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ARTICLE

The 'More Than Maps' framework for building research capacity among young people in coastal climate change adaptation

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Abstract

When young people engage with climate change education, they are often left feeling disempowered and daunted. But past research has shown that there are ways to design and deliver climate change education that can be empowering and enabling. The delivery of climate change education was further challenged in 2020 by the shift to online learning driven by the COVID-19 pandemic restrictions. However, the challenges of the pandemic context also offered an opportunity to engage new audiences and establish new collaborations in climate change education. In this paper, we explore how the shift to online research, collaboration and education can also be harnessed to develop interdisciplinary coastal adaptation training for young people interested in better understanding the complexities of our coastal environments. The resulting '*More than Maps*' framework draws on qualitative and quantitative data collected over a two-year programme focused on the design and delivery of an international climate change research capacity building workshop series, across the United Kingdom, Ghana, Jamaica and Australia. Carried out by an interdisciplinary team of early career researchers and established academics, 15 workshops were developed on coastal adaptation research methods, targeting a range of 'young' audiences who are and will continue to be impacted by climate change. Building on reflections from the workshops' design and delivery, we developed a scalable framework to aid researchers in sharing open-access, replicable methods for studying climate change mitigation and adaptation. This work demonstrates that our workshop participants had

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increased confidence, sought to apply learned methods to other contexts, and wanted to share this knowledge with others. We conclude that the COVID-19 online workspace facilitated rather than hindered the international collaboration and delivery of these coastal adaptation research methods workshops, and we provide best practice tips to researchers delivering climate change education.

KEYWORDS
adaptation, capacity building, climate change, coastal hazards, education, young people

1 | INTRODUCTION

Worldwide, young people have been at the forefront of climate change activism and are expressing their interest to engage in these subjects (Wallis & Loy, 2021). Yet young people are often left feeling disempowered as a result of their encounters with climate change education (Jones & Davison, 2021; Rousell & Cutter-Mackenzie-Knowles, 2020). The disempowerment that young people feel in the face of climate change realities is not surprising when we reflect on the substantial damages already caused to coastal and marine ecosystems, alongside future impacts that climate change projections foreshadow (Nicholls et al., 2021; Oppenheimer et al., 2019; Pontee, 2013). But education *can* be empowering. Empowerment through climate change education, however, requires an approach that is participatory, interdisciplinary, creative and effect driven (Rousell & Cutter-Mackenzie-Knowles, 2020). For example, a two-year educational programme in Austria demonstrated that targeted climate change education can increase adaptation knowledge and critical thinking skills when delivered appropriately (Schrot et al., 2021).

In 2020, geography educators and researchers worldwide faced a new challenge: how to engage their audiences with restrictions on physical proximity. The COVID-19 (coronavirus disease 2019) pandemic saw restrictions on the physical movement of people in public and private spaces resulting in a significant challenge to the delivery of geographic higher education (Bryson & Andres, 2020). The restrictions also affected how geography higher education experts could reach young people outside of traditional higher education institutions. COVID-19 shifted the boundaries between formal and informal science education, introducing new inclusion barriers, but also widening the scope for science participation (Roche et al., 2021). While there are theory-based frameworks to support academics in their design of public engagement (Busch et al., 2022), there is little work that supports researchers in sharing their research methods for capacity building in a scalable, rapid way.

Therefore, we must find ways for young people to be part of the discourses on adaptation processes, and here, hypothesise that research orientated climate change education provides one such avenue to facilitate inclusion. As a foundation, Kelly et al. (2022) identified five strategies to consider when engaging young people in climate and ocean sciences: include diverse voices, generate active dialogue-based science learning, establish a connection to nature, develop critical thinking skills, and co-create visions of a sustainable future. We build on this work asking, how can we harness the shift to online information delivery resulting from the COVID-19 pandemic in order to reach new audiences and provide for the development of adaptation research skills that empower young people in the climate change discourse? We present a framework, built using qualitative and quantitative data from an international climate change research capacity building workshop series, to support researchers seeking to produce research-based capacity building materials for coastal climate change adaptation. We conclude by demonstrating how the best practice framework can encourage and facilitate other researchers and practitioners to engage in similar creative, interdisciplinary and participatory rapid capacity building work.

2 | MATERIALS AND METHODS

This project represents a piece of applied research where the learnings from an international collaborative programme to test research orientated climate change education methods were used to develop a rapid capacity building framework. The method comprises four parts: the design and delivery of the collaborative education programme; training and reflection practices of the researchers; evaluation and feedback from participants; and development of a rapid capacity building framework.

2.1 | Design and delivery of the collaborative programme

Figure 1 provides an overview of the collaborative programme timeline. The programme, '*More than Maps*' was developed to emphasise the importance of multidisciplinary multi-method climate change adaptation research, and was orientated around a series of workshops designed from the outset to (1) facilitate young people to be empowered in climate change discourses by increasing their research capacity (Dawson & Carson, 2020), and (2) provide interdisciplinary, free training in data analysis techniques using openly available software. The programme rapidly expanded from an initial pair of online workshops run by early career researchers (ECRs) and professors from the University of Southampton in November 2020 to a United Kingdom (UK) secondary school audience, to a multi-institutional, international, north–south, south–south, interdisciplinary collaboration. Each institution involved in the project led the development of its own place-specific working approach and workshops, but with a shared focus on promoting benefits of interdisciplinary coastal research for managing disasters and understanding the impacts of climate change on the coast. Since its inception, the programme has involved the delivery of 35 workshops to over 360 individuals from more than 20 different countries (Figure 2).

