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Using place-based public engagement to improve social and environmental sustainability: Lessons from partnership working in Cornwall, UK

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ABSTRACT

Public engagement with research and innovation is often inversely related to socio-economic status, with significant implications for realising positive solutions to pressing concerns, such as the biodiversity and climate crises. This paper reports on the use of place-based public workshops focusing on co-design of urban green spaces to understand: the extent to which public workshops can engage local people in relatively poor locations; the degree to which working with self-organised groups or newly-engaged publics impacts levels of engagement and outcomes; and how universities can play a role in developing locally relevant practical solutions to trans-disciplinary issues such as the climate and biodiversity crises. We report on an action research project that involved facilitated co-design workshops in three towns in Cornwall, UK. The research methods included a survey of participants and follow up interviews with key stakeholders. We found that the workshops were successful in engaging local people, including those with less interest in the environment. Independent follow-on activities from aligned self-organised groups were greater than for newly engaged publics but this was partly dependent on the knowledge and skills of those involved. The role of the university as a neutral partner, in providing expertise and seed funding, was seen to be positive, with short-term timescales, communication and the ability to retain longer term involvement reported as hindrances to successful collaboration.

1. Introduction

1.1. Research context

1.1.1. Public engagement in research and the importance of place

Public engagement with research can be fostered by using co-production and co-design techniques where there is an overlapping interest between the public and researchers. This is especially salient where researchers want to identify practical solutions to pressing concerns, and the public have a particular interest in the outcomes of any proposal or change. Given the scale of social and ecological problems today, there has been growing ambition to connect research and practice in a wide range of fields (for example Breukers et al., 2011; Ferguson et al., 2022; Musacchio, 2009; van der Linden et al., 2015). There are obvious dangers in advocating 'solutions' which have unintended consequences for places and people, particularly for those who are least inclined to take part in public consultation, engagement or participation events (Agyeman and Evans, 2004). In this context, universities and research organisations are being encouraged to engage in active communication with the public in general, as well as most geographically proximate (now reflected in the development of the 'civic university' movement; Goddard and Vallance, 2012; Harris and Holley, 2016). However, important questions now need to be answered about how universities and researchers best engage with the public and particularly, how they reach groups who do not commonly engage with research, especially those living in poorer locations. The project reported in this paper used 'place-based public engagement' to explore different approaches to partnership working between the university, local authorities and community interest groups to understand how to foster interest in nature-based climate mitigation and biodiversity restoration practices. We deployed co-design techniques to develop improvements to urban green spaces to understand how well this engaged local people and used interviews with key stakeholders to deepen our understanding of how well the partnerships and processes worked in relation to engagement and outcomes.

The rationale for public engagement ranges from education and

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information sharing through to co-production and radical change. As Rowe and Frewer (2005) characterise it, public engagement includes communication or consultation as well as participation. While processes of communication and consultation are more focused on engaging the public *with* research, there are some forms of enquiry that require public engagement *for* the research. In these cases, the research is not possible without engaging the public, and such work is associated with different forms of 'citizen science' or 'participatory action research' (Dickinson et al., 2012; Kindon et al., 2007; McTaggart, 1997). The broad aim of these approaches is varied but they can increase the scale of the data collection (through incorporating the resources provided by volunteers), the depth of insight (through surfacing previously unarticulated experiences) and the impact of the research (through connecting ideas to action or understanding barriers to implementing ideas). With reference to transdisciplinary research around climate change mitigation and biodiversity recovery, public engagement via communication and consultation, or participation in the research, may have the potential to impact on individual and community action in relation to these issues (cf. Bracken et al., 2015). As such, the design of research projects can impact on public engagement in environmental management and improvements, shaping outcomes and helping to secure the public good (Reed et al., 2018).

We also know that such engagement is shaped by socio-economic status and stages of life. Recent research into public engagement with science suggests that the levels of engagement with research and trust in research is greater in groups with higher socio-economic status, and particularly amongst those who had a university education themselves (Jensen et al., 2021; PAS, 2019). This might be expected, but it behoves researchers to reflect and respond to the particular interests of different groups in society, particularly if they want and need to engage them in research. This will involve reaching out via trusted intermediaries, taking care in the way information is presented to ensure it is as accessible as possible, and thinking about the reciprocal gains to be made by engagement (Suarez-Balcazar, 2020). This can bring additional challenges to the research or engagement process (for example Finney & Rishbeth, 2006).

The national research bodies for the UK, initially Research Councils UK (RCUK) and its replacement body, UK Research and Innovation (UKRI), have provided funding to support culture-change projects that aim to increase university-led public engagement. From October 2017, UKRI's Strategic Support to Expedite Embedding Public Engagement with Research (SEE-PER) supported 12 university-led projects to better embed public engagement culture and practice in university life. These projects followed earlier investment (including the Connected Communities programme) and helped to underpin UKRI's vision for public engagement (UKRI, 2019b). Nationally, there are a growing number of professionals employed to support university-led public engagement and although they are limited in their ability to challenge the established parameters of university activity, they reflect this broader ambition for expand and deepen public engagement (Watermeyer & Lewis, 2018).

More recently, UKRI launched a further programme to support and evaluate university-led partnerships for place-based public engagement with a particular focus on deprived communities that ran from early 2020. The call outlined an ambition "to develop new approaches to engagement with research and innovation … to create new space for co-created, societally relevant routes to engagement with research and innovation, and demonstrate where … research, innovation and engagement practices might benefit from being better aligned to the needs of areas of the UK experiencing significant disadvantage in its different forms" (UKRI, 2019a, see Box 1). The resulting research programme supported 25 small projects that included a wide range of communities, a diversity of concerns and associated research interventions (NCCPE, 2020). Here, we report on one of these projects that was designed to engage the public in enhancing the local environment via co-production techniques that also provided an opportunity to test out different kinds of institutional partnerships underpinning the work. Despite the growing public concern over the climate and biodiversity crises, at all levels of society (ONS, 2021; Survation, 2021), and the acknowledgement that poorer communities and places may be most impacted by environmental change (Gasper et al., 2011; Zsamboky et al., 2011), this was one of just three place-based projects that focused on tackling concerns related to the environment.

The EPPE programme (see Box 1) makes an a priori case for the importance of approaching public engagement through geography. In this approach to research, place is used as a vehicle through which to reach a particular public and to then engage people in research and innovation activity. Individuals have an interest in 'their' place but they are also potentially mobilised through local interventions, and this provides the grounds for public engagement. However, this demands building long-term, trusting partnerships (Irazábal et al., 2015), and the

Box 1
Enhancing place-based partnerships in public engagement.

Through enhancing place-based partnerships in public engagement (EPPE) UKRI will support capacity building in collaborative place-based public engagement between research organisations, partner organisations and communities. Projects and partnerships will be driven by a geographically defined community's need that can be approached by engagement with research and innovation and therefore shape and generate new learning.

Through this call UKRI aims to support engagement that works with community partner(s) / organisation(s) from the 40% most socioeconomically deprived areas of the UK, defined as those areas listed in the bottom two quintiles of the Indices of Multiple Deprivation for the respective part of the UK.

