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Ten Lessons for Effective Place-Based Climate Adaptation Planning Workshops

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Abstract: Community efforts to consider climate change within local planning processes are increasingly common. Place-based climate adaptation workshops are commonly employed tools within these larger processes. The research, to date, on these phenomena has yielded mixed results, and the empirical evidence regarding what makes these workshops more or less effective has been mostly based on small samples in disparate contexts. In an effort to seek consensus regarding what factors lead to effective workshop outcomes, including participant learning and the motivation to take action; improved adaptation planning processes and implementation; and the development or strengthening of positive relationships between the participants, twenty-two experienced climate adaptation workshop facilitators participated in a Delphi study involving iterative surveys followed by focus groups. In this short report, we present a synthesis of consensus-based recommendations resulting from the Delphi study for enhancing place-based climate adaptation workshop outcomes. These recommendations address recruitment; fitting the local context; adequately preparing the participants; clarifying the objectives; facilitation strategies; promoting local leadership, efficacy and accountability; and providing post-workshop support. We discuss the role of these strategies in developing feelings of collective efficacy, local leadership and accountability through social learning.

Keywords: climate change adaptation; Delphi study; facilitation; local champions; workshop

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1. Introduction

Communities across the United States are contending with a wide range of climate change impacts, including more frequent and extreme wildfires, storms, floods and droughts. The severity of these impacts is projected to increase over the coming decades [1]. Climate adaptation—defined as "the process of adjustment to actual or expected climate and its effects, in order to moderate harm or exploit beneficial opportunities" [1] is, thus, crucial to maintaining and enhancing societal wellbeing [2]. In recognition of this fact, communities are investing in climate adaptation planning to better understand, prepare for and respond to threats posed by climate change [3,4].

Within the wide range of approaches and tools to support adaptation planning [5,6], place-based climate adaptation workshops are increasingly employed to bring together diverse groups of community members and representatives from local non-profit and government agencies to facilitate learning, collaboration and collective action around adaptation goals [7]. These workshops are generally structured to assess climate risks, identify vulnerabilities from climate change and develop adaptation strategies for a specific place. They can help advance a range of outcomes, including enhancing the participants' understanding of climate change, helping the participants identify and prioritize potential adaptation actions, informing other planning processes and facilitating formal management decisions, policy actions and project developments [8–10].

Prior research on climate adaptation workshops has yielded mixed results [7–9,11,12]. The claims about effective (or ineffective) practices within these workshops largely rely on

self-reported experiences from workshop attendees and/or authors' speculation based on their observations. The key elements noted in the prior studies for enhancing the workshop outcomes include pre-workshop preparation with local partners; setting clear objectives; aligning the workshop objectives, materials and activities with the pre-existing work of the participants; ensuring the representation of diverse sectors and stakeholders; engaging organizations that can span across sectoral boundaries; designing all elements to focus on local or organizationally specific challenges; incorporating small group work; employing visualization tools or other workbook-type activities that lead participants through the assessment and planning processes; building trusting relationships; understanding and addressing the barriers for participation for underserved groups; and longer-term follow-up or repeated engagements by the facilitation team [8–15].

The literature on broader climate adaptation planning processes, which often includes place-based climate adaptation workshops, reflects similar claims and also stresses additional elements, including the importance of transparency, engaging and supporting local champions and establishing formal agreements with government agencies [16–21]. Similar to the literature on climate adaptation workshops, most of the claims made in these papers are based on the authors' observations or on self-reports from participants. One exception involved a convening of 80 climate adaptation practitioners to reflect upon what had worked for them to date in their diverse planning approaches [22]. Again, similar factors emerged as influential to these processes, with the addition of contextual factors outside the control of the process facilitators, such as acute climate impact events and adverse political contexts.

In this short communication, we update and expand upon prior efforts to identify the consensus-based valued practices of practitioners for enhancing the outcomes of climate adaptation workshops [22]. We consider these practices through the lens of social learning—a process in which people learn together, develop shared understandings and, ideally, develop or strengthen interpersonal relationships to take meaningful action [23]. The resulting contribution is a set of recommendations for practitioners and researchers for improving future workshops to achieve the desired outcomes.