2.2 | Training and reflection practices of researchers

Throughout the development of the interdisciplinary climate change research education programme, an emphasis was placed on the leadership and development of ECRs (Hendriks & Bromme, 2022), including PhD students, those having completed PhDs in recent years, and those still in positions of precarious academic employment. ECR development was built in to the programme through an open floor for all attendees to comment at each meeting; ECRs leading in delivery including budget management and administration; reflective debriefing practices after each workshop; and sharing of training opportunities with all involved researchers. Researchers from across the institutions were also involved in a British Council round table discussion in advance of COP26 (2021), where 'More than Maps' was showcased and discussed within the context of climate change education more widely.

2.3 | Evaluation and feedback from participants

The term 'young people' is a widely defined, contested, value-laden concept (Jones et al., 2023). We therefore adopt a loose definition of young people as those aged under 30 or who consider themselves to be early career professionals. Most workshop participants were secondary school students, university students, and early career professionals. To inform researcher reflections in the development of the capacity building framework, we adopted best practice for engagement evaluation (Reeves et al., 2020), implemented through anonymous implicit and explicit evaluation of each workshop. Implicit evaluation involved monitoring how participants engaged with the workshop elements. For example, in a workshop led by the University of Ghana, participants used satellite data in open access Geographic Information System (GIS) software to create visualisations of floating *sargassum* seaweed in the western marine area of the nation. Participant progress in the activity provided implicit feedback regarding the effectiveness of the materials. Explicit evaluation included before/after surveys gauging participant confidence in the methods, likelihood of future use and sharing of the research approaches, and satisfaction with the workshop format and delivery.

2.4 | Development of rapid capacity building framework

We define capacity building in accordance with McBean and Rodgers (2010), where capacity encompasses all those attributes and resources available to individuals and groups to achieve goals, such as climate change adaptation, and thereby capacity building is the process by which individuals and groups can enhance and develop their abilities over time to reach those goals. The programme aimed to build capacity through increasing research skills, that is, by supporting participants to be knowledgeable and confident to engage in the process of learning about the world through formal and accepted methods to generate new knowledge. The proposed framework builds on the shared reflections following 2 years of collective learning across four countries with more than 20 researchers from five research institutions.