The objectives for the call are to:

- **Initiate or enhance partnerships** between research and community partner(s) / organisation(s) in areas of the UK experiencing significant disadvantage, where there is an opportunity to engage with research and innovation;
- **Align with the objectives** of other place-based funding and policy work in recognising the role of 'place' in research and innovation;
- **Demonstrate collaborative engagement** with research and innovation through research organisations, communities and partner organisations, investing in new or tried-and-tested co-production methodologies;
- Learn from these approaches and **utilise that learning** to build collaborative capacity that supports productive interactions between research organisations and communities.

Successful projects will undertake a range of public engagement with research and innovation activities that will develop and enhance community and public involvement and interest in research and innovation in a defined geographical area.

co-development of research and project goals, as well as co-design and co-delivery of solutions, that necessitate a balance between bottom-up and top-down approaches (Reed et al., 2018). As such, researchers need to have the patience and skills to build long-lasting respectful partnerships with very different groups of people and organisations while also being committed to practical action (Harney et al., 2016). By connecting with people through co-designed activity around local problems and potential solutions, it is possible to harness 'place-based' interests and knowledge, ensuring that approaches are tailored to socio-ecological context, enhancing their likely success (Horlings, 2020). However, this is not easy for academics to do. Our research used place-based participatory action research (PBAR) for nature-based mitigations to climate change, biodiversity loss and social isolation, and in so doing, we had the opportunity to learn more about the kinds of partnerships that work best in underpinning this approach to research.

1.1.2. *Place-based action research for sustainability*

Harnessing the power of place-based action research (PBAR) to engage people is particularly salient in relation to developing sustainability solutions that require public engagement for their success (Horlings et al., 2020). The connection with place can be key for encouraging meaningful community participation and enhancing collective social action to protect and enhance the local environment (NCCPE, 2019; Sanchez-Barriolluengo and Benneworth, 2019). Notably, PBAR can offer important insights as to why key social and environmental issues are tackled so disparately across spatial scales with scope for sharing best practice (Allahwala et al., 2013).

In tackling climate change and biodiversity loss, there is a growing awareness of the role of small-scale place-based projects (Dick et al., 2020; Seddon et al., 2020). Interventions may vary in terms of scale and level of community engagement, but even small-scale projects, such as community gardens, rewilding of small areas and urban green roofs, can combat environmental changes, including playing roles in protecting biodiversity, restoring ecosystem functions and reducing carbon emissions; and are often referred to as 'nature-based' interventions, solutions or mitigation (NBS) (Fastenrath et al., 2020; van Ham and Klimmek, 2017). Further, they can have a positive effect on the physical and mental wellbeing of communities, and create opportunities for community development through education, skills and training, as well as building social capital (Firth et al., 2011). Engaging in multiple local interventions can also result in a functionally larger area, which may further enhance environmental and social benefits (Nesshöver et al., 2017).

As such, there is a vital need to learn more about how to conduct PBAR that can support small scale sustainability solutions, and to bring the resources of universities to the table in delivering practical change (Molnar et al., 2011; Pizarro, 2015). It is already evident that projects sometimes fail to involve communities throughout all project stages, with consultation and participatory development often only 'for show' (Firth et al., 2011; Glover, 2004; Kabisch et al., 2016). There is also an urgent need to measure the effectiveness of these interventions and to critically examine the scalability of solutions (Seddon et al., 2020). In our pitch for funding to the EPPE programme, we argued that increased university engagement with PBAR for sustainability solutions could stimulate positive, innovative changes for local people and places, further develop university engagement in our region, and also contribute to pressing agendas at a larger scale. We sought to use our research to reflect on these ambitions and to make a frank assessment of the challenges to be faced in doing this kind of PBAR, especially in poorer locations.

Our project tackled the following problem statement and sought to answer three associated research questions.

Project problem statement: Despite facing pressing concerns that could be addressed by action research to develop solutions, people living in poorer places are less likely than those in wealthier areas, to engage in research and innovation. Researchers urgently need to find ways of engaging these publics, and prior evidence suggests that there is a role for place-based action research to develop and implement practical solutions close to where people live. Public workshops co-organised by researchers in partnership with trusted organisations may provide a way to engage these publics in co-producing and co-designing improvements to the services and places where they live. However, there is a need to better understand how to organise these in ways that engage people living in poorer places and further, to understand the differences that arise from partnering with self-organised groups or newly-engaged publics. These challenges underpinned our project that sought to answer the following *research questions* in relation to making social and environmental improvements in public green spaces:

1. To what extent can public workshops successfully engage people living in poorer places in co-producing and co-designing local improvements?
2. What difference does working with self-organised groups rather than newly-engaged publics make to the process and outcomes?
3. What is the role and implication of universities undertaking place-based action research and public engagement in this way?

2. Methods

2.1. Study approach and sites

The study was carried out in Cornwall, south west UK, at three sites in different towns. To explore the potential for place-based action research to reach people living in poorer communities, we used areas with high Indices of Multiple Deprivation (IMD, Ministry of Housing, Communities and Local Government, 2019) to reach this audience. IMD rankings are based on seven indices of deprivation including income but also employment, education, health, crime, housing and living environment (Ministry of Housing, Communities and Local Government, 2019). The case study towns all contain areas ranked amongst the top 50% most deprived small areas in the country. Specifically, Site 1 (Helston) is in an area ranked as 12,829 out of 32,844 small-areas in England, where 1 is the most deprived, meaning it is amongst the 40% most deprived small areas in England (English indices of deprivation, 2019). Site 2 (Launceston) and Site 3 (Newquay) are ranked 13,141 and 23,996 respectively, putting them amongst the top 20% and top 50% most deprived small areas in England (Ministry of Housing, Communities and Local Government, 2019)..

Two institutional mechanisms were used to investigate the usefulness of place-based engagement in involving communities with nature-based climate and biodiversity loss mitigation. The site at Helston involved a project partner, the South Kerrier Alliance Community Interest Company (SKACIC) that manages an area of public space and were willing for local communities to make interventions in part of it, via a recently established community group (Incredible Edible Helston). The other two sites (Launceston and Newquay) were organised via the Making Space for Nature project developed between the Environment Service at Cornwall Council and the University of Exeter's Environment and Sustainability Institute (ESI) (www.cornwall.gov.uk/spaceforнature), part funded by the European Regional Development Fund. The project identified areas of public land (owned or managed by the council) in Cornish towns, with the aim of improving their biodiversity value and social accessibility. The project aimed to identify community partners at all sites, and worked with a Community Interest Company focused on families in Newquay, and the housing association in Launceston (Appendix A). Other community interest groups were identified and invited, but were not involved in workshop planning.

All workshops ($n = 4$) were conducted in February to March 2020, consisting of initial workshops ($n = 3$) at each site and one follow-up workshop (in Helston) (see Appendix A). Two further follow-up workshops were planned (in Launceston and Newquay), however due to COVID-19 restrictions, further physical workshops were not possible

and limitations relating to this are discussed within the results and discussion section. Workshops were publicised through existing organisations (such as Housing and Residents Associations, Town and Parish Councils and community partners), via local media channels and leaflet drops were organised in the vicinity of the chosen green spaces, to ensure local residents as well as different interest groups were reached. Workshop attendees were self-selecting. The focus was on facilitating the co-production of knowledge. Workshops were conducted at each site, with the primary purposes of collecting ideas and opinions of attendees about the role and function of the sites in order to co-design improvements that would later be implemented. To encourage attendance, refreshments were offered and provisions for childcare were available. A professional facilitator was used to run the workshops, reducing the sense that the debate was led by the council, community or the university.