2. Methods Overview

The study involved a four-round Delphi process, culminating in an online workshop that included four focus group discussions of the central Delphi results. A Delphi study involves iterative surveys about a particular subject with a sample of experts [24,25]. In this manuscript we focus on the areas of consensus regarding valued practices for enhancing the desired outcomes of place-based climate adaptation workshops in the United States. These include participant learning, empowerment and motivation to take action; improved adaptation planning processes and actions; and the development or strengthening of positive relationships between the participants (see Supplementary Materials for the full report).

The first Delphi survey, administered online in February 2019, contained open ended questions, asking participants to opine on the most effective practices for motivating attendance, communicating science, facilitating learning, promoting collaboration and catalyzing post-workshop action. The research team qualitatively coded these insights to create statements for use in the second round of the Delphi study, which asked facilitators to rate and rank statements associated with each question and to provide a rationale for their scores. The second-round survey was administered online from May to June 2019. In the third round, each facilitator received a summary of the ratings and rankings from Round 2 and was asked to explain the extent to which they agreed or disagreed with the overall scores and to provide additional comments and insights. The third-round survey was administered online from September to October 2019. The fourth round of the Delphi study coincided with a virtual workshop held on 27 March 2020. In the fourth round, the participants were given the opportunity to fine-tune the wording of the statements from the third round and provide final ratings for each item. Consensus in the strategies

occurred when over 70% of the respondents agreed that a practice was either "always helpful" or "necessary".

The workshop included four concurrent focus groups. The focus groups reviewed the key emergent themes from the first three rounds of the Delphi study, and the participants were asked to share specific examples from their own work. The transcripts were qualitatively coded for additional emergent themes by the research team. The themes reported in this research were synthesized from all of the data listed above.

We recruited 22 experienced climate adaptation workshop facilitators from a pool of facilitators identified in the Climate Adaptation Knowledge Exchange (CAKE) directory [26]. Each participant had more than three years of experience facilitating climate adaptation workshops in the United States and had led more than three workshops for at least 50 total participants. The sample included representation from various levels of government, academia and private (either non-profit or business) sectors. Collectively, these facilitators had over 210 years of experience and had run more than 460 climate adaptation workshops for more than 12,000 people prior to the start of the Delphi study. The March 2020 workshop involved 17 of the Delphi participants and two additional climate adaptation workshop facilitators who did not participate in the longer Delphi process. The two additional experts met the same criteria as Delphi participants and were invited to discuss, challenge, interpret and augment the findings of the Delphi group. See Supplementary Materials for a complete report of the full study, including more details on the study methods.

3. Key Findings

Below, we share ten themes reflecting the consensus-based recommendations that emerged from the Delphi process. We then outline a set of practical strategies for their implementation.

3.1. Get the Right People in the Room

The study participants emphasized the importance of including (1) those with power to make decisions about and/or implement adaptation projects and (2) those most heavily impacted by those projects. They also emphasized the importance of ensuring that a wide array of professional or disciplinary sectors were present—for example, experts working in housing, utilities, conservation, public health and other relevant domains, as well as both governmental and non-governmental representatives. The facilitators recognized the importance of considering diversity, equity and inclusion (DEI) when planning and conducting these workshops. However, they varied in their opinions on the valued DEI practices and agreed that this represents an area for improvement within adaptation in general.

3.2. Understand the Local Context and Design All Workshop Components around It

The facilitators emphasized the importance of working with local partners to develop a baseline knowledge of the local context to guide the workshop design. This included understanding the history of the community, key actors, dynamics among the participants and the range of social and cultural norms. Such knowledge can also bring to light hot-button issues, allowing facilitators to strategically assign participants to breakout groups, identify language to use or avoid and ensure certain voices are heard. Clear consensus also emerged on the importance of focusing on local climate projections and impacts rather than basic climate science. This approach can sidestep controversies about climate change, remove jargon that may alienate some audiences, and help to avoid patronizing attendees who are already familiar with the basics of the greenhouse effect and related processes.

3.3. Prepare Participants for Effective Engagement

The facilitators described the value of sharing basic climate information and setting clear expectations before the workshop. While this strategy is recommended for all workshops, sharing basic climate science, local climate projections and community vulnerabilities ahead of the workshop can be particularly valuable for shorter workshops. In these cases, the participants can come prepared to ask questions, share concerns and brainstorm ideas for adaptive action.

