantastic tree…"* (Participant 4 at Table 1, Cardiff).

A frame concerning the *social value* of trees, i.e. their value for personal relationships, was apparent in frequent narrations of outings in natural surroundings with family and friends. Treescapes were here seen as stage for life events. Emotions of *happiness and joy, love towards others,* and *excitement* about life were frequently expressed in relation to these experiences. These emotions can be regarded as social emotions, as they concern relationships with other people (Fan & Zietsma, 2017) connected with experiences of trees. For example, this participant applies the social value frame together with emotions of happiness and love towards another person:

> *"I've gone for a date with my husband there, loads of dates there, so we just switch off our phones and just walk and walk and walk. And you talk and talk, and you're like, oh shit, we need to go back home. So, from nine to five, without our phones, you're walking, you're seeing nature and chatting. So definitely a really good romantic experience"* (Participant 3 at Table 5, MK).

Treescapes were also framed through the *memory frame*, focusing on their association with memories. Certain trees had gained personal or shared meaning due to *nostalgic* feelings about childhood games, vanished treescapes, and time spent with beloved people who had sometimes cherished certain trees. Such experiences related to emotions of *happiness, joy, love;* and *sadness* when people or trees had been lost. Where such emotions related to other people, these can be regarded as social emotions. This participant applies the memory frame, associated with emotions of joy and love:

> *"The story is about my blessed late wife … anytime she went to the market she came back with some sort of plants or trees.... We've got a really small back yard, and I'd say, where are you going to put that in?*

And she says, if you talk anymore, I'll plant it in your mouth. (laughter)" (Participant 6 at Table 1, York).

The *'history and culture'* frame concerned the *role and persistence of trees throughout history*, and *cultural creations around trees*, such as stories, art, and craft. The professional storytelling in particular triggered reflections on traditional stories relating to trees. These were expressed with some *joy* and *excitement*, albeit with smaller intensity than in explanations of aesthetics, social values, and memories.

Another value frame concerned the practical value of trees as *providing resources.* This was expressed when talking about functions such as providing oxygen, food, shelter, building material, and medicine. Whilst practical functions may seem more mundane compared to aesthetic or social values, they were often mentioned with some expression of *joy* and *excitement*, for example when relating to personal experiences of foraging or traditional techniques of gaining food.

Mental health was another paramount frame, referring to the role of trees for people's psychological wellbeing. The frame was often related to the importance of mental health during the Covid-19 pandemic. Going into nature for walks or to meet friends was described as an important and 'free' remedy to anxiety, and a source of *happiness, joy, peace, calm, energy*, and *feeling optimistic*.

Less frequently, a *physical health* frame was applied. Supporting physical health was then portrayed as a key function of trees and as source of *happiness and joy,* or *concern and worry* where tree cover was dwindling. Trees were seen to support health for example by improving urban air quality and providing spaces for exercise and relaxation.

The *spiritual frame* concerned supernatural meanings of trees, and their role in enhancing the significance of life. This frame was used for example when referring to traditional spiritual practices (e.g. tree hugging and rituals) sometimes in foreign countries (Africa and India), to religious beliefs (e.g. respect for god's creation), or moments of personal enlightenment in nature. The spiritual frame tended to be associated with *happiness, joy,* and *love towards nature*, as in this example:

"…if you go near big trees they have their language. So it takes you … deeply into realising yourself if I may say … It picks me up and then I begin to think of what life was … and what life is now. And … realising what's the meaning of life, you know, the beauty of life". (Participant 2 at Table 4, MK)

Another set of frames can be classified as issue frames, directing attention to problems associated with trees. This included the prominent frame of *encroachment* on trees and natural spaces. There were many stories about housing development replacing green spaces and trees, and old trees being cut down. This was usually accompanied by expressions of emotions such as *concern, frustration, sadness,* and *loss*, where participants did not agree with these developments. These emotions can be regarded as moral emotions, given their focus on what is right and wrong, and desire to impact the world (see Fan & Zietsma, 2017; Jasper, 2011). In several cases, this amounted to *anger* and *shock* about reckless encroachment, and *feeling pessimistic* about the future. The degree of agitation about encroachment varied visibly between participants.

Some also used an issue frame concerning the *need to fight for trees.* This frame was associated with the moral emotions of *anger* and *passion*. For example, there were stories of citizens outraging and taking initiative against felling trees, and family members tying themselves against an old tree to prevent it from being cut down.

A related issue frame focused on *managing* urban treescapes. This concerned the amount of diligence needed to manage city trees, e.g. concerning their location, types, and maintenance. Many emphasised that requirements for housing, and safety (e.g. avoiding falling branches), had to be balanced with the need to conserve trees, and that finances were a barrier. Varied feelings were expressed in connection with this frame, including *concern, worry, anger,* and *feeling pessimistic*, but also *feeling optimistic* when the outlook was more positive.

Hassle and *danger* were often used as frames to judge issues created by urban trees. Participants reported on their own or other peoples' experience of hassles such as having to remove fallen leaves, sap and bird poo on cars, and the dangers from falling branches, slippery leaves, roots uplifting the pavement, and dark areas in groups of trees that were places of antisocial activity. Participants sometimes expressed mild frustration about these issues but tended to report on them in a relatively unemotional manner. A few participants also explained that they did not perceive hassle and danger issues as important when compared to the values of trees. Given participants' strong feelings about values such as aesthetics, social functions, and mental health, most participants seemed to regard the hassle and danger frames as less significant for their lives, society, or nature.