The initial workshops included introductions about the project and workshop content, as well as ice-breaker activities. During these introductory activities, participants were guided to feel comfortable about sharing the diversity of their views while being respectful of each other. Specific activities varied slightly between workshops, dependent on factors including partner organisations, but all were focused on collecting ideas and opinions regarding the site. Aerial plans of the site were shown to the participants, along with pictures of potential interventions that could be used, such as pictures of wildflower meadows, benches and fruit trees. At Helston, the community partner was strongly involved in workshop design and included gardening magazines for ideas. At Helston, participants were asked what they would like to see now, soon and later, and what they would consider measures of success. During the Launceston workshop, participants were asked for ideas for each section of the site and to talk about things they both liked and disliked about the site. They were also asked to talk about what further events or training they would like to see on or around the site. At Newquay, participants were asked to describe the site as it is now, how they used it and felt about it, and then how they felt it could be improved for wildlife. Participatory techniques were used, including breaking into smaller groups for discussions, with ideas captured by participants using pen, paper, flip-charts and maps of the sites. Participants could also vote on ideas (summarised in Appendix B) using coloured dots that were stuck on summary lists of people's ambitions and ideas for the sites. The content of the second workshop in Helston was requested by participants in the first workshop and focused on the practicalities of setting up a community garden and researching the materials required.

Following the workshop, ideas and data were assimilated and used by voluntary landscape architects and gardeners who were part of the community group in Helston or a professional landscape architect employed by Cornwall Council (Launceston and Newquay) to create new co-developed site designs. Sites were then developed either by contributing raw materials purchased as part of the project funding, with much of the practical work carried out by skilled volunteers (Helston) or by Cornwall Council's main contractor Cormac under the Making Space for Nature program (Newquay and Launceston). Works were completed by April 2021 in Helston and Newquay, with part of the works completed in Launceston by April 2021 and the remainder will be completed by October 2022.

2.2. Data collection

2.2.1. Questionnaires

To understand who engaged with the workshop, and how well they functioned in terms of engaging people, we distributed questionnaires following each workshop ($n = 4$), consisting of a mix of open-ended and closed questions (included in Appendices C and D). These were designed to be short (duration = 10–15 min) and were handed out or completed via face-to-face interviews with researchers after each workshop. Questions were primarily designed to gather basic demographic information (e.g. age), interest in the environment, interaction with the site and experiences of the workshop. Questions were slightly modified between workshops in an iterative approach, allowing them to be adapted to the local context and the identified priorities and interest of the workshop groups. This iterative approach to building knowledge and research outputs is well-established in place-based community engagement, and can build reciprocity and trust and well as enhancing knowledge creation (Allahwala et al., 2013). Therefore, although most questions stayed the same to allow for comparative study of findings, a slightly different set was used for each initial workshop (Appendix C). For the follow-up workshop, questions were adapted to gather information on participant interest and willingness to engage with the project long-term, including involvement in potential monitoring activities, their perceptions of University of Exeter and wider reflections on the project (Appendix D).

2.2.2. Interviews

In order to reflect broadly on project impact, including the levels of engagement from the public, outcomes of the different institutional mechanisms and the role of university engagement, six semi-structured interviews were also conducted. Interview participants were selected to cover a range of roles within the project including volunteering at the sites, coordinating site management, running the workshops and coordinating the relevant team at the council. All interviewees had attended between 1 and 4 of the workshops. Questions were adapted for each participant to reflect their role but were broadly designed to collect data on: workshop and co-design processes; involvement of the university; and social and environmental benefits of the projects (for protocol see Appendix E). Interviews were recorded (average duration = 32, range = 16–46 min) and transcribed for further analysis. A full summary of the interview results is included in Appendix G.

For interviews and questionnaires, participants were informed that their data was collected anonymously and would be stored confidentially. All data collection was conducted under ethical approval from the University of Exeter (Ref: eCORN002657).

2.3. Data analysis

All quantitative data from questionnaires were inputted to an Excel spreadsheet and descriptive statistics and figures were created using R software (R Core Team, 2020). For qualitative data from both questionnaires and interviews, we chose an open, inductive approach to coding to identify key themes in participant responses (Auerbach and Silverstein, 2003). We conducted open-coding analysis, a process by which thematic codes are generated by identifying themes based entirely on the data (Miles et al., 1994). Initial codes were identified and then data were sorted accordingly, and if data did not fit under an existing code, then a new code was generated. Codes were arranged in a hierarchical system, and re-arranged in an iterative manner, until we were satisfied that data saturation had been achieved (where no new meaning can be gleaned from the data; Bryman, 2016). This coding was assisted by NVivo software (QSR International Pty Ltd, 2020).

3. Results

Within this section, we use data from questionnaires completed with workshop participants and follow up interviews with key stakeholders to outline the findings from our research, including quotes taken from qualitative data generated in the workshop surveys (referred to as data from 'participants') as well as interviews (referred to as data from 'interviewees').

Overall, 112 people were recorded as attending the four workshops, with lower attendance ($n = 17$) at the follow-up workshop in Helston owing to its more specialist content. Most (68%, $n = 79$) completed surveys at the end of the workshop. Demographic groups varied between and within workshops (Appendix F). The age groups of 50–59 (24%, $n = 19$, and over 70 years (20%, $n = 16$), were the most common, accounting

for 44% ($n = 35$) of all attendees. Females (64%, $n = 36$) made up for a larger proportion of participants than males (36%, $n = 20$). On average, participants knew 5.5 ± 4.4 (range = 0–20) other participants in the workshops. These findings indicate the extent to which the workshops were successful in engaging the public. In every case, people came along and they had a clear interest in the green spaces being discussed. Attendees generally lived very close to the site (Newquay 55%, Launceston 40%, Helston 20%) or if not, in the town (Newquay 27%, Launceston 50%, Helston 43%).

Most respondents had visited or used the sites under discussion (Fig. 1), commonly for recreation and fitness purposes, including walking dogs, playing sport and engaging in walking for exercise and wellbeing (Fig. 2). Other uses included enjoyment of nature (including bird-spotting), social (such as meeting up with friends) and as a route to access other spaces.

Motivations for attending the workshops varied between sites. Despite working with an environmentally focused community group in Helston, the motivations for attending the two workshops in this location were still relatively diverse, with people expressing their desire to improve community infrastructure (27%, $n = 8$) and to take positive action for environmental sustainability (17%, $n = 5$) (Table 1). In Launceston, the motivations for attending the workshop were split between being interested in the project/site ($n = 9$), environmental sustainability ($n = 4$) and improving community infrastructure (n = 5). In this location, there was more interest in biodiversity and wildlife. In Newquay, the motivations for attending the workshop were centred around ideas about changes to be made at the site, with 68% ($n = 15$) of participants attending to learn about the project. Participants told us that they wanted to "*find out what was happening*", to "*voice opinion*" and to "*see what ideas people have had about this space*". There were some negative concerns around potential changes to the site and related to local authority management in the past, with one interviewee stating that the event involved "*some fiery debates about the fact that the council had let them down in the past and hadn't maintained things very well in the past, and why would we invest in new stuff without a promise of maintenance*". Only 13% ($n = 2$) of participants stated an interest in environmental sustainability as a motivation for attending and some respondents indicated that they did not want any change (n = 5) or were more interested in using the sites for informal sports and recreation (n = 5).