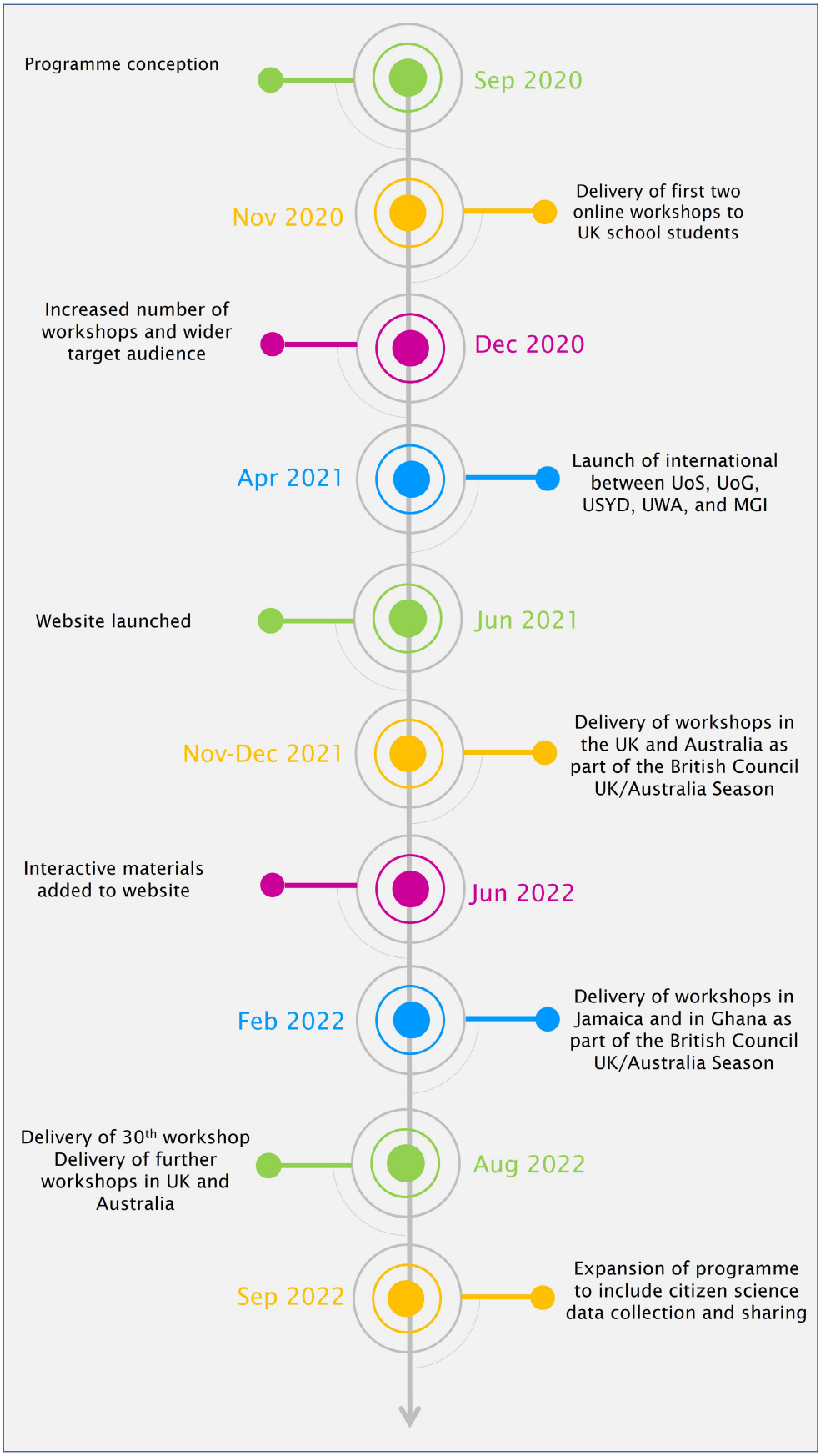

FIGURE 1 Timeline of the research capacity building programme from inception to present day. UoS, University of Southampton; UoG, University of Ghana; USYD, University of Sydney; UWA, University of Western Australia; MGI, MonaGeoinformatics Institute.

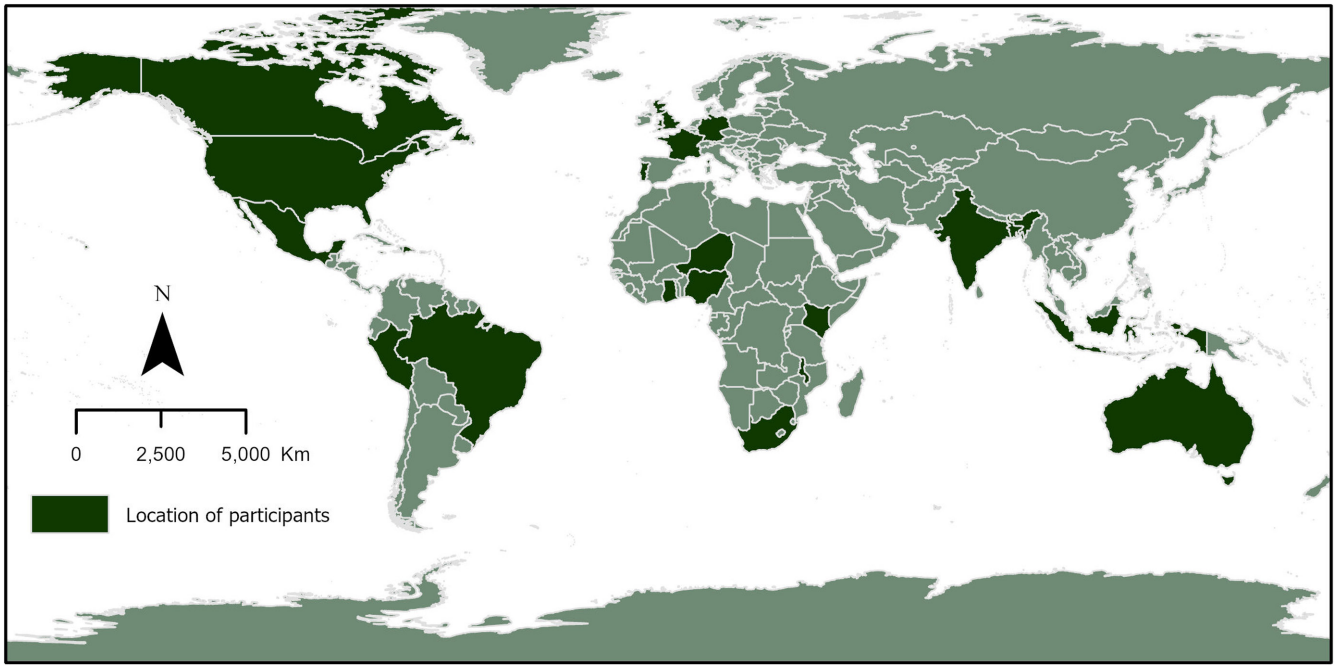

FIGURE 2 Countries that *More than Maps* project has reached through workshops including the countries of all partner institutions.