Frame Amplification and Emotional Reinforcement

From the interviewees' reflections and the verbal summaries in the workshop, it became apparent that some of the mentioned frames had been amplified and associated emotions reinforced through the workshops (see bottom of Fig. 3). For example, an interviewee explained how he had become more aware of the importance of trees and their function for wellbeing, making him feel uplifted:

"The actual process of sitting down and thinking about something like this I found … to be quite uplifting … and since then, and even driving away from the session on the night, I did think far more carefully about trees and their importance and how … significant they were to my, if you like, emotional wellbeing. …" (Interview participant 2, Table 1, York)

In this sense, the mental health frame had become more salient and emotionally significant for this participant. From observing the workshop interactions, we identified certain mechanisms by which such amplification occurred, and we noted that mechanisms of frame amplification and emotional reinforcement went hand in hand with each other (see Appendix 2a/b for additional quotes). This interrelation was observed not of all emotions with all frames, but with associated ones. The amplification of a particular frame thus did not reinforce just any emotions, but the ones associated with this frame, and vice versa. At the same time, we observed a general rise in emotionality during the workshops.

Mechanisms in Cases of Similarity

When participants expressed their frames concerning treescapes (Top of Fig. 3) in their stories and statements, they tended to raise their own and others' awareness of this frame, thus making the frame more salient and amplifying it (see arrows 'Own-' and 'Others' awareness of frames' in Fig. 3). For example, a participant explained how others' explanations had made him more aware of certain meanings of trees, for example about the issues of managing trees:

"I do still find myself now, when I'm driving in the car and I look at trees … I do think more carefully … about how it needs to be looked after, how it needs to be protected, … who put it there, why it was put there… when is it going to expire, how is it going to be taken down safely… it has caused me to think far more deeply and far more carefully about these things." (Interview participant 2, Table 1, York)

Such frame amplification also appeared to reinforce the emotions tied to the frames concerning treescapes, which in turn amplified these frames. For example, the amplification of the 'memory frame' reinforced associated emotions such as happiness, joy, love towards others, or sadness regarding the memories (see Table 1). The activation of these emotions in turn made participants more aware of the memory frame and its significance, thus amplifying the frame by making it more salient and emotionally significant.

One participant explained how something that had been only a 'feeling' had been reinforced by others' more reflective explanations:

"Because they said this, it's actually reinforced what I felt before, or something that was more a feeling. Whenever I saw someone else who had a similar experience or a similar point of view … it's helped to actually solidify my feelings on a particular point." (Interview participant 1, Table 3, MK)

The workshop also created general emotional excitement about the rising awareness of the meanings of trees more broadly, as reported by this participant:

"It was so eye-opening that …. So many of us after were … a bit buzzing and on a high of … 'wow' like we didn't realise how much this would impact us …" (Interview participant 2, Table 1, MK)

In this quote, excitement does not refer to particular frames and emotions, but signifies the general level of emotional reinforcement and frame amplification through rising awareness ('eye-opening') created by the workshops.

It was also discernible how various frames concerning treescapes and associated emotions were amplified during workshop conversations. For example, exchanges about the aesthetics of trees appeared to reinforce the speakers' emotions of joy associated with this frame. In the following conversation (Table 1, York), such reinforcement is noticeable in the repetitions of words, use of enthusiastic expressions, and reinforcement of others' comments (underlined):

Participant 2: You only notice it when the trees don't have their leaves in the winter, you sort of – you look through them almost. But then when they come into bud and come into leaf during the summer they're beautiful, beautiful things.
Participant 1:Beautiful in autumn. Even winter, when you say like no leaves, but if the snow comes, you notice the trees.
Participant 2: Exactly. … throughout all the seasons, the trees offer you something. In the spring they come into new life, they're amazing. Summer, the greenery, when the wind passes through them, they're amazing, you talked about your running. In autumn, the colours are beautiful then in the winter when they catch the snow. They offer you something the whole year round.
Participant 4:Even without the snow, the frost the other week was really picturesque.
Participant 2: Yeah, it was, absolutely, yeah." (York, Table 1)

This exchange indicates that people reinforced their own emotions relating to trees by expressing them (Fig. 3, arrow from emotion expression to reinforcement of emotions, and to emotional contagion) and this emotion expression served to amplify the frame they were narrating from, by increasing its emotional meaning and the awareness of the

frame (bottom of Fig. 3, arrow from emotional reinforcement to frame amplification). Furthermore, the exchange shows how such emotion expression affected others' emotions concerning trees through emotional contagion (Fig. 3, arrow from emotion expression to similar/different emotions to emotional contagion to reinforcement of emotions), thus amplifying the associated frames in others. One interviewee described this process as follows:

> *"Because we were all enthusiastic and chatting, I think that had a knock-on effect. …* - Interviewer: Can you describe this knock-on effect a bit more? – *Well, the way enthusiasm builds. So, if somebody's going, "Oh, I've got this very good story," then everybody else felt upbeat about it. So, I think we all built on each other."* (Interview participant 2, Table 4, Cardiff)

The close interconnection between frame amplification and emotional reinforcement is here captured (regardless of the particular frame or emotion) in the experience of providing a 'good story' that others built on, and everybody feeling 'upbeat' about it, thus reinforcing associated emotions by building 'enthusiasm'.