Overall, the majority (96%, $n = 64$) of participants who rated the workshops said they had enjoyed it. In explaining their answer, positive comments were made about the content and organisation of the workshop, the process of taking part and the project itself. Referring to the workshop itself, 19 made positive comments, including remarks about the facilitation, organisation and discussion. Only 2 negative comments were made, which focused on the duration of the event and the chance to engage their children. A considerable number of participants ($n = 19$) reported that they had enjoyed the workshop because it provided an opportunity for the community to come together, highlighting the social benefits that can come from place-based research activity. For example, one participant in Launceston, reported it was: "*hands on and truly a voice for the community*". Another in Helston stated it has been: "*very interesting to see how a project can be developed*". Only seven people referred directly to the project itself as a motivator for the enjoyment of the workshop, explaining it had been good to harness ideas, opinions and gather support. For example, one Helston participant stated "*exciting start to project. Lots of ideas and energy and new connections*". Following the first workshop, a high percent of participants were interested in coming to a second workshop to explore how to look after and monitor the sites (Helston 83%, $n = 30$, Launceston 80% $n = 20$, Newquay 73%, $n = 22$).

In the follow up workshop in Helston, ideas for how to measure the benefits of the project were gathered from participants. Half of those that responded (n = 3) suggested measuring visitor numbers, but more detailed responses were provided, including tracking engagement across different community demographics and analysing how it changed the quality of life and behaviour of visitors. Understanding behaviour changes such as changes in consumption, e.g. of food and other resources, as well as transport and personal feelings of responsibility towards the climate were also suggested. All participants (apart from one who was moving away) wanted to continue engaging with the project, including monitoring the production of food, changes in wildlife and providing education and outreach based around the site. Most (n = 5) considered monitoring of project impact would help with continued engagement of the community.

The in-depth interviews supported the view that the workshops were a good way to engage the local communities. One interviewee reported that the workshops were better than their traditional consultation processes, as they harnessed a "*lot more detail about how people felt about the spaces*" and "*a much better understanding of the usage of the sites*". A number of interviewees stated that workshops created excitement about the project, and even managed to neutralise initially negative perceptions amongst attendees. This was felt to be a particular bonus for the council led projects, where representatives of local government were challenged on numerous issues, not necessarily related to the current project "*…you could see that they* [councillors and representatives from the council] *were in the firing line on behalf of the entire Council for everything the council might ever have done wrong*". Difficulties in balancing the priorities of different stakeholders was identified as particularly challenging. Interviewees explained that ensuring the priorities of residents living adjacent to the sites were adequately incorporated and balanced with those who didn't live nearby was a key

Fig. 1. Participation responses ($n = 53$) to the question "*How frequently do you visit the site?*"

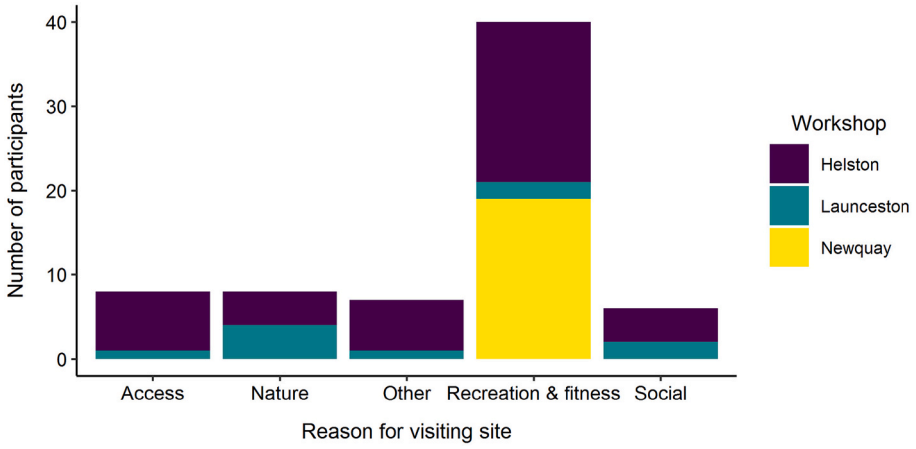

Fig. 2. Participant responses ($n = 69$) to the question "*How do you use the space?*"

challenge. Speaking about Launceston, one interviewee noted "*there might have been slightly more people who weren't residents*". In order to ensure the voices of people living adjacent to sites could be heard, a number of interviewees advocated for conducting engagement directly on sites, and with established community partners. In contrast to this, however, many workshop participants valued the ability to make connections with people outside their usual circle of friends and neighbours.

Given the design of the action research and the provenance of the project in Helston, the workshops organised there were much more likely to belong to a self-organised group (63%, $n = 19$), than in the other locations (Launceston (40%, $n = 8$) and Newquay (23%, $n = 5$)). Our lead partner, South Kerrier Alliance CIC (SKACIC), manages the local park where the project was given space to work but in addition, they had already partnered with the local Incredible Edible Helston group, part of the larger Helston Climate Action Group (HCAG), and agreed they wanted to work together. As a result, our project was supporting ongoing community work and most of the first workshop participants were members of climate and environmental sustainability groups ($n = 14$), although groups designed to tackle social wellbeing issues and cultural organisations were also mentioned ($n = 4$). There was a greater geographical spread of participants in Helston with only 20% of participants living close to the site, 43% in the town and 33% coming from outside the town. However, even in Helston, participants knew on average 5.7 ± 5.3 other participants (range = 0–20), which was similar to other workshops.

In Launceston, the minority of participants who were members of a local community group were part of residents' associations and groups designed to advance environmental sustainability ($n = 3$ and n = 4, respectively). Workshop participants in Launceston were more likely to live close to the site (40%) or in the town (50%) with fewer coming from outside the town (10%), but they knew fewer other participants compared to the other sites (mean = 4.5 ± 2.8, range = 0–12). In Newquay, fewer participants were involved in community groups and memberships that were mentioned (n = 3) were related to sport. Of the participants, 55% lived close to the site, 27% in the town and 18% from outside the town. Participants knew the highest number of other participants at this workshop (mean = 6.3 ± 4.4, range = 0–20), reflecting the number of near-neighbours who attended.

The outcomes from working with self-organised groups rather than newly engaged people were particularly noticeable in the level of engagement after the workshops. In Helston, the Incredible Edible group held additional meetings outside of the workshops and strongly directed the content of the second follow up workshop. The site has since been extensively renovated, involving voluntary work with materials paid for in part by the project. Weekly gardening sessions were organised once lockdown had lifted and were attended by a number of regular volunteers. Interviewees largely highlighted the social rather than ecological benefits from the Helston site, explaining that the projects worked to bring a diverse group of people together, to share experiences and build lasting networks. And as one interviewee told us: "*we built relationships with people who we didn't know at all before and they're not always people who want to be in a group*". The importance of the projects forging social connections has increased during the COVID-19 pandemic, with one interviewee stating, "*it's been a real tonic, through 2020 to have this little garden*".