3 | RESULTS

3.1 | Effectiveness: Reflecting on workshop responses

In acknowledgement of the diversity of our research collaborators and workshop participants, institutions were given the freedom to develop their own appropriate methods for interaction and evaluation, however each team sought feedback from participants on two common themes: (1) the overall workshop quality, and (2) learners' self-reported subject knowledge. Figure 3 illustrates these results across the various workshops, and demonstrates strong consistency in quality (Figure 3b) as well as generally positive perceptions of learner knowledge (Figure 3a). The results also highlight that there is room for improvement in the workshop content and delivery: for example, over 60% of participants did not report increased knowledge following the UK workshop on remote sensing ('UK: Workshop 2'). The interactive elements within workshops also provided evaluation data: in Ghana, the discussion held between ECRs, academic staff, teachers and high school students not only focused on issues specific to the coast, but also how to extend these learnings to be more accessible to a broader range of learners (Table 1).

3.2 | External impact: Accessibility and adaptability

Known limitations to engaging young people include the reduced or lack of access of certain groups to extra-curricular activities because of geography, socio-economics and school type (Puvirajah et al., 2015). Workshop accessibility also has context-specific requirements and constraints. In the Australian universities' experience, the use of an online platform to run some of the workshops increased participation of regional groups who are often omitted from public engagement opportunities. Rural participants were more easily able to attend sessions being hosted online, where physical attendance would have been less feasible. By contrast, a similar online approach by the UK team found that the virtual environment impeded access for those needing additional academic support.

The *More than Maps* approach aimed to be adaptable rather than prescriptive. During the 12-month formal collaboration across four countries, institutional cooperation was facilitated through sharing of ideas and resources in an online space, regular full-team meetings, and open dialogue between institutions. But sharing of content relevant to the specific country's audiences remained the prerogative of the educators in-country, who were more cognisant of the contextual examples and curricula, as well as the types of locally relevant data available for public use. Thus, knowledge transfer was not north–south or explicitly south–south, but rather collectively discussed, shared and appropriated as each institutions'

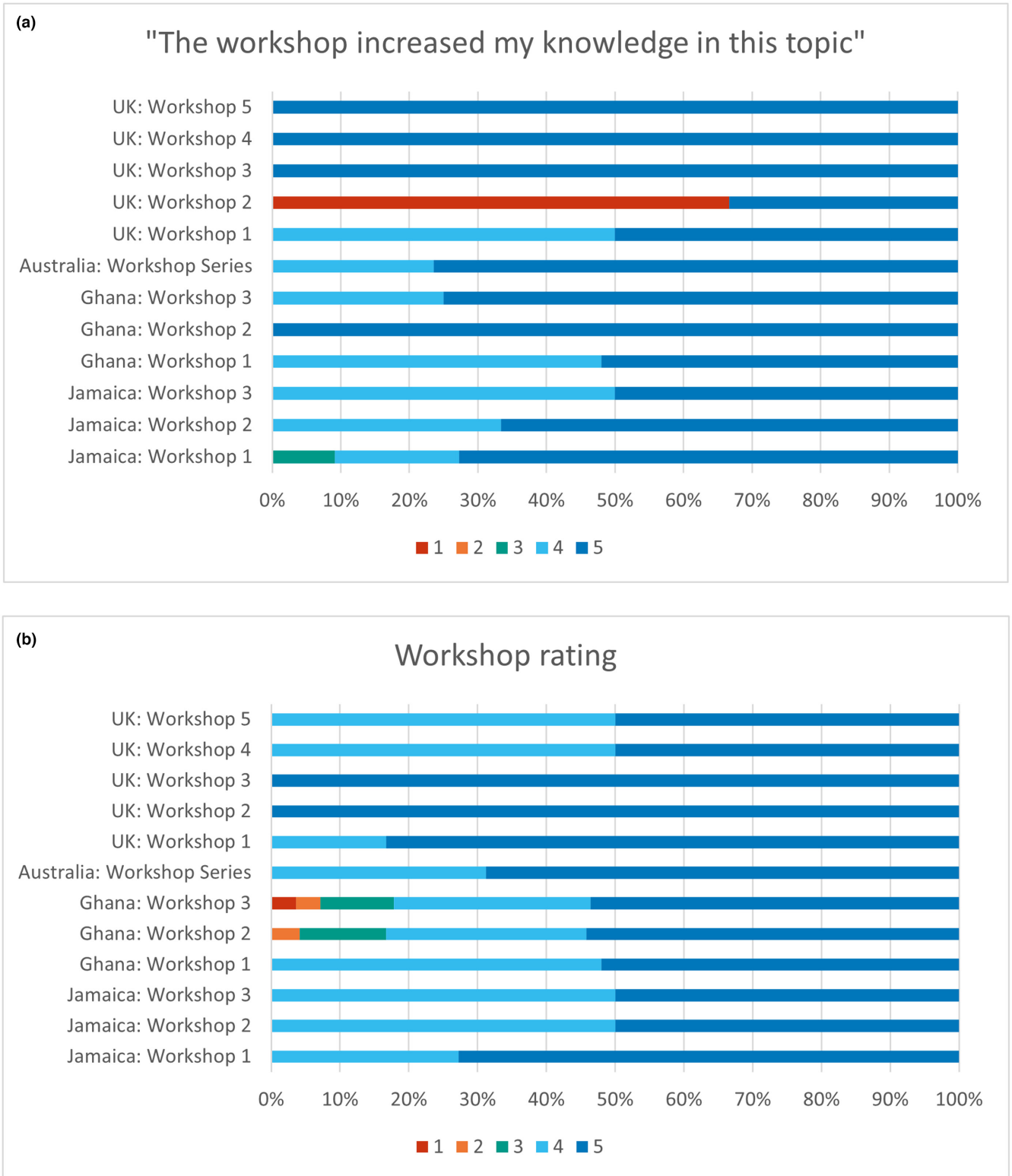

FIGURE 3 Participant responses to post-workshop surveys. Responses for increased knowledge were recorded using Likert scales from 1 (strongly disagree with statement) to 5 (strongly agree). Responses for workshop rating were recorded from 1 (very low) to 5 (very high).