Several interviewees expressed their pleasure in other participants caring similarly about trees. Such *feelings of 'chiming'* could result in the *creation of an 'ingroup' and* added to the amplification of emotions and frames concerning treescapes. For example, one interviewee mentioned that another participant's story about a tree that his late wife had cherished (relating to the memory and spiritual frames) resonated with the meaning that trees had for himself. He had planted trees for his children at birth and for a relative who had died, also indicating the memory and spiritual frames, associated with feelings of love and being uplifted:

> *"That story really chimed with me because I could see it, both in the sense of, a tree for somebody that had just been born, my two girls and the cherry blossom trees and a tree for a relative that had passed away … so at the beginning of life and the end of life there have been those trees, being that sense of constancy and they're almost like, … part of your soul or, I'm getting very deep about this now, but part of your soul almost is attached to this immovable steady constant living thing."* (Interview participant 2, Table 1, York)

The effects of chiming and ingroup creation can also be seen in exchanges during the workshop. For example, the following dialogue (Table 1, MK) shows how one participants' revelation about speaking to trees as a child (using the spiritual and memory frames) resonated with another participant (see underlined text), who encouraged the narration of this story, thus amplifying these frames and reinforcing the associated emotions of joy and excitement.

> *Participant 3: So when I was a kid, I still remember, I used to talk to trees, like just like we play with the dolls, so like making up a story … every evening when I got bored, I used to talk to them. I know that looks like a psychopathic right now, but I remember I used to do that.*
> *Participant 2: I do that. My mum does that.*
> *Participant 3: Yeah.*
> *Participant 2: Because they grow them, in our culture, they grow them.*
> *Participant 3: Yeah.*
> *Participant 2: Same as your culture, Bangladeshi, so my grandparents … , even now they grow most of what we eat from fruit to vegetables and they swear by talking to trees. My kids talk to them, I talk to them. My husband thinks I'm mental.*
> *Participant 3 I mean I've never said this to anyone, I never told this to my parents because I used to make stories in my head, like they might be thinking that she didn't come this time, why hasn't she come? Maybe thinking of the emotions. Now what it feels, this is the first time I'm telling (laughs).*

Whilst feelings of chiming and ingroup creation concerned the subject of trees, this dialogue suggests that they were also experienced as emotions towards other participants who felt similarly about trees. They can therefore be classified as 'social emotions'. Other common examples of amplification through chiming and ingroup creation were exchanges about similar childhood memories in a certain natural area, associated with joy (see example in Appendix 4). We also observed how a facilitator supported ingroup creation (Appendix 3.) It is of course likely that people disagreed on certain points without mentioning this, and that not everyone felt part of the ingroup. However, disagreements seemed to be at least partly 'open', as we were able to capture some of the differences between participants' frames and emotions.

Most of our cases of emotional reinforcement concerned positive emotions (e.g. joy, happiness, calm). We attribute this to the dominance of positive values of trees in the discussions. However, the same mechanisms led to a reinforcement of issue frames and associated negative emotions, for example the frames concerning encroachment on trees and the need to fight for them, and associated emotions such as anger and concern.

Mechanisms in Cases of Differences

Despite widespread instances of chiming, several interviewees reported on differences in the meanings and importance of trees for participants at their table. Participants emphasised different frames, such as the social value- or

the aesthetic frame. Participants also expressed emotions of different intensity (see Appendix 5 for an overview of observed differences). For example, whilst for some, trees were central to their lives and a fundamental source of happiness, others described them as pleasant, but not breathtaking, 'background' to their lives. The inspection of the workshop conversations substantiated these differences in frame emphasis and emotion intensity, and suggests how they could instigate either an adoption of new frames, or frame extension or -bridging, leading to frame amplification. In other cases, differences in frames were maintained, resulting in what we call a 'separation' of people's frames and associated emotions (Fig. 3, arrows from 'different to others' to frame adoption, -extension, and -bridging; and to 'frame/emotional separation').

Frame Adoption, -Extension, and -Bridging Several participants indicated that they had *adopted new frames* for perceiving trees. This was particularly the case if they could sympathise with others' different frame. One participant for example explained that he had become aware of the importance of trees beyond ecological functions:

> *"I think it was quite an eye-opening conversation … since then, I've probably been a bit more aware of how the trees actually contribute massively to … the way I'm feeling a lot of the time. … I might have always associated it as an environmental thing, that we need trees, but actually just taking a second and spending two and a half hours (laughs) talking about trees, you realise there's a lot more to it."* (Interview participant 3, Table 2, Cardiff)

The additional, adopted frames had thus become more salient for the participant. In the same vein, two interviewees explained they had for the first time recognised the historical frame: *"… the history linked to trees"* (Interview participant 1, Table 3, York) and *"… how trees had been represented in history … what they've symbolised in … historical events … I'd never thought of trees in that way before."* (Interview participant 2, Table 3, York). Another participant emphasised that she had previously not been aware of the importance of trees for people's mental health, but now embraced this frame to the extent that she had started to regularly visit a lake to walk amongst trees:

> *"The discussions on my table gave me so much awareness to know that, sometimes, the trees help us in our mental state. … When a lady on my table emphasised on how trees impact so much on mental health … I thought, how does it? But when she came to analyse it, I now say, yeah, that's really true. …* [This had] a *huge impact in my own life … So sometimes now, I go in the park for a walk … I drive to a lakeside, and I park my car and I go inside and walk around …"* (Interview participant 4, Table 3, MK)

The adoption of new frames concerning treescapes seemed to be *coupled with emotional contagion* (Fig. 3, arrow from contagion to frame adoption). Hearing others' emotional accounts of the meanings that trees had for them kindled similar feelings, inspiring them to take on the new frame, which was thereby amplified for them. One participant explained:

> *"It impacted me emotionally … hearing other peoples' stories and, especially people like P[…] who was so expressive about particular trees and what they meant to them, that impacted me. … I was watching a programme or … a documentary and trees were mentioned in a historical way, I would probably relate that back to the workshop now because of … J[…]'s stories."* (Interview participant 2, Table 3, York)