3.4. Clarify Objectives

Clear and specific objectives should bound the scope of the workshop, enabling a focus on realistic and meaningful actions tailored to the local context. They can also help to identify who should be invited (i.e., decision makers, topical experts, impacted groups). The objectives should be directly related to addressing climate vulnerabilities so that workshop attendees can envision potential adaptive actions. Without clear, adaptation-focused objectives, attendees often have difficulty in prioritizing actions.

3.5. Enable Peer-to-Peer Learning and Cross-Sector Dialogue through Small Group Work

The facilitators stressed the importance of dedicating a significant part of the workshop to small group work. Working in small groups enables peer-to-peer information sharing and can increase meaningful cross-sectoral communication. Such interactions deepen the participants' understanding of the challenges and potential solutions and often serve as the basis for what the facilitators called "ah-ha moments", when key realizations advance learning, relationship building and/or action. The facilitators' opinions about the ideal sizes for small groups ranged from three to ten participants, with eight as the modal response and six as the average.

3.6. Plan for Flexibility and Respond to Local Needs

Several facilitators recalled experiences where the initial plans failed to resonate with the participants, and the workshops were salvaged by quickly retooling the agenda. The need to be responsive and flexible in these situations was deemed important by all study participants. Some stressed the value of having backup plans ready, while others noted the unpredictability of the challenges and a general need to adapt agendas in real time.

3.7. Identify and Support Local Champions

Local champions—defined as people who are committed to bringing others together to get work done toward a shared goal [27]—are critical for initiating the workshop process, identifying and recruiting participants, diffusing ideas and maintaining motivation and commitment over time. Local champions are generally widely trusted within their communities, share common characteristics with the people in their network, and have the commitment, time and energy to ensure success. They are also typically charismatic, persistent and proactive [28]. Local champions can serve different roles, depending on their identity and position in the community (see Table 1). The importance of finding multiple champions across different sectors, particularly early in the process, emerged to enhance the likelihood of building broader networks with higher levels of participation. Consensus also emerged around the importance of identifying local champions within government agencies and non-government organizations. Non-governmental organizations often have considerable expertise and resources to contribute to projects. Oftentimes, they may fill similar roles to what are known as "backbone support organizations" in the collective impact literature, in that they can help to articulate and communicate a common vision, facilitate dialogue and coordinate work between partners, lead specific projects and build external support for the overall effort [29]. They can also push government agencies when inertial roadblocks are a problem. Some facilitators also noted the critical importance of champions within local government, particularly for enhancing the public accountabil-

ity of an initiative, providing resources and clearing political or bureaucratic roadblocks associated with climate adaptation.

Table 1. Summary description and typical roles played by the different types of local champions identified by facilitators.

	Network Champions	**Organizational Champions**	**Political Champions**
Description	Highly connected individuals from any sector who are embedded in the community/network	Individuals who can build support within their own organization	Elected officials or others with access to resources or other forms of influence *
Roles	• Make connections and facilitate dialogue between people within the network • Communicate vision and a strategic direction • Keep projects moving forward • Coordinate work between partners • Lead specific projects • Seek broader support for the work externally	• Build organizational support for the group's work • Counter organizational constraints • Empower others in organization	• Can engage as full participants, presenters or panel members • Alternatively, can be engaged as advocates after the workshop • Can build/signal legitimacy in adaptation planning networks and processes

* The role individual political champions play in the workshop itself depends on the consensus of the local conveners regarding whether they might stifle or enrich the participation of others.

3.8. Promote Feelings of Efficacy

The magnitude of the challenges presented by climate change can cause feelings of hopelessness or being overwhelmed. Workshop activities that promote a sense of self and collective efficacy can counteract some of these negative feelings. Self-efficacy refers to an individual's belief that they can undertake an action and that their effort will lead to desired outcomes [30]. Collective efficacy refers to the same beliefs, but in the context of the coordinated actions of a larger group [31]. The strategies for enhancing efficacy included emphasizing feelings of togetherness throughout, highlighting community strengths, practicing with specific planning tools and focusing on actions within the control of the participants.

3.9. Promote Accountability

The facilitators recommended creating mechanisms during the workshop to foster accountability among the participants to move the work forward post-workshop. This often involves asking participants to commit to specific actions during the workshop, such as engaging others in adaptation planning within their areas of expertise or volunteering to organize a subsequent meeting with a subset of workshop attendees to pursue a specific strategy. Assigning specific responsibilities for post-workshop reporting and monitoring can also enhance accountability.