In contrast, trying to stimulate new engagement, hampered by COVID-19, led to more modest outcomes at the other two sites. The public's ideas have been incorporated into designs and subsequently delivered in both Launceston and Newquay, but organised interactions with the sites have not been sustained. In part, this is because the interventions asked for in Helston were more interactive and the workshop resulted in ideas for an edible garden that could be used and maintained by the local community. It is also due to the culture of service provision in relation to the Making Space for Nature process and delivery. People were used to the council providing services and they did not anticipate self-organising around the provision and management of the sites in the future. Relatedly, the wider Making Space for Nature project team have found that community involvement in the management of sites has been most successful when facilitated by an organised program of events (using a project funded 'urban ranger'), highlighting the need to promote a shift in public engagement.

The importance of working with self-organised groups is borne out by the interview respondents who endorsed Helston as the best model for future projects, due to the willingness and experience of the community partners. This is summarised by the following quotes from interviewees; "*you need to find one or two really motivated people in the community who will facilitate*" and another stated "*there is no way you can replicate or duplicate the existence of a committed group*". The role of the self-organised group proved critical in motivating volunteers and sustaining the site and widening its impact on both societal and ecological goals.

Due to the impact of COVID-19, we were only able to organise a follow up workshop and survey in Helston, and this is where we conducted the second survey that focused in more detail on public engagement in research and attitudes towards working with universities. Of the respondents to the second workshop questionnaire, only 17% ($n = 1$) had engaged with a University of Exeter event previously. All agreed that involvement had helped the project and five provided additional explanations about to how it had helped, with all mentioning funding as a key contribution made by the action research. One interviewee similarly told us that "*the combination of the two workshops, and then the small but really meaningful … 5k capital funding, have given us a definite start.*" In addition, the professional facilitation of the workshop, help in preparing resources and overall coordination of the project were

Table 1
Motivations for attending the workshop given by participants ($n = 72$) when asked the question "*Why have you chosen to come today?*" Multiple motivations were given by individual participants, and all have been included, so total exceeds number of participants. S1 (Site 1) = Helston, S2 (Site 2) = Launceston, S3 (Site 3) = Newquay.

Category of motivation	Description of motivation	Exemplar quote	n	S1	S2	S3
Project-related	Participants expressed their interest in finding out more detail about projects, wanting to be involved and input their opinions. Concerns were also raised concerning what changes the project will cause.	"*Love the idea and want to be involved*" "*To find out more - interested in outcome*"	30	6	9	15
Affiliation with a community group	Involvement with an existing community group that was engaged with the place	"*A member*"	4	4	0	0
Learning and skills development	Participants mentioned they were interested in developing skills and knowledge through the workshop	"*Interested in wildflower gardens - creating one in my own garden*"	4	4	0	0
Environmental sustainability	Participants connected the project to wider issues of tackling climate change and protecting the environment	"*Climate action*"	10	5	3	2
Improving community infrastructure	The need to improve community infrastructure for physical and mental wellbeing of community members was raised. Some participants raised the importance they placed on community projects	"*…making the estate better and hope it can help the community spirit*" "*Community interest*"	15	8	5	2
Personal responsibility	Participants explained they wanted to help	"(to) *help a bit*"	5	4	1	0
Other	Other motivations included occupation of participants, to meet people and what was happening in close proximity	"*Have lived adjacent for 35 years*"	13	5	4	4

mentioned as benefits. One interviewee also highlighted the university's role as a "neutral" partner, stating "*some people are a little apprehensive about schemes that councils put forward… having the university on-board and the research* [process] *… gave it far more credibility*". As another interviewee in Helston put it, "*This (project) worked particularly well, because it was like a three-pronged thing of the landowner, the motivated locals and the university facilitation*".

All workshop participants and interviewees agreed that the university could play a role in monitoring the potential benefits provided by these projects, explaining that community stakeholders often don't have the time or resources to evaluate the work that is done. One interviewee also highlighted that particular expertise would be beneficial, explaining that one community group "*wanted to do something but weren't sure what*".

Interviewees identified improvements for doing this kind of work in future, including ensuring timescales for funding and engagement are aligned and communicated better across partners. They also noted that communication is key, and that setting expectations for project roles at the start is difficult, but highly beneficial. In this regard, the need to recognise the different but overlapping interests of partners is particularly important, most obviously in relation to the fact that "*universities need to understand that we have to practically deliver stuff*", as one interviewee remarked.

It is clear that the role of the university was important in organising and providing facilitation at the workshops, and in funding part of the project work that was undertaken in Helston. We only just began to discuss the ways in which the public could be engaged in ongoing research and monitoring of change at the sites before we had to stop further engagement due to the legal restrictions introduced as a response to COVID-19. As such, our findings about the wider implications of PBAR for universities was rather curtailed but we explore our experience in relation to the published literature on this topic in the discussion section below.

4. Discussion

4.1. To what extent can public workshops successfully engage people living in poorer places in co-producing and co-designing local improvements?

Our case highlights the potential to use one particular method (the public workshop) to allow two groups of people (researchers and practitioners) to engage with another (the interested public) to collate ideas about place-based interventions in local communities. The place-based workshops, relating to sites that community stakeholders were already heavily invested in through prolonged and regular use, e.g. for recreation and wellbeing purposes, encouraged people to attend the events. While we did not expressly collect data about participants' socio-economic status, the characteristics of the sites, particularly in Launceston and Newquay (small in size, fewer facilities and no car parking) ensured that the interested audience was drawn at least in part from the local area and represented local communities. Our project provided an opportunity for engagement that would normally not have happened. The workshops were well attended, and not necessarily by people with an existing interest in climate change and biodiversity. Even in Helston, where our workshop was organised in partnership with an offshoot of the local Climate Action Group, the environment was not the sole motivation for attending. This highlights the utility of engaging with complex topics such as environmental sustainability in a very local and practical fashion. There was certainly scope to build on the workshops to support further engagement in monitoring the impacts of interventions and in Helston, where we were able to hold the second workshop and ask participants about this ongoing work, as almost all expressed a willingness to be involved, although this was at the most 'environmentally engaged site' of the three.

Our results reaffirmed the considerable value of even relatively small sites, in offering both social, such as social connection, and environmental benefits, such as habitat restoration (Firth et al., 2011; van den Bosch and Sang, 2017). Social impacts identified included allowing people to benefit from nature spaces and sharing skills and knowledge between community members. The project identified this as a key potential area for long-term engagement of universities, in providing expertise and support for monitoring of social and environmental benefits that would, in turn, help to support ongoing public engagement.

This work would augment research to understand the benefits and scalability of small-scale NBS which has, so far, focused mainly on areas in metropolitan locations (Dick et al., 2020). Evidence of benefits is needed across contexts, such as in the small towns chosen for this research. However, our study also highlighted the possible constraints placed on ecological priorities when engaging in co-design, due to community priorities which may focus on social aspects, such as safety and amenity value. This tension between the demands of the public and the requirements of climate mitigation and biodiversity renewal is something that is likely to grow in importance in future.