Alternatively, participants combined others' different frames with their own, either through *frame extension* (whereby the boundaries of the frame were enlarged to encompass important elements of the other frame) or *frame bridging*, whereby links were created between different frames. The main difference between these two mechanisms, we reason, is that frame bridging occurs between more distinct frames compared to frame extension. Moreover, frame bridging creates links between the original frames rather than changing them, whilst frame extension modifies the original frames by incorporating new elements. Both mechanisms, we argue, lead to an amplification of the prior frames (Fig. 3, arrows from 'different to others' to frame extension and -bridging to frame amplification) as people either see new links of their frame with other frames (in frame bridging) or the frame now encompasses more elements than before (in frame extension), thus elaborating the initial frame. In the following example (MK, Table 4), Participant 4 *extends* his mental health frame by incorporating elements of others' resources frame (oxygen), leading to the notion of 'oxygen for the soul'. The participant thereby amplifies the resources- and mental health frames.

> *'Participant 3: There will be oxygen if you don't have trees.*
> *Facilitator:It's very hard to argue with this.*
> *Participant 3: Because the air won't be clear enough.*
> *…*
> *Participant 4: I think something that comes out in several of those* [stories] *is something about peace or serenity or tranquillity, peace of mind and sense of wellbeing, physical and mental wellbeing. And that also connects to nature because you feel better if you think nature's being protected. … Yeah, just wellbeing,*

but oxygen is better I think. … Oxygen (for the sou)l. Oxygen, in brackets: for the soul. There you go.'

Frame bridging is exemplified in the following exchange (Table 1, MK) where two participants press another to take a stance towards people talking to trees (an expression of the spiritual frame). He reacts first by stating his tolerance, and then by *bridging* the spiritual frame with his own wellbeing frame, pointing to similar elements.

Participant 3: And what do you think about people talking to trees? Do you think it's natural, unnatural, or weird?
Participant 4: I accept all the people with all their faults and—
Participant 5: So, if you see us talking to a tree.
Participant 4: It's alright. (Laughter)
…
Participant 3: Or do you think like she's …
Participant 4: No, I don't think so. I think so being surrounded by trees, talking or not with them, is a kind of therapy, at least for me. I like to go for a walk, a little walk, a little stroll down the forest …

By first stating acceptance of different views and then interpreting his walks as 'therapy', this speaker creates a link between his wellbeing frame and the other participants' spiritual frame. The linking element is here the therapeutic benefit of being amongst trees, which arises from the application of the spiritual frame as well as the wellbeing frame. In other words, therapeutic benefits can be gained either from just taking a walk in the forest for the sake of wellbeing, or by speaking to them in line with the spiritual frame. This example can be classified as frame bridging, rather than frame extension, because the participant takes therapeutic benefits as link between the frames without 'enlarging' his own wellbeing frame. In the same vein, the participant interprets 'talking to trees' as therapeutic but does not mention other aspects of the spiritual frame, for example to regard trees as living things that people can talk to. The two frames thus stay distinct. By emphasising the therapeutic aspect of treescapes, we argue, the speaker also amplifies his wellbeing frame.

In another example of frame bridging (Table 2, York, see Appendix 6), a participant first called the stories by the professional storyteller a 'waste of time', taking them as pure fairy tales (including a talking tree) and expression of the *spiritual* frame. After being exposed to other participants' interpretations regarding the stories' message about sustainability and protection of the environment, he bridges others' spiritual frame and his own frame of trees as *providing resources*, admitting that the stories provide lessons about the environmental impact of not looking after trees. Again, the frame of providing resources remains distinct from the spiritual frame, but is linked to it through the shared implications for looking after trees. There are aspects of the spiritual frame that this participant does not agree with, namely magical aspects expressed in the wishing tree. However, the participant uses the need for sustainable action as the common feature between the spiritual and the resources frame to bridge these frames.

These instances of frame bridging may have of course been driven by politeness, namely the aim to be agreeable and avoid conflict during the session. Participants may have thus bridged and elaborated frames only temporarily, during the conversation. Nevertheless, we argue that the act of frame bridging in the workshop setting can also affect people's frames beyond the workshop setting.

Notably, frame extension and -adoption could theoretically be supported by emotional contagion, but empirically, we did not observe instances of this. Possibly, emotional contagion is more visible in the case of frame adoption where a whole new frame is adopted (inspired by others' emotional frame expression) compared to mere extension or bridging of existing frames.

Separation In the interviews, a few participants claimed that they had not changed their perspectives through the workshop, and several others explained that they had been affected only by some of the different frames, but not others. We regard these as an instance of 'separation' of frames and associated emotions (see Fig. 3). We were able to identify some of the reasons for instances of separation, namely: strong initial frames and emotions; different childhood- and other personal memories; and different cultural background.

Firstly, a few participants held strong frames because they were already very engaged with tree conservation and had given it a lot of thought. They seemed to take note of divergent views and emotions at their table (for example that trees were not as important for other participants) but explained that this had not affected their own frames and emotions. For example:

"Interviewer: … Did you not feel any different after the workshop? *R: … No, no. No, I certainly didn't, no. I mean I'm very, very clear that, you know, tree cover in city is desperately important, you know, for the wellbeing and survival of the human species, but also it brings a lot of personal appreciation and pleasure and enjoyment"* (Interview participant 4, Table 3, Cardiff)

Other participants could not identify with certain frames of other participants, given their different childhood memories (more or less exposure to nature), other personal memories (such as trees being associated with beloved people who had died) or cultural background, as several participants referred to meanings of trees in their home countries including African countries, India, and China.