teams independently decided. Through accessibility (both online and face to face), adaptability (content, mode of delivery and time of delivery, use of software) and scalability (workshops being designed to be run from 10 to 70 participants in one session), the *More than Maps* approach was able to overcome past shortcomings of engagement and capacity building work.

TABLE 1 Examples of themes of feedback and reflections on the delivery of *More than Maps* workshops.

Theme	Country	Example of comment received from participants, teachers and funders
Workshop relevance and timeliness	UK	Funders: 'These timely and important workshops are an excellent example of researchers engaging with teachers and young people to promote and increase awareness of the social sciences—a core purpose of the ESRC [Economic and Social Research Council] Festival of Social Science'
Interest in increasing climate awareness	Ghana	Teacher: 'We need to get partners and create the awareness of this workshop to the government next time thank you'
Opportunity to interact and contribute	UK	Student: 'Great opportunities to interact and offer our own thoughts/opinions'
Expand access to the workshops	Ghana	Student: 'Schools at the coastal areas usually affected b[y] coastal floods should be included' Student: 'Getting access to more resources and trying to get this initiative nationwide'
	UK	Teacher: 'The students (especially those taking geography) enjoyed it. I think our geography department are keen to run it for their A level students next year if there is the opportunity'
Expand contents and scope of workshops	Jamaica	Workshop participant: 'I wished to see some geology related stuff'
	Ghana	Student: 'More field trips should be organised after every theory section to improve the understanding of the various concept[s]'
	UK	Student: 'Incorporation of more complex research management to see climate data would be good'
Impetus for increased skill-based learning activities	Australia	Student: Need to 'think about landscapes as complete systems. You shouldn't isolate elements of a landscape as it is important to understand how they relate to the complete system'

3.3 | Internal impact: Public engagement as training

The ethos of the *More than Maps* framework was to embed learning and capacity building throughout the project life cycle. The project team were supported to share skills internally or fill knowledge shortfalls externally, to reflect on workshop development feedback, and to encourage others to join the consortium and become part of the virtuous cycle of learning (see Table 2 for reflections on best practice). For institutions, the approach facilitated the workshop programme to grow and evolve, involve new team members and participants, and be relevant across disciplines. For the individual, the approach encouraged personal development and leadership, and connected junior and more senior researchers in meaningful, productive ways.

An emphasis was placed on ensuring that staff time was recognised as valuable and renumerated where possible. ECRs at all institutions were given lead management positions in project delivery and their work appropriately recognised in reporting. Some of the permanent academic staff and many of the ECRs involved in the project have gone on to apply what they learned, or develop and finance their own public engagement projects, thus permeating a positive feedback cycle of supporting public engagement novices, recognising and rewarding their contribution, and inspiring another cohort of publicly minded researchers.

The *More than Maps* approach sought to facilitate and develop the skills of the researchers involved in the project as scientists and educators in an interdisciplinary research field (Table 3). Consistent across all training programmes was the emphasis on learning skills in an interdisciplinary approach, highlighting within external workshops and internal trainings the role of geography as transgressing physical and human boundaries in subject matter. Echoing thoughts from Darlington et al. (2015): although it was challenging to move both as educators and learners beyond traditional disciplinary boundaries, the outcomes encompassed increased communication skills with fellow researchers and the public, and transferable skills for future job applications.

3.4 | Development of a research capacity building framework for coastal change

More than Maps was originally designed to be a one-off pair of online workshops. However, positive feedback from all involved stakeholders led us to reflect that there was something in the interdisciplinary, open-access, interactive approach

TABLE 2 Best practice for the design and delivery of climate change adaption workshops for research and learning.