3.10. Provide Post-Workshop Support

The facilitators agreed that they should continue to provide support after the workshop if welcomed by the community. This support may be especially important in communities with no plan/project in mind before the workshop, or those that lack a plan for moving forward by the end of the workshop, lack local climate experts or need additional buy-in from stakeholders post-workshop. Committing to this support before the workshop can enhance trust in the facilitators and feelings of efficacy in the attendees, thus enhancing the workshop overall.

3.11. Strategies

Table 2 details a set of practical strategies associated with each of the key recommendations shared. These strategies reflect write-in responses in the Delphi surveys, as well as emergent comments from the focus groups that garnered broad agreement among participants.

Table 2. Consensus-based strategies associated with each of the ten recommendations for enhancing the outcomes of place-based climate adaptation workshops.

Key Recommendations	Consensus-Based Strategies
1. Recruit the right people	• Enable broad participation by recruiting as early as possible, scheduling workshops at convenient times for as many people as possible, and providing stipends, food and childcare. • Provide a table or matrix containing each relevant sector (e.g., public health, local businesses, NGOs, etc.) and work with local conveners to fill in each box with who they think should attend. • Have local partners send out initial invitations, and then check in periodically pre-workshop to ensure they have successfully recruited representatives across the sectors.
2. Fit the local context	• Use surveys, interviews or meetings to capture pre-existing knowledge and/or perceptions of the participants beyond the core group of conveners. • Align the communication styles with local norms (e.g., use familiar/culturally appropriate language and imagery; communicate via commonly used channels). • Provide examples of climate adaptation projects in similar settings to help attendees imagine the possibilities in their own context. Otherwise, focus entirely on local climate projections and adaptation strategies.
3. Prepare participants	• Hold pre-workshop calls or send out reports or factsheets to share local climate science information and/or vulnerabilities. • Share a complete agenda ahead of the meeting.
4. Clarify objectives	• Make initial objectives specific, achievable and consensus-based. • Use questions to move from high-level objectives (e.g., future desired conditions) to actionable objectives (e.g., what actions might align with current initiatives; what is within the power of attendees). • Be prepared to revisit/revise the objectives throughout the process.
5. Include small group work	• Include representatives from multiple sectors or organizations within each small group. • Designate a facilitator for each small group with a clear facilitation guide. • Consider alternatives to traditional verbal report-outs, such as curated summaries or written reports that can be shared later in the process.
6. Plan for flexibility	• Be open to abandoning the agenda for a discussion about what the participants feel they most need in the moment. • Consider convening local partners between sessions to keep workshop goals aligned with the needs of the community.

Table 2. *Cont.*

Key Recommendations	Consensus-Based Strategies
7. Identify local champions	• Leverage the knowledge and pre-existing connections of local conveners to identify champions. • Train committed individuals to become local champions when pre-existing champions cannot be identified. • Seek champions in both government and non-governmental organizations.
8. Promote efficacy	• Begin with an activity (e.g., word cloud exercise; visioning session) that reveals what the participants value and care about most in their community or organization. • Stress commonalities between the participants. • Help the participants fit adaptation into their organizational realities by discussing how actions fit within current workflows and focusing on actions within their control. • Use gallery walks, facilitated discussions and brainstorming sessions to highlight personal assets, community strengths and relevant ongoing efforts. • Practice with specific planning tools and frameworks, including databases, visualizations and step-by-step processes for assessing vulnerabilities and potential solutions.
9. Promote accountability	• Encourage specific and detailed commitments prior to the close of the workshop. Even minor actions can set things in motion (e.g., sending an email to five specific people, committing to a subsequent small meeting). • Arrange for the participants to report back to the group through regular catch-up calls or shared documents. Alternatively, convene a smaller core group to meet regularly to advance the work. • Designate an entity (e.g., external facilitators, local conveners or other local champions) for monitoring post-workshop progress.
10. Provide post-workshop support	• Be available post-workshop to answer questions and provide technical support. • Commit to this support upfront, before the workshop, to enhance trust and feelings of efficacy.