For example, at Table 1 in MK (see quotes above), two participants held strong, emotionally charged spiritual and wellbeing frames expressed in stories of talking to trees and relying on them for mental health which they attributed to their Bangladeshi background and own upbringing amongst trees. Another participant focused mainly on the social functions of trees expressed in stories about outings with his children, and another participant expanded on the practical values of trees, for example for providing tannins, experienced during his work as a leather tanner. In the interviews, the participants confirmed these differences and explained that they had become more aware of other perspectives, but not changed their own.

Differences were also maintained at Table 1 in Cardiff, where frames differed both in kind and emotional intensity. One participant expressed high intensity aesthetics and wellbeing frames when describing how trees were essential in her life and choice of residence. This contrasted with another participants' lower intensity social value frame, who had not given trees as much thought and took them as *"a nice background … not a foreground"* (Participant 1 at Table 1, Cardiff). Two others used a practical frame, expressed in the respective views that large non-blossom trees in streets should be removed because they created hassles, and some trees in streets should give way to parking spaces. Interviewees of this table explained that they had become aware of these differences, but had not changed their own views:

> *"… not that my opinion changed so much, but I guess I was more aware of, that there are other opinions to mine… it was interesting the fact that there was … a young guy on my table who had said, he just never gave trees a second thought and … that's quite far removed from how I sort of see the world. So just hearing, hearing people express their different opinions was quite eye-opening to me."* (Interview participant 2, Table 1, Cardiff)

Again, this demonstrates increased awareness of different frames and different emotion intensity, but without affecting one's own frame or emotion intensity. However, we suggest that even in these cases of 'separation', expressing one's own frame could still lead to amplification through increasing one's own awareness of the frame (arrow on far left far right in Fig. 3).

Explicit and Implicit Mechanisms

Our analysis suggests that the identified mechanisms of conjoint frame amplification and emotional reinforcement were partly explicit and partly implicit. Firstly, participants verbalised frames and emotions that they had not been fully conscious of. This can be understood as a transfer of implicit aspects of mental processing into the reflective system, making the implicit aspects explicit (see Strack & Deutsch, 2004). Such verbalisation occurred through various workshop components, such as the guided value reflection exercises and presentation of survey results. Rendering implicit processes explicit served to raise participants' awareness of the frames and emotions in question, as demonstrated above, feeding into frame amplification and emotional reinforcement. Explicit reasoning was also important in the case of frame differences, when reflection on different frames inspired participants to adopt these frames or extend/bridge their previous frames.

On the other hand, implicit mechanisms were also important. During the interactions, emotional contagion was visible in non-verbal and verbal signals (e.g. laughter or repetition of others' words) that participants did not seem to reflect upon. It is likely that emotional contagion happened unconsciously during these interactions, and new associative links were created between emotions, subjects of discussion, and underlying frames, supporting frame amplification and emotional reinforcement in a subliminal fashion. Moreover, several interviewees emphasised the pleasure they had gained from the workshop atmosphere and the food served. These can be described as physical stimuli that trigger emotions in an unconscious manner (Bargh et al., 2012), resulting in a general emotionality of the event that reinforced the emotional mechanisms (emotion expression, contagion, reinforcement). In the same vein, the physical setting seemed to facilitate participants' positivity during workshop discussions, which also shaped the trajectory of emotions and frames, visible in participants' excitement and dominance of positive emotions concerning tree values. Such implicit mechanisms resonate with prior findings on the impact of physical situations on actors' emotions that lead to frame change (e.g. Reinecke & Ansari, 2021). Hence, both explicit and implicit mechanisms were responsible for frame amplification as well as emotional reinforcement.

Discussion

Theoretical Implications

This study set out to examine the role of emotions for frame deliberation in the case of citizen workshops as part of participatory policymaking on urban treescapes**.** Our main theoretical contribution is to identify the chain of mechanisms (Fig. 3) that explains how the expression of frames and associated emotions during interactions can lead to a combined amplification of frames and reinforcement of emotions. Whilst several of the elements of this chain (such as frame amplification, frame extension and -bridging, emotional contagion) have been described in prior research in other areas (e.g. Gray et al., 2015; Snow et al., 1986; Van Kleef & Cote, 2022), the combination of

these elements in this chain is novel, and so is their application to the context of participative policymaking. The synopsis of the elements in the chain, combined with new elements, contributes to research on framing and participative policymaking. It provides an enhanced understanding of the interrelations between emotions and frames, the function of emotions for frame deliberation, and their function in participative policymaking. We now expand on each of these.

Interrelations Between Frames and Emotions

Our study sheds some new light on the interrelations between frames and emotions. Whilst we anticipated that the expression of emotions would activate associated frames, our findings go further, by demonstrating how certain frames concerning trees and nature were expressed and applied at the same time as the associated emotions, and together defined the meaning of trees for participants. We conclude that not only frames, but also emotions can be sensemaking devices. Because emotions were tied to frames, they fed into the interpretation of the issue at stake when the associated frame was applied. For example, in our study the feeling of joy associated with the 'social value' frame fed into participants' interpretation of treescapes as places for joyful family time. In view of the interaction between the mechanisms of frame amplification and emotional reinforcement, emotions can also be called *'sense augmenting' devices*. When emotional reinforcement amplified the associated frames (making them more salient and emotionally significant), it also 'amplified' the sensemaking through these frames, i.e. the extent to which the frames were used, and the resultant interpretations. For example, the vivid exchanges about emotional experiences of social outings in treescapes amplified participants' 'social value' frame, eliciting additional stories about personal experiences with family or friends, thus increasing the amount of sensemaking through this frame. This resulted in a stronger social meaning of trees for participants and stronger emotional significance (e.g. concerning love and joy).