Phase	Key activities	Key best practices	Reflections from across the partnership
1. Rapid development	• Initial funding to trial concept • Establish diverse team • Evaluate team training needs • Identify internal and external partners • Identify overall thematic focus • Develop and pilot workshops • Reflect, evaluate and improve	• Foster diversity in the team • Acquire sufficient funding for fair renumeration • Pilot content prior to delivery	UoS team, UK: 'Establishing a diverse team provided a strong foundation for creating multidisciplinary workshops. Acquiring sufficient funding to renumerate early career staff contributed to a positive team environment, supporting staff development and retention. Piloting workshops gave the opportunity for immediate feedback and workshop improvements, key for successfully executing online delivery'
2. Best practice and learning	• Funding to develop concept • Expand workshop series • Initiate web presence • Develop teaching experience of team • Widen target audience scope	• Encourage ongoing cycle of feedback, evaluation, and improvement. Increase web presence • Use of online workshops to reach audiences • Encompass safeguarding practice • Adapt delivery methods to suit diverse audiences	UoS team, UK: 'Being able to use the feedback and structure of the initial workshops provided a platform for expansion. Increasing the web presence of the project was useful in engaging global communities, and offered an opportunity for reflection on the progress made. Online workshops were highly useful to reach a diverse audience from different geographic regions. Safeguarding considerations for under-age participants on online platforms were essential and guided the choice of online platforms and tools. Younger audiences showed higher affinity with technology'
3. Rapid expansion	• Expand workshop series • Build interactive online content • Grow team externally, i.e., new partners • Share best practice with internal networks	• Incorporate sufficient planning and international team collaboration • Involve researchers from across disciplines and experiences • Support diversity while growing team • Expand interactive content	MGI team, Jamaica: 'The planning phase via a virtual platform greatly enhanced the international collaborative experience enabling feedback across the project team across the Caribbean, Europe, West Africa and Australia. Experts, with diverse backgrounds in the environmental and social sciences were able to contribute practical skills from their own disciplines that are enticing and useful to tertiary students and early career researchers in Jamaica. It is important to have diversity in the implementation from the research team for these workshops as it allows for greater reach and diversity in workshop lessons. Run interactive session for other projects'
4. Foundations for future learning	• Consolidate workshops to ensure coherence • Expand format of workshops, i.e., online for in-person delivery and vice versa • Share best practice with external networks • Apply concept to other research projects	• Coordinate in-person workshops with other on-campus events • Collaborate with existing networks • Invite and involve teachers in workshops • Host students on campus	UWA team, Australia: 'Aligning workshops with school visits to campus is a good way to (i) catch a large number of students, (ii) catch students when they're thinking about what's next and are in a good frame of mind to engage with topical issues, and (iii) avoid creating more work for teachers. Or, collaborating with existing networks (e.g., GAWA [Geographical Association of Western Australia] in WA)' UoG team, Ghana: 'We noticed that the participation of the teachers motivated the students. This was clear as one school that didn't come with their teacher were not very active through the program. Hosting students on campus would have made the program more effective, as opposed to students commuting from their schools each day. Overall, engaging the junior high students was very impactful and has led to working with junior high schools for subsequent projects'

TABLE 2 (Continued)

Phase	Key activities	Key best practices	Reflections from across the partnership
5. Reinvention	• Involve further disciplines • Work with new partners • Explore new avenues for impact • Develop new concepts and approaches to delivering climate change adaptation teaching	• Use existing methods as the basis for reinvention • Work with teachers throughout • Embed participatory methods where possible • Continually evaluate and improve	UoS team, UK: 'The experiences gained from running a largely online series provided a strong base for developing new content and delivery methods to target a diversity of schools on coastal change topics, such as a citizen science and learning materials programme to address seaweed influxes in the UK, Ghana and Mexico. We adapted new practices such as working with teachers from the project launch, using more participatory methods, and improving our programme evaluation for further improvement'

Abbreviations: MGI, MonaGeoinformatics Institute; UoG, University of Ghana; UoS, University of Southampton; UWA, University of Western Australia.

TABLE 3 Using public engagement as an opportunity for training of early career researchers (ECRs).

Skills targeted	Lead institution	Approach	Outcome
Research skills	MonaGeoinformatics Institute	Targeted multidisciplinary research skills for Caribbean region researchers, including: disaster risk management, environmental monitoring, and social science data collection	Positive feedback on workshop topics from participants and high return rate to successive workshops
Public engagement skills	University of Southampton	ECRs were encouraged to set self-development targets for the year, identify relevant learning opportunities, and reflect on their progress	ECRs felt that they learnt valuable skills for their future career paths, with one student aiming to pursue a career in public engagement
Leading lectures and seminars	University of Ghana	ECRs led the lectures and seminar-style workshops for secondary school students on physical and social science research topics	Classroom and fieldwork experience for ECRs, with teaching and research input received from students and teachers
Interdisciplinary workshop design and delivery	University of Western Australia, University of Sydney	ECRs and academics led the lectures and seminar-style workshops for secondary school students and secondary school teachers focused contemporary social science and remote sensing approaches on coastal and climate change impacts in Australia and Fiji	Experience delivery of interdisciplinary workshops on a range of methods and topics, with local applications

that warranted further development. As the project continued to grow in content, team membership, and international collaboration, we also persisted in embedding reflection and improvement into the *More than Maps* approach. The result has been a dynamic, ever-evolving, informal network that adapts to its educators' and learners' needs, supported by a flexible project framework for effective during-project public engagement (see Figure 4).

The *More than Maps* framework proposes that delivering public engagement to develop young people's research skills capacity does not require significant financial resources but depends on university services and academics empowering ECRs to test and develop their ideas for training through (1) providing small pots of funding for piloting ideas and endorsing ECRs spending time in this area, (2) introducing ECRs to existing contacts and services, and (3) stepping back from leadership as the project matures. In return, ECRs can (1) expand their internal and external networks, (2) co-create a new research impact presence, and (3) take risks and be creative in developing impactful materials.