4. Discussion

Our findings are largely consistent with the literature on what leads to better climate adaptation workshops [8,9,11–15,23,32,33], suggesting a general consensus among those most engaged in facilitating these workshops and other adaptation practitioners working in a wide array of contexts. Climate adaptation workshops are often just one piece of a much larger effort within a specific place. Our findings suggest that these workshops can contribute to these larger efforts by boosting social learning.

Social learning refers to group processes in which people learn together and build relationships that enable collective action [34]. Numerous factors have been identified to support social learning in natural resource management contexts, including facilitated processes that promote skills development, trust building, open deliberation and collective visioning—as well as ongoing cycles of collaborative action, monitoring and reflection [34–39]. Learning in these contexts has been linked to enhanced natural resource management and policy actions through various mechanisms, with a recent systematic review highlighting the particular importance of the processes that support skills-building and multi-level (across organizations and scales) interactions [38].

Our study suggests that climate adaptation workshops can catalyze social learning by bringing together diverse and multi-level actors working on place-based climate adaptation and promoting an enhanced sense of community, increased interactions and mutual understanding among the participants. We discuss how place-based climate adaptation workshops can be designed so that social learning contributes to feelings of collective efficacy, the emergence or strengthening of local leadership and the establishment of accountability mechanisms to enhance the likelihood of follow-through on adaptation-related planning and action.

Prior work found that feelings of collective efficacy can be especially effective in motivating action when coupled with strengthening the bonds between the people involved [2,38,40]. In climate adaptation workshops, the strategies that link the workshop content to the local context; establish clear, achievable objectives; highlight community strengths; encourage practicing with specific planning tools; focus on actions within the control of the participants; and align actions with ongoing initiatives can make potential subsequent actions feel more obtainable and likely to achieve meaningful outcomes.

Strengthening relationships between the people working on these issues can provide an additional sense of motivation through at least two separate mechanisms. The first involves an expansion of the knowledge, skills, abilities and connections available to make meaningful change. These expanded sources of capital can enhance feelings of collective efficacy [31,41]. The second involves the power of identifying a group with a common purpose. When people come to see themselves in this way, as members of a community, they may begin to develop feelings of commitment to the group and even shared social norms that can enhance the members' accountability to each other [42–44]. In one study of a collaborative natural resource management network, commitments to the group emerging from the development of intragroup trust helped members to bring new ideas back to their home organizations and make meaningful changes to organizational policies and initiatives—in essence, balancing one's pre-existing accountability with a newly found accountability to the network [45]. Ensuring wide representation across sectors, skills and communities at the workshops; facilitating small group dialogues; and focusing on building feelings of efficacy can help these types of relationships flourish and eventually build a sense of collective identity and accountability for actions moving forward.

Accountability for actions can also be strongly related to leadership within the network of people working on climate adaptation. Here, the power of local champions was strongly emphasized by the participants in the study. People who are willing and able to make commitments during the workshop, to build bridging connections across organizations or other communities and to keep initiatives moving forward can serve as invaluable engines for future work. As noted in the prior research on collective impact [27,29], these champions can also hold people accountable, at least informally, for any commitments they have made and coordinate communications both within and outside the network. Longer-term follow-up by the workshop facilitators can also help to bolster ongoing accountability and further support the work of local champions.

Each of these mechanisms for promulgating climate adaptation relies not only on effective facilitation, but also on who is invited to the workshops in the first place. The Delphi study yielded no consistent lessons regarding exactly how and when to address power differentials and equity issues in climate adaptation. Rather, general consensus was reached regarding the importance of including participants who were the most likely to carry out adaptation planning or implementation as well as those most likely to be impacted by those initiatives. Our review of the literature and the results of our focus group discussions indicate that the issues of justice, equity and inclusion in climate adaptation planning merit additional consideration in future research [4,46–48].

5. Conclusions

Place-based adaptation workshops can provide the knowledge, tools and collective momentum to advance critical adaptation work in communities. The ten recommendations that emerged from this study, and the associated consensus-based strategies, largely align with existing literature on adaptation planning processes. They offer direction for researchers studying these initiatives and practitioners working to mobilize effective adaptation action and can help these practitioners to advance collective efficacy, local leadership and accountability.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/cli11020043/s1, in the Report "*Climate Adaptation Workshop Delphi Study Report: Facilitators' Viewpoints on Effective Practices*". Virginia Tech, Blacksburg, VA, and EcoAdapt, Bainbridge Island, WA, USA, 2020 [49].

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