Our findings thereby diverge from research that draws a stronger line between emotions and frames (e.g. Gray et al., 2015; Rauch & Ansari, 2022), and support prior claims that they are intertwined, for example that frames have 'emotional arrays' (Klein & Amis, 2021) and that frames can be 'emotional' (Raffaelli et al., 2019). We also add to framing research that has described emotions as antecedents and consequences of frames, for example in terms of emotional experiences leading to frame change (Jasper, 2011; Reinecke & Ansari, 2021), and 'emotional resonance' of frames (Giorgi, 2017). Our study highlights that frames and their associated emotions influence each other because they are inherently tied to each other and work together as sensemaking devices.

This interrelation is underscored by the observation that explicit and implicit mechanisms were responsible for frame amplification as well as emotional reinforcement. Whilst emotions are frequently taken as subject to intuitive mental processing (Lieberman, 2007; Strack & Deutsch, 2004), we additionally suggest how frames can also depend on intuitive processing and can thus be automatically activated and strengthened. Given that frames are intertwined with emotions, this can happen through emotional contagion and physical stimulation of emotions. Conversely, we have observed how emotions can be sensemaking devices and part of the reflective system, as they can be changed through the processes of verbalisation and reflection. Hence, we have suggested how both frames and emotions can be implicit or explicit and can change through implicit as well as explicit mechanisms.

Functions of Emotions for Frame Deliberation

Frame deliberation has been defined as the use and reflection of frames during interactions that lead to increased salience, elaboration, and potential adjustment of interactants' frames as 'outcomes' (Zimmermann et al., 2022). Our findings add a new slant to this understanding. Similar to Zimmermann et al. (2022), we have shown the key role of social interactions for frame salience and elaboration. Additionally, however, we have unveiled how frames became more *emotionally significant* during interactions, through the concurrent and interlinked reinforcement of emotions and amplification of frames. We thus identify frame 'amplification' as a deliberation outcome, which includes not only increased salience and elaboration but also the *emotional significance* of frames. Amplified frames thus provide a stronger meaning for participants, in line with Snow et al.'s (1986) definition of frame amplification as the 'invigoration' of cultural beliefs and values that are part of the frame.

Notably, our analysis moves beyond Snow et al.'s conceptualisation of frame alignment processes as mutually independent. We suggest that frame extension, -adoption, and -bridging can lead to frame amplification. Frames were invigorated and hence amplified when 'adopted' frames became more salient and 'extended' and 'bridged' frames became more elaborate. In an interactional setting like ours, compared to the more mono-directional communications by social movements, the amplifying effect of these types of frame alignment (i.e. adoption, extension, and bridging) may be more obvious, as the aim in this setting is not to align audiences' frames to social movement's frames, but to allow for frame changes in all counterparts.

We expand our understanding of frame deliberation also by demonstrating the function of emotions for each of its components, arising from the interlinkage of frames and emotions. Regarding the 'use' of frames, we have highlighted how the expression of emotion serves to activate certain frames to interpret the topic in question (in our case values and issues of treescapes), often combined with frame reflection. Moreover, we have demonstrated how the expression of emotions, and consequent feelings of chiming, emotional contagion, and emotional reinforcement feed into frame amplification as a deliberation outcome. Finally, our study unveils 'separation' as an additional potential frame deliberation outcome, whereby others' expression of frames and emotions does not lead to frame amplification. Frame separation implies that several different frames are maintained and therefore corresponds to 'frame plurality' as a collaboration outcome (Klitsie et al., 2018). It differs, however, from concepts such as 'frame divergence' which describes the development of different frames (Kim & Schifeling, 2022) and conflicting frames (Fligstein and McAdam, 2011) that cause disagreements or 'framing contests' (Kaplan, 2008) that need to be resolved. Table 2 compares our findings with prior findings on the functions of emotions in relation to frames.

Our findings also expand prior findings on the intended and unintended consequences of emotions for frame change during interactions (e.g. change intended by social movements or triggered by the situation Table 2). We argue that our case presents a hybrid of intentional and unintentional elicitation of emotions and influence on frames. On the one hand, the workshop organisers used methods such as storytelling intentionally to encourage emotion expression, and provided input on value types to broaden participants'

Table 2 Functions of emotions in relation to frames

Functions in prior literature	Functions according to our findings
'Frame deliberation' research has not considered the role of emotions (Zimmermann et al., 2022)	Functions of emotions for frame deliberation: - 'Frame amplification' includes increased frame salience and elaboration as well as emotional significance - Interlinked reinforcement of emotions and amplification of frames
Definition: Frame deliberation occurs during interactions where frame use and -reflection lead to increased 'salience, elaboration, and potential adjustment' of frames	- Emotion expression activates certain frames - Emotion expression and consequent chiming, contagion, and emotional reinforcement feed into frame amplification - 'Separation' as potential deliberation outcome
Intentional elicitation of emotions to influence audiences' frames (e.g. social movements, political deliberation) (Giorgi, 2017; Jasper, 2011; Klein & Amis, 2021; Reinecke & Ansari, 2016; Snow et al., 1986; Tracey, 2016) Unintentional elicitation (through situational context) of emotions instigates frame change (Rauch & Ansari, 2022; Reinecke & Ansari, 2020)	Hybrid of intentional and unintentional elicitation of emotions instigates frame amplification (through emotional reinforcement)
Political deliberation (mostly theoretical): Emotions - are evaluation devices that underpin negotiator's reasoning - motivate engagement in deliberation (Dewey, 1967; Gutmann & Thompson, 2004; Habermas, 1990; Hall, 2007; Neblo, 2020)	Empirical support and theoretical understanding through the lens of frames: - Emotions are evaluation devices through their connection with frames - Engagement in deliberation is increased by the reinforcement of emotions during deliberations, and the conjoint amplification of frames
Collaborations on conflictual issues: Positive emotions motivate collaborators to put effort into the collaboration and to reach compatible frames (Baudoin & Arenas, 2023; Fan & Zietsma, 2017; Sloan & Oliver, 2013; Tu & Xu, 2020)	In a less conflictual setting, emotions matter in different ways: Positive and negative emotions - important for increasing awareness of frames concerning treescapes, elaborating them, and raising their emotional significance Contagion and feelings of chiming - important for developing stronger, emotionally more significant, and more varied frames
Emotions include: - 'social' emotions towards other participants - 'moral' emotions (Fan & Zietsma, 2017)	Emotions include a larger range (may explain their force in driving emotional reinforcement and frame amplification): - 'social' emotions towards other participants - 'moral' emotions - *(New:)* 'social' emotions concerning significant people related to nature experiences - *(New:)* emotions concerning nature