The strengths of this approach are in supporting ECR leadership and initiative, and its low resource needs. *More than Maps* has enabled ECRs to gain, apply and showcase skills across teaching, research, project management, funding

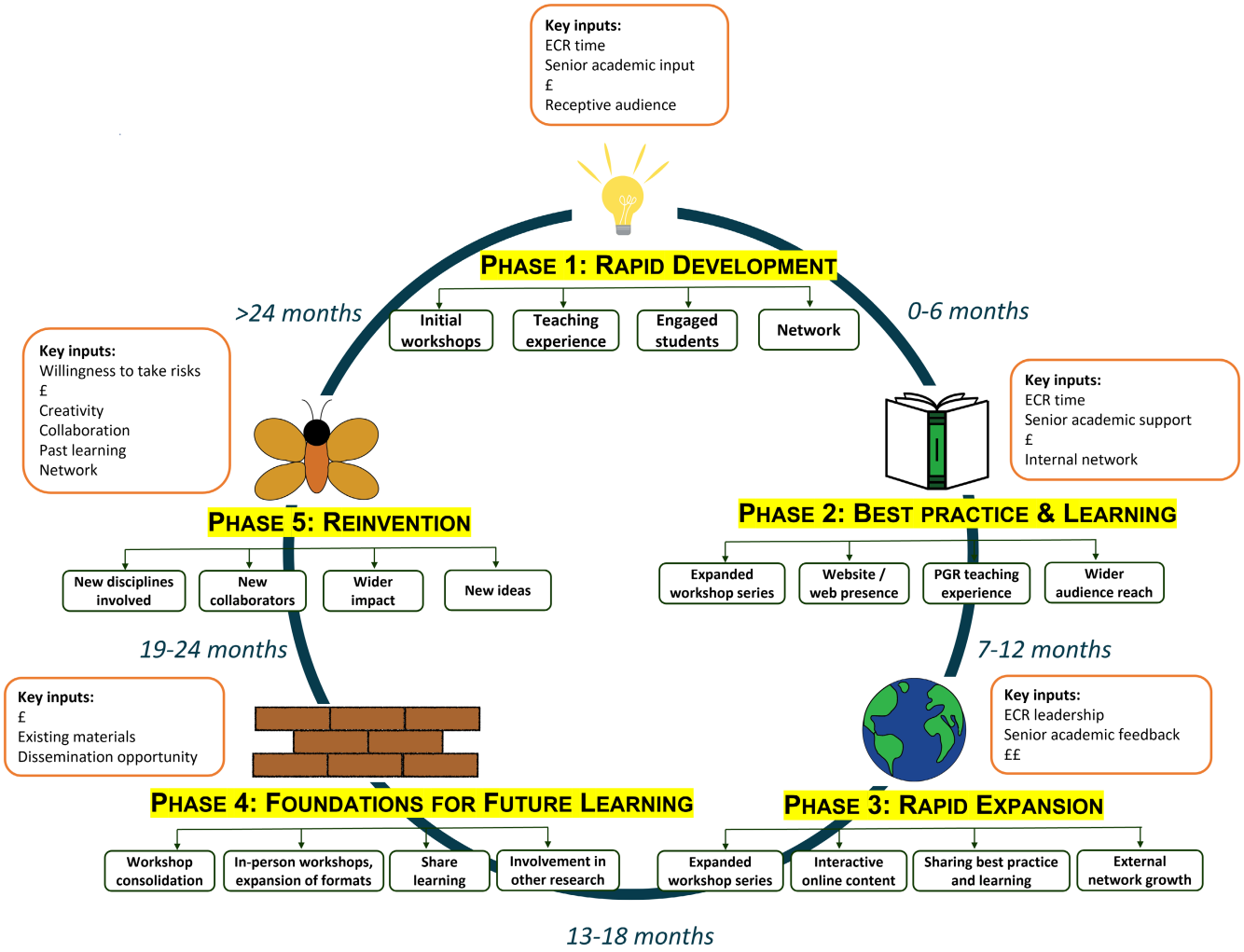

FIGURE 4 *More than Maps* framework for rapid development of research capacity building public engagement for young people.

application development, networking, and communications. Whilst direct correlation between *More than Maps* and onward success is hard to gauge, ECRs involved have gone on to seek further employment in public engagement facing roles, and apply for their own capacity building grants. The *More than Maps* approach is built on the premise that, rather than waiting for research findings to be generated from ongoing projects, the methods being employed in the research are inherently valuable for young people to engage with. The approach can therefore be applied at any time during a research cycle.

The limitations of this approach are its dependence on ECR leadership and initiative, as well as on its assuming that there will be supportive institutional services to generate the network for project growth. There are risks in placing significant time and management responsibility on ECRs who often work in precarious and high-pressure positions, and are likely to graduate or move to onward employment (McKenzie, 2021). Furthermore, in the early phases of the *More than Maps* approach, there is a dependence on institutional support (see Figure 4). Should support for a particular proposal not exist, it may be difficult for ECRs to progress an idea. Nevertheless, because of the flexibility of the approach outlined in the framework, ECRs maintain significant control over their desired commitment, and freedom to seek support internally or externally as required.