4.2. What difference does working with self-organised groups rather than newly-engaged publics make to the process and outcomes?

This study offered a comparative view of how community-based sustainability action develops when led by local authorities that are seen to offer a service, in contrast to cases that are driven by the community. In Helston, access to land and human resources allowed the local community to set their own agenda for change, and to bring the university on board to complement their ambition. Our project provided additional resources, via the facilitated workshops and limited funds to support the new community garden, but the work was directed and driven by the community group. This differs from the Launceston and Newquay projects that were determined through dialogue with elected representatives from the unitary and town councils, were completed on council-owned land, and were paid for by European funding administered by the unitary council. This approach has enabled delivery of large-scale funding across multiple towns in a relatively short time period, with relative certainty of outcomes, as is required by this funding model. However, the community were consulted only after key decisions such as the areas to be improved, and the parameters of the funding, had already been made. This may result in a mismatch between the needs of the community and what could be offered; for example, the lack of a community space at one site was highlighted both by interviewees and a workshop participant who was a community leader, but this could not be delivered under the agreed funding stream. As such, our research provided resources for council officers to engage the public in shaping change in more depth, and demonstrated the potential of a more 'relational state', where power is devolved to local organisations, and the public have more autonomy over decisions concerning public services (Muir, 2014), even if it is not always possible to apply this approach.

Findings from Helston highlighted the power of devolution to provide the resources and additional motivation for community action. The project was undertaken in a park that was managed by an independent community group, allowing them to provide space to a newly-formed community organisation (Incredible Edible Helston) to create a new garden as an exemplar for others they planned in the town. Over the last decade, the political and financial impact of the move to unitary status combined with austerity has encouraged Cornwall Council to develop an ambitious programme of asset transfer to new community organisations as well as town and parish councils. Hundreds of local assets like libraries, parks, community centres and public toilets have been devolved to save money, widen ownership and management in ways that facilitate greater public engagement, and improve service provision (Wills, 2020). This makes it easier for communities to lead local projects in their locality, with profound implications for pioneering new sustainability solutions at the very local scale (Turner et al., 2021). While the devolution agenda and community land ownership had set the stage for a successful project in Helston, however, the work there also benefitted from of the energy and leadership of key individuals with skills, knowledge and interest in completing the work.

Even beyond devolution and control over land, the meaning and value attributed to the sites where we worked was particularly important in mobilising people to attend the workshops. The near neighbours played a particularly important role in each workshop, speaking up for what were seen as 'their spaces'. However, the project also highlighted the limits of this approach for engaging the public in the bigger tasks of ongoing research and support for the site. We found that it was only self-organised groups that had the capacity to do this, and our project supported them, rather than the other way round. It would require more sustained engagement and support, beyond the current resources available to the local authority, to develop this kind of action around sites that don't already have self-organised groups.

4.3. What is the role and implication of universities undertaking place-based action research and public engagement in this way?

Our work shows how universities can assist in realising the benefits from place-based interventions. Even in Launceston and Newquay, where the project was driven by the local authority, the workshops were widely perceived to be successful, with attendees valuing the learning and skills they developed, as well as the new site designs. During the interviews, there was a broad consensus that the 'neutral' role of the university was extremely useful and that university involvement enhanced long-term project viability, by encouraging local interest, facilitating co-development of site plans, connecting the activity to wider academic and policy debate, and providing some funding (for Helston). The project demonstrated the value of greater public engagement in shaping the council's provision as well as the wider benefits of working with the university team.

In this regard, our study contributes to understanding the role of universities in further development of PBAR that harness community engagement for both knowledge and action. Specific roles for universities could include fostering lasting relationships between communities and wider stakeholders (such as landowners or council officials) and building the capacity of community organisations. Volunteers engaged in the Helston project were highly motivated, self-organised and had experience in working with a range of stakeholders, all of which enhanced project success. Enhancing community-based action is identified as key for advancement of contemporary policy and research designed to mitigate the climate and biodiversity crises (Albert et al., 2021). Universities could, therefore, aim to identify and enhance existing capacity as a key priority, as well as conducting ongoing research that would add to wider understanding of motivations, benefits and challenges for community-engagement in PBAR, which is a key area of academic debate (Howarth et al., 2021). There is scope to do this from within as well as outside the state and official governance structures.

However, our study identifies necessary shifts within university culture for successful working within communities in these small-scale projects. For example, rigidity in time-scales, including time to spend allocated funding, was identified as partially incompatible with community-based projects, which will progress at different speeds. Interviewees identified the need for clear communication and setting of expectations around project roles, and the importance of long-term commitment for maximising success. Commitment to building long-term relationships and the co-creation of research goals and outcomes is not hard-wired into institutional and individual academic thinking and practice. Outputs from localised place-based action research projects that may be co-produced with communities, are often not widely valued in terms of institutional assessments of knowledge or academic impact, rendering them less desirable than other forms of research. In addition, in relation to ecological interventions like ours, academics have tended to avoid urban environments, in favour or more natural habitats, where the opportunities for data collection are richer (Collins et al., 2000; Wu, 2014). A shift is also required in designing funding, so that universities can engage in longer term projects without being beholden to pre-determined objectives and actions. The site in Launceston may have benefitted from this approach, as the targeted funds could not support the key community need, which was for a new community centre to be built on the estate.

By adopting a place-based approach, universities can situate themselves at the critical intersection of contemporary socio-ecological

challenges that demand renewed efforts in research, policy and collective action. At a national level, policies are being reformed to acknowledge geographical differences between local areas, and there is growing support and action for greater devolution, decentralisation and localisation. PBAR offers a way to engage communities in collective learning that reflects local priorities and agendas and therefore contributes to the development of locally-appropriate policies and outcomes (Beer et al., 2020). As well as enhancing these top-down processes, PBAR can enhance complimentary bottom-up approaches, such as building civic infrastructure, skills, capacity and social capital (Harney et al., 2016; Wills, 2016). Currently, there is an emergence of community movements aimed at targeting both social and environmental issues and a growing recognition of the power of local, collective action. COVID-19 has highlighted, for many, the importance of their local areas and reinforced their respective values (and challenges) (Devine-Wright et al., 2020; Geng et al., 2021). Developing local environmental interventions offer a way to contribute to this agenda and engaging in PBAR is a way to prioritise citizen voice, and harness sentiment and action for sustainable futures, in ways that are sensitive to the value of social inclusion. Similarly, it has the potential to drive innovative change in research and knowledge production, shifting academic focus to the needs and voices of the community (Dewey, 1954; Wills and Lake, 2020).

While our project helped to build relationships between the public and the university staff and partners, this form of public engagement was insufficient to change community dynamics in Launceston and Newquay. Although they engaged in the workshop, sharing their ideas, the public expected the 'experts' (the research team and our professional partners) to analyse any data and to ensure that the promised changes took place. This, in part, may reflect the interests and needs of the communities in question which were less well-aligned with project goals. For these places, this project represented the start of a process that would be required to shift the extent to which academic knowledge production better represents poorer people and places. Continuing this process is hampered by the need for existing project funding (usually with a specific aim) to allow time 'on the ground' interacting with people to understand their needs and build trust, and lack of a mechanism for two-way communications where communities can express their interests and needs to researchers. Any solution requires supporting academic scholars who are committed to: producing knowledge that better reflects the interests of people living in poorer locations; working with any self-organised groups on the ground; and allowing the University system to celebrate this approach.