perspectives on tree values. Moreover, they intentionally designed the physical setting of the workshop, including food and a friendly atmosphere, to facilitate open expression of views and emotions. Through the named (explicit and implicit) mechanisms, this intentional set-up supported emotional reinforcement and frame amplification. On the other hand, the facilitators explicitly instructed participants to express any divergent views and feelings, and the workshops were not meant to influence participants in a particular direction. Our setting thus demonstrates how interactive workshops can, even without intended directional influence, serve to amplify frames through emotional reinforcement.

Different to the intended influence by social movement proponents (see Giorgi, 2017; Jasper, 2011; Snow et al., 1986), these workshops thus resulted in an unintended mobilisation of participants. Also different to the unintended influence of situations on emotions and frames (Rauch & Ansari, 2022; Reinecke & Ansari, 2021), however, the workshops had been carefully designed to elicit emotion expression and diverse frames. This expression yielded emotional reinforcement and frame amplification not through intentional influence by others, but through open-ended deliberation, aspiring to the ideal of deliberative democracy.

Functions of Emotions in Participatory Policymaking

In the context of participative policymaking, we help to explain how emotions can support deliberations. We provide empirical support for the previous, mostly theoretical claims that emotions serve as evaluation devices (Gutmann & Thompson, 2004; Hall, 2007; Neblo, 2020) and are used to judge the value of the object in question (Hall, 2007; Neblo, 2020) during political deliberations (see Table 2). Our findings also offer a refined explanation of how emotions motivate deliberators' engagement in deliberation (Dewey, 1967; Habermas, 1990; Neblo, 2020). This occurs, we argue, not only because they are evaluation devices, but also because they are reinforced during the deliberation process, involving interpersonal emotional mechanisms (mutual reinforcement, emotional contagion, chiming). We reason that people's engagement in deliberation also increases because emotional reinforcement goes hand in hand with the amplification of frames concerning the values and issue at stake, rendering these more significant, and therefore increasing people's motivation to deliberate.

As mentioned, prior research on participatory policymaking (e.g. Kenter et al., 2016; Ranger et al., 2016; Zimmermann et al., 2022) has focused primarily on the rational rather than emotional deliberation of divergent perspectives. This focus may stem from the common setting where participants hold conflicting perspectives, which need to be bridged to arrive at agreements. In such settings, rationalising emotionally laden views seems justified, as it helps participants to arrive at a more factual shared understanding and overcome adversarial emotions. Moreover, research on emotions in contentious collaborative settings (Fan & Zietsma, 2017; Sloan & Oliver, 2013; Tu & Xu, 2020) suggests that positive social and moral emotions have an important function for motivating diverse actors to collaborate and reach compatible frames. Again, the impetus is here on reaching common ground across conflicting perspectives. Our setting is different to these studies, as stakeholders were here not asked to reach agreement across divergent views, but to contribute their perspectives no matter how divers they were, to achieve inclusive policymaking. Moreover, even though participants had been recruited for diversity of social backgrounds and attitudes towards trees, and participants emphasised different values, there was no disagreement on the general positive value of trees. In such a context, emotions seem to matter in a different way (see Table 2). Positive emotions were not needed (as in prior research) to motivate participants to collaborate despite conflicts and reach compatible frames. Instead, positive and negative emotions were important, namely for increasing citizens' awareness of frames concerning treescapes, elaborating them, and raising their emotional significance. In the same vein, spreading emotions concerning trees to other participants, through emotional contagion and feelings of chiming, was important not for overcoming conflicting views, but for developing stronger, emotionally more significant, and more varied frames.

Compared to the cases of contentious collaborations (Fan & Zietsma, 2017; Sloan & Oliver, 2013; Tu & Xu, 2020), not only social and moral emotions, but a larger range of emotions was responsible for the named mechanisms (Table 2). On the one hand, certain 'social' emotions towards other participants were influential in frame amplification, namely the feelings of chiming and ingroup creation. These social emotions not only fed into the reinforcement of emotions concerning treescapes (Fig. 3) but also inspired participants to open up and express their emotions and frames, and thus collaborate to contribute to policy. We were also able to classify some of the emotions as 'moral' emotions, for example anger concerning the encroachment on treescapes. However, beyond the social and moral emotions described by the literature on contentious collaborations, we unveiled other emotions that affected frame amplification. These included 'social' emotions concerning significant people related to treescapes and nature (rather than other workshop participants), for example emotions of happiness, joy and love associated with family times amongst trees. Moreover, we found emotions towards treescapes and nature that cannot be classified as either social or moral, for example the feelings of peace and calm associated with aesthetic values and mental health; or happiness and joy associated with memory, history, and resource provision (see Table 1). These emotions concerning treescapes resonate with the emotional attachment to nature that Baudoin and Arenas (2023) describe

as part of stakeholders' ecological embeddedness, although they did not hinder agreements in our case, given the less contentious issue at stake. Such emotions concerning nature are likely to be particularly important when environmental concerns are deliberated. The large range of emotions concerning treescapes that we observed, and their personal significance, may explain their force in driving participants' self-motivated, and partly implicit, emotional reinforcement and frame amplification.