4 | DISCUSSION

The COVID-19 pandemic and associated restrictions on movement challenged the delivery of education and stakeholder engagement (Bryson & Andres, 2020), yet by redefining the physical and virtual environment it also provided opportunities for creativity and innovation. Like other programmes (Roche et al., 2021), the *More than Maps* team turned to online

spaces for the delivery of its coastal adaptation research methods workshops. We found that in certain contexts the shift to online supported social inclusion—enabling remote students in Australia to participate in workshops they may not have otherwise been able to. However, we also encountered the challenges identified by Roche et al. (2021), with certain groups of young people being harder to reach through the online environment. From a project management perspective, the shift to online delivery facilitated a collaborative approach between colleagues who never met in-person, enabling an international, interinstitutional project designed and delivered entirely remotely on a much smaller financial scale than required to afford travel between partners and impact sites.

Climate change research is not a comfortable read, but through careful design of educational activities, it is possible to deliver knowledge and hope in climate change education. Kelly et al. (2022) identified the importance of encompassing diverse voices, active dialogue-based science learning, connection to nature, critical thinking skills, and visions of a sustainable future. We add to this list the importance of providing ladders to support young people to participate in, understand and communicate climate change research, such as through engaging them in the research process itself. Recognising the contribution that research methods can make in enabling engagement in climate change adaptation discourse also allows researchers to integrate capacity building throughout a project life cycle, as opposed to a more traditional approach of only disseminating research outcomes (Busch et al., 2022).

The *More than Maps* framework embeds ECRs at the centre of engagement processes, creating a space for skills development and application, and for interdisciplinary collaboration. The work of Dever et al. (2006) describes as critical to researcher performance: (1) passion, (2) international connections, (3) effective mentoring, (4) collaborative research, (5) postgraduate student supervision, and (6) involvement in administrative duties. All factors listed by Dever et al. (2006) are present in the *More than Maps* framework outlined in Figure 4, with the project being created out of an idea (1), built on international collaboration supported by senior academics (2–3), collaboratively developed with ECRs overseeing postgraduate student involvement (4–5), and ECRs leading project management (6).

Despite our excitement at sharing the *More than Maps* framework, we recognise that this approach and its assessment have their limitations. There remains limited quantitative data to support the framework due to the organic evolution of the project; it was a one-off public engagement project that became something much bigger. Although we wanted institutional autonomy to be at the core of the international collaboration, this led to each institution using different evaluation methods, and challenging the ability to compare between and across countries. Co-production should embed principles of being inclusive, collaborative, flexible, decision driven, process based and time managed (Vincent et al., 2018). While the *More than Maps* framework encompasses many of these elements internally, there remains scope for their integration into the external facing aspects, for example by involving participants in future research design.

Building on work by Busch et al. (2022) and Bryson and Andres (2020) to reflect on rapid development of online learning methods for university environments, we found that key best learning practices for non-university spaces include working closely with teachers, piloting content and adapting delivery method dependent on specific audiences, and having an improvement mindset with constant evaluation and refinement of the engagement approach (see Table 2). We noted little evidence in feedback of disempowerment (Jones & Davison, 2021), instead observing an increased confidence in using critical thinking and analysis skills (Kelly et al., 2022), and appetite to learn more about climate change adaptation research methods. Bringing these learnings together, we suggest five top tips for other researchers who seek to rapidly deliver climate change adaptation research workshops:

1. Embrace a learning and development cycle: external feedback, internal reflection, improvement and expansion.
2. Network building and collaboration through regular meetings: internal and external, ensuring that these benefit everyone involved such as through upskilling and new collaborations.
3. Work directly with audience brokers: these essential relationships take time to develop and evolve.
4. Embed diversity throughout: in topics, disciplines and team.
5. Focus on one delivery format first, but recognise the benefits of various approaches to support different target audiences.

Research-driven capacity building offers a promising way to empower young people in climate change adaptation discourses. Scientists do not need to 'wait' for the results of their work to share their progress with young people; the tools and skills they employ every day are effective science communication means to positively engage young audiences in climate change discourse. By recognising the utility of research methods in capacity building, capacity can be delivered throughout a project life cycle, rather than being a rushed outcome produced in the latter stages. We also found that public engagement is a capacity building platform for ECRs, facilitating leadership, funding and managerial opportunities

they otherwise might not have access to. The *More than Maps* framework for developing science skills-based capacity building resources is one example of how engaging and sharing knowledge with audiences beyond the research team can be an ongoing part of a project. We challenge geographers to go forth and find even more innovative, effective and exciting ways to build capacity internally and externally with research.

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CONFLICT OF INTEREST STATEMENT

The authors report there are no competing interests to declare.

DATA AVAILABILITY STATEMENT

Materials designed as part of the *More than Maps* workshops are available open access at https://morethanmaps.earth/ and https://www.sartrac.org/.

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