5. Conclusion

Our action research project identified that facilitated place-based workshops focused on making socio-ecological improvements to urban green spaces provided a successful way to engage people living in poorer places in co-producing change. By taking public engagement to where people live and providing material benefits to local communities, it was possible to engage the public in debate about change and to start to develop the relationships that could allow us to co-produce interventions for biodiversity renewal and climate mitigation. Responding to the needs of established self-organised groups is likely to result in better long term outcomes than trying to organise from scratch, although the project highlighted the differences between areas and their social dynamics, indicating that there is no 'one best way' to organise co-production workshops. The project exposed the value of university engagement in facilitating the co-development and co-production of solutions by working in partnerships, for longer term change, albeit also raising challenges about the culture and practices of university research in this regard.

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CRediT authorship contribution statement

Claire Collins: Data curation, Visualization, Writing – original draft, Writing – review & editing. **Rosalind F. Shaw:** Conceptualization, Methodology, Funding acquisition, Project administration, Writing – review & editing. **Jane Wills:** Conceptualization, Methodology, Funding acquisition, Project administration, Writing – review & editing.

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Appendix A

Details of workshop locations, including partners for each location and pictures of sites

	Helston	Launceston	Newquay
Date and time	Saturday 8th February 2020, 11 am – 1 pm	Saturday 29th February 2020, 11 am – 1 pm	Saturday 14th March 2020, 2 pm – 4 pm
Partners	South Kerrier Alliance CIC, Incredible Edible Helston, Helston Climate Action Group	Cornwall Council, Cornwall Housing	Cornwall Voluntary Sector Forum, Treehouse Newquay CIC
Venue	Old Cattle Market, Coronation Park, Helston, TR13 0SR	St Thomas Church Hall, Riverside, Launceston, PL15 8DH	Towan Blystra Road open space, Newquay
Venue proximity to site	Hall adjacent to site	0.5 miles to site	On site in marquee
Picture of site			

Appendix B

Table to show ideas for sites given by participants during the workshops

Workshop	Category	Idea	Example
Helston	Social	Volunteering	Regular volunteer groups established, caring for the garden.
		Education	Online forum and educational resources
		Social wellbeing	Garden using for relaxation, including benches
			Harvesting produce to reduce food poverty and educate people on sustainable eating
	Infrastructure	Green infrastructure	Planting to ensure year-round greenery
			Infrastructure to encourage wildlife
		Physical structure	Spaces, e.g. sheds, to store tools and equipment
		Sustainability	Building sustainable infrastructure
		Access	Infrastructure designed to permit access for all
			Educational and child-friendly infrastructure
	Environmental	Biodiversity	Improvements in insect diversity and abundance
Launceston	Social	Social wellbeing	Recreation opportunities including play areas
			Relaxation opportunities, including areas to sit and walk
		Education	Opportunities for learning amongst children
	Infrastructure	Green infrastructure	Natural infrastructure, e.g. paths made from natural materials, treehouses
	Environmental	Biodiversity	Restoration and increased habitat provisioning for mammals and birds
			Restoration of natural habitats
			Introduction of natural flood defences and irrigation strategies
			Reduce food transport miles through locally grown produce
Newquay	Social	Volunteering	Project for community service volunteers
	Environmental	Biodiversity	Increased greenery
			Habitat restoration through decreased maintenance
			Habitat provision for birds

Appendix C

Table to show questionnaire given to workshop participants after the first session. Where location is specified, this indicates where questions were included. Where '[site name]' is written, the site name was included.

Question	Question type	Data type
What is your postcode?	Open-ended	Qualitative
Where do you live?	Open-ended	Qualitative
Newquay and Launceston		
Are you involved in any community groups in the town?	Closed (Y/N)	Binomial
If yes, which ones?	Open-ended	Qualitative
How did you find out about this event?	Open-ended	Qualitative
Why have you chosen to come today?	Open-ended	Qualitative
How many other people here do you already know?	Open-ended	Qualitative
Are there any people or groups from the community who aren't here today but who should be involved?	Open-ended	Qualitative
How often do you visit [site name]?	Closed	Likert-scale (More than once a day to Never)
How long do you spend at the [site name] when you use it?	Open-ended	Continuous (minutes)
What do you use the [site name] for?	Open-ended	Qualitative
Did you enjoy today's workshop (please explain your answer)?	Open-ended	Qualitative
What was the most exciting idea you heard at the workshop today?	Open-ended	Qualitative
Age	Closed	Categorical (8)
Gender		
What is your residential status?	Closed	Categorical (5)
Is there anything else you would like to tell us about the park/green space or the event today?	Open-ended	Qualitative
We hope to organise a follow up workshop to explore how to look after the site in the future. Would you be keen to attend?	Closed	Categorical (3)
Do you have any experience of growing plants, now or in the past?	Closed	Categorical (3)
Newquay and Launceston		
If you selected Other, please specify	Open-ended	Qualitative
Newquay and Launceston		
Would you like to get more experience of growing plants?	Closed	Categorical (3)
Newquay and Launceston		
If you selected Other, please specify	Open-ended	Qualitative
Newquay and Launceston		
Were you aware that you could use natural interventions (trees, wildflowers) to reduce some of the impacts of climate change?	Closed	Categorical (3)
Newquay		
If yes, what do you think about these ideas?	Closed	Categorical (3)
Newquay		

Appendix D

Questions included in questionnaire given to workshop participants after the second session. Where '[site name]' is written, this was replaced by individual locations.

Question	Question type	Data type
Is this the first or second workshop in this series you have attended?	Closed	Categorical (2)
What is your postcode?	Open-ended	Qualitative
Why have you chosen to come today?	Open-ended	Qualitative
Do you have any experience of growing plants, now or in the past?	Closed	Binomial (Y/N)
Would you like to get more experience of growing plants?	Closed	Binomial (Y/N)
When you think about this community project at [site name], what do you think the main benefits will be for the environment and for the community?	Open-ended	Qualitative
How do you think you could measure benefits for the community?	Open-ended	Qualitative
How do you think you could measure benefits for the environment?	Open-ended	Qualitative
What, if any, monitoring of the new space at [site name] would you be willing to do?	Open-ended	Qualitative
What help would you need to record changes at [site name]?	Open-ended	Qualitative
Do you think being involved with monitoring the changes will make people more likely to look after and use the space?	Open-ended	Qualitative
Have you attended any events run by the University of Exeter (Penryn) before these workshops (for example outreach events, professional events, talks)?	Closed	Binomial (Y/N)
If you have, which events have you attended, and what did you think about them?	Open-ended	Qualitative
Do you think having the University of Exeter (Penryn) involved in this project has made a positive difference to the activity/outcomes?	Closed	Binomial (Y/N)
When you think about the way that supporting nature can help to mitigate climate change, what comes to mind?	Open-ended	Qualitative
What aspects of nature-based climate mitigation would you like to hear more about?	Open-ended	Qualitative
Did you enjoy today's workshop? Please explain your answer	Open-ended	Qualitative
What was the most exciting idea you heard at the workshop today?	Open-ended	Qualitative
What is your age?	Closed	Categorical (8)
Gender	Closed	Categorical (2)
What is your residential status?	Closed	Categorical (5)
Is there anything else you would like to tell us about the space, the research or the event today?	Open-ended	Qualitative