Implications for Policymakers

The demonstrated interplay between emotions and frames implies that participatory policymaking should not aim at the deliberation of frames without tapping on emotions. In cases of conflicts, the rationalisation of perspectives may be a way of calming emotions. However, even in cases of conflicts, over-emphasising rational discussions of issues and solutions is likely to backfire if participants do not subscribe emotionally to the rational considerations. In all cases, embracing and expressing the emotions associated with frames during interactions can help citizens to become more 'deeply' aware of their stance, including emotional and rational aspects, and strengthen them conjointly. Such awareness may help facilitators in creating common ground that deliberating parties can fully subscribe to, both in 'fertile' and 'hostile communicative environments' (Grimm, Ruehle, & Reinecke, 2020). Emotional reflection on frames can also be a component of ongoing contestation and revision of agreements, criteria, and goals that are desirable in multi-stakeholder deliberations (Arenas et al., 2020) and may support 'agonistic pluralism' which aims not at eradicating conflict, but at respecting the other party's right to defend their ideas (Castelló & Lopez-Berzosa, 2023).

This case has demonstrated that citizen workshops can serve not only to gain various stakeholders' input but also to cultivate their frames through emotional reinforcement. Hence, although the philosophy of participatory policymaking is to include citizens' diverse perspectives, the process of such participation is also likely to influence their perspectives, through 'unintended' mobilisation. Our case shows that even without the intentional mobilisation commonly used by social movements or in political deliberation, frame amplification and emotional reinforcement can lead to a mobilisation of participants to support important environmental causes such as urban treescapes. If, in turn, the aim of policy makers is to raise public awareness of urgent concerns and enthuse stakeholders to support specific changes, participation in interactive workshops can be an effective means of influence. Our findings have shown how exactly this can happen, namely through mechanisms that lead to emotional reinforcement and amplification of frames. To accord with the ideals of deliberative democracy, it is then vital to limit 'top down' influence and encourage stakeholders' to discuss diverse views. This usually requires professional facilitation, but is unlikely to pose dangers such as manipulating dissenters (Lee & Romano, 2013) or increasing the marginalisation of certain groups (Banerjee, 2022) that have been associated with deliberations in more conflictual settings.[1]

Limitations and Future Research

The qualitative case study method was necessary for gathering rich insights into complex interactions between frames and emotions, and mechanisms of their reinforcement. This approach comes with typical limitations. Firstly, the transferability to other setting remains to be studied. We have outlined a few boundary conditions in comparison with previous research, namely the low degree of conflict, the workshop set-up, and methods of facilitation. However, there may be other specifics of the case that influenced what we observed, which we may not have been aware of. Although we are confident that participants in our case felt free to utter divergent views, it is worth examining whether participants would argue about their different views more strongly if the practical consequences for decision making were more immediate, and views were more conflicting. More research is also needed to explore whether the identified mechanisms apply more broadly, to frames and emotions regarding subjects other than treescapes. Similarly, more research is required to assess the suggested reasons for cases of 'separation' of frames and emotions.

The interpretivist analysis necessarily did not allow for systematic comparisons such as those done in experimental work, for example on interactions between emotions and cognition (e.g. Cisler & Koster, 2010; Reynolds et al., 2021). To determine in more detail to what extent different frames and emotions were amplified or reinforced conjointly, it would be necessary comprehensively assess and compare the strength of frames and emotions of all participants at the beginning and end of the workshop. Nevertheless, our findings strongly indicate that future research should pay more attention to the interplay between frames and emotions, in non-contentious as well as contentious deliberation settings. Such research could take advantage of insights from other disciplines, namely psychology and neuroscience, about the interlinkage between emotions and cognition and their implicit and explicit mechanisms of change. In terms of participatory policy research in general, future research could explore the balance between intended and unintended mechanisms of change through emotional reinforcement and frame amplification. Given the important role of workshops

[1] We thank reviewer 3 for this consideration.

as a vehicle of frame deliberation, it is important to better understand the ways in which they can be designed to support emotional and frame diversity, as well as intentional mobilisation.

Conclusion

Addressing the neglected role of emotions during participatory policymaking, our study of citizen workshops suggests how frames and emotions are closely intertwined. We contribute to research on framing and participatory policymaking by proposing a chain of interlinked mechanisms that explains how the expression of frames and emotions leads to their amplification and reinforcement, and in some cases, separation. In our setting of interactive citizen workshops, participants did not hold very controversial views and did not need to reach agreements. This allowed us to demonstrate that emotions are not only important for motivating people to collaborate and deal with conflicts. Instead, our findings suggest how citizens express, strengthen, and modify their frames and emotions conjointly whilst providing important input into public policy decisions. This helps citizens develop stronger and emotionally more significant frames and build enthusiasm for important public concerns.

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Declarations

Conflict of interest The authors are not aware of any possible conflicts of interest.

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Informed Consent Participation in workshops and interviews was under conditions of informed consent.

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