Appendix E

Protocol, including questions posed, for semi-structured interviews conducted with project stakeholders

Question category	Questions
Workshop process and community engagement The following questions relate to the workshops conducted at each site and how they were used to engage the community.	• How do you think having the workshops impacted on the projects? • Explain how the site plans from the workshop were used in developing the sites? • Are there any improvements to the workshops you can identify? • Similarly, do you have any future plans (or ideas) for other ways to engage the community in co-designing and planning spaces?
Working with the university The following questions relate to how working with university partners can help community-based projects.	• What impact did university involvement have on the project? • What are the benefits of working with a university in this, and other, projects? • Any potential negatives, or areas for improvements? • Describe potential motivations for working with universities going forwards? • What are the potential benefits of longer-term engagement of universities in similar projects?
Social and ecological/environmental impacts The following questions relate to potential impacts of the project, including social and environmental impacts. These questions may be slightly more difficult for some participants to answer, but any answers are good!	• Please explain any potential impacts on social wellbeing for the community? • Similarly, have any positive ecological impacts been noted? • Is there any monitoring of such impacts? Or any plans to do so? • Are there any challenges to monitoring both social and ecological impacts? • Any opportunities to overcome these challenges? • In what ways might university involvement be useful in measuring social and environmental impacts?

Appendix F

Table showing demographic information for workshop participants collected from questionnaire data. Percentages are expressed as proportion of completed answers received for each factor

	Initial workshops			Follow-up	Totals
	Helston	Launceston	Newquay	Helston	
Attendance	39	22	34	17	112
Survey completion	30 (77%)	20 (91%)	22 (65%)	7 (41%)	79 (68%)
Age (years)					
Under 20	0 (0%)	1 (5%)	5 (23%)	0 (0%)	6 (8%)
20–29	1 (3%)	1 (5%)	0 (0%)	0 (0%)	2 (3%)
30–39	2 (7%)	4 (20%)	2 (9%)	1 (14%)	9 (11%)
40–49	7 (24%)	1 (5%)	4 (18%)	2 (29%)	14 (18%)
50–59	8 (28%)	6 (30%)	3 (14%)	2 (29%)	19 (24%)
60–69	7 (24%)	3 (15%)	1 (5%)	1 (14%)	12 (15%)
Over 70	4 (14%)	4 (20%)	7 (32%)	1 (14%)	16 (20%)
Gender					
Female	9 (75%)	11 (58%)	11 (61%)	5 (71%)	36 (64%)
Male	3 (25%)	8 (42%)	7 (39%)	2 (29%)	20 (36%)
Residential status	5 (17%)	1 (5%)	2 (9%)	3 (43%)	11 (14%)
Private tenant	2 (7%)	4 (20%)	0 (0%)	0 (0%)	6 (8%)
Council tenant	20 (69%)	13 (65%)	15 (68%)	3 (43%)	51 (65%)
Homeowner	0 (0%)	2 (10%)	5 (23%)	0 (0%)	7 (9%)
Living with parents	2 (7%)	0 (0%)	0 (0%)	1 (14%)	3 (4%)

Appendix G

Summary of analysis of qualitative data taken from interviews (n = 6) with stakeholders engaged in projects. Description of each identified theme are included, as well as illustrative quotes to contextualise meaning.

Main theme	Sub-themes	Description	Illustrative quote
Place-based research and engagement	Context	Importance of individual context of each place in shaping individual study processes and, more broadly, NBS as a whole	"*I don't think people understand that it's not an individual thing, but a wider community thing*" "*There was a real antagonism towards us, so they didn't want wildflowers or trees, they just wanted the grass cut, they were very vocal and demanding*"
	Local engagement and sentiment	The role of values and attitudes in interacting with engagement with projects and community-action	"*Because we didn't have many people from the estate. It was perhaps harder for them to generate inspiring, fun, creative ideas*" "*In terms of overall plan for the area they were very positive that Cornwall Council was taking an interest in their deprived area and looking to do something positive with it*"
The state and cultures of community engagement	Community action	Attitudes towards communication action concerning small-scale projects and understanding of the benefits and its potential role	"*the learning from that is that you really need to find one or two really motivated people in the community who will facilitate and drive it forward*" "*I have been doing this for years and years and years and there is no way you can replicate or duplicate the existence of a committed group*"
	Devolution incl. Comparisons between state-led and community-led	Insights concerning transfer of management of community assets, such as green spaces, to community groups and opportunities and challenges	"*The three-pronged thing of the local community group, who wanted to do something but weren't sure what, the university with the funding and the support, and we, (the community CIC), who had the control of the land So, you know, the landowner, the motivated locals and the university facilitation, worked really well*" "*Because the other option is when, when it's tenant led or community led, so they're actually planning to do the improvements, they can be very successful but there is still the question of what happens when they move on with maintenance*"
	University role in community engagement	The potential role, and benefits, of universities in engaging communities in projects	"*It wasn't just a matter of providing the resources, it was providing the motivation for it, so someone who is willing to support you and has the resources to do it*" "*The councillors who turned up you could see that they were in the firing line on behalf of the entire Council for everything the council might ever have done wrong. They were the public face*"
	Environmental and social benefits	Discussions regarding the potential and observed environmental and social benefits of projects	"*incremental improvements are really important*" "*Whereas, in the other two sites, there was much more focus*

(*continued on next page*)

(*continued*)

Main theme	Sub-themes	Description	Illustrative quote
Nature-based solutions for social and environmental challenges			*on still being able to use the space for recreation, even if it was also beneficial for pollinators, or for climate change*"
	Monitoring and research	Information regarding the role of universities in monitoring NBS, including offering expertise, resources and collecting data regarding their scalability	"*We don't keep statistics as such, it is just qualitative feedback and there has been a lot of positivity, from the public…. That might be something that would be worth the university looking at, at some point of time*"
Future role and recommendations for University-community engagement	Partnership and engagement	Recommendations and comments on engagement of universities within community action	"*I guess it's all about a conversation at the start, where you have a particular funding for a particular thing and we and we've got to try and hold this project*"
			"*I think someone needs to oversee these, whether that be a community project, or the university, or Cornwall council*"
	University role	Opportunities for university engagement in different capacities with similar projects going forwards	"*I think it gave it more credibility in terms of planning, strategy and all of those kinds of things, and knowledge as well*"
			"*I think they still really appreciated having that independent person, so that they could contribute rather than being caught up in having to chair the discussions*"
	Workshop and co-design process	Observations of effectiveness of workshop and overall project processes	"*they definitely worked…we normally do consultations, but we do them with smaller groups…the fact that we had a team, inputting different views, that helped massively. It allowed us to interrogate people more fully, in terms of the whole process*"
			"*publicising it and tailoring it, so in terms of publicity, I don't think posters or newspaper articles are enough. If you've got local people who are the community leaders in that area, you need them to be going out ideally with you and knocking on doors*"

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