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Meaningful engagement: an approach to healthier urban development and planning

Siân Peake-Jones University of Manchester Orcid 0000-0002-3251-9187

(main and corresponding author sian.peake-jones@manchester.ac.uk)

Anna Le Gouias University of Bristol Orcid 0000-0002-3800-2090

Abstract

Although there is substantial evidence of the connection between aspects of the urban environment and poor health, there are also challenges to translating that knowledge into change in urban development practice. Applicable knowledge, generated by academics, policy makers and practitioners, is failing to translate into long-term sustainable reduction in preventable disease. It is accepted that there is a wide range of political, economic and organisational challenges that manifest as real-world difficulties for translating knowledge into practice, including limited resources, competing interests, and complex and entrenched processes.

However, embedded research is being used to help understand and navigate some of these difficulties by attempting to facilitate better connections between research and practice. Here, we consider the opportunities and limitations of this approach by reflecting on experiences of researchers in residence in two urban areas in England - Greater Manchester and Bristol. We examine the challenges of using health-related knowledge to enhance the uptake of evidence in these dynamic and complex urban development and planning settings.

We explore how drawing on academic research and aligning this with meaningful engagement of practitioners in an action-learning approach to preventable disease reduction, can be assisted by co-developing actions. Building on our case study experience we present a hybrid-collaborative model designed to illustrate the collaborative, iterative and context specific dimensions of action orientated research. We suggest that this approach optimises the opportunity to use research and evidence to support more sustainable change required to improve urban health.

Introduction

The paper is an attempt to respond to the in-practice difficulties of exchanging and embedding academic research related to health in the complex urban development policy and decision-making area (McGinity & Salokangas, 2014). We reflect on two case studies that use a 'researcher in residence' approach in which academic researchers are embedded in practitioner teams to facilitate exchange between research and practice. We identify the challenges that this approach has highlighted, including the complexity and dynamic nature of the problem area, differences across academic disciplines, the wide number of actors who ought to be involved and the difficulty of applying research to effect long-term change rather than a succession of interesting pilot projects. The paper illustrates how this hybrid-collaborative approach accommodating action-research and

more traditional research practices, has been developed to optimise knowledge exchange in the English Greater Manchester and Bristol urban areas.

Background to health and the urban environment

The characteristics of the urban environment have been known to be closely related to population health for well over a hundred and fifty years. John Snow famously traced the London cholera outbreak in 1854 to a single contaminated water pump, resulting in a revolution in public health and sanitation infrastructure. More recently, attention has focused on the environment as a key determinant of health. Dahlgren-Whitehead's "rainbow" model of the determinants of health is a widely recognised example (Dahlgren & Whitehead, 1991,p.1), but their recent review makes clear that remedial progress has been extremely limited and "concerted effort" is still required to tackle health inequalities associated with the environment (Dahlgren & Whitehead, 2021, p. 24). The Marmot review on tackling health inequality established the critical role of developing quality sustainable places to improve health outcomes, yet there was a significant lack of progress ten years on (Marmot, 2020; Marmot et al., 2010).

Extensive research has created evidence of the many ways the built environment influences fundamental aspects of everyday life, both directly and indirectly (e.g. Carmichael et al., 2012; Pineo & Moore, 2022). For instance, the ability to walk or cycle safely impacts on health in many ways through physical activity levels, air quality and mental wellbeing (Jacobsen et al., 2009; UK Chief Medical Officers', 2019). The benefits of green spaces and street trees include improvements to population mental health, increases in the propensity to exercise, reduction of the impact of extreme temperature fluctuations, and improvements to air quality (World Health Organisation, 2016). The location and accessibility of social infrastructure, such as medical and leisure services, are also known to directly affect health (Mackett & Thoreau, 2015). The proximity of affordable fresh food outlets support health and wellbeing and conversely the nearby proliferation of unhealthy food outlets negatively impacts on health (Dixon et al., 2007; Keeble et al., 2019). The location, type and quality of housing is also inherently connected to health (Thomson et al., 2013). Health outcomes can therefore be directly affected by the approach to planning and the design and creation of urban spaces.

However, this knowledge and research appears to be failing to translate into population health improvement and into addressing the health inequalities associated with place-making (Dahlgren & Whitehead, 2021; Marmot, 2020). The influences, causalities and deficiencies that lead to this position are complex and include politics, economics and significant organisational issues (RTPI, 2020). How knowledge is used and applied plays a critical role within these areas through unlocking how decision-making in favour of healthier place development can be pursued effectively (Black et al., 2022). This is the purpose of the following approach and model.

Research method

We rely substantially on the experiences of two researchers in residence based in Greater Manchester and Bristol, which are part of the TRUUD ("Tackling Root causes Upstream of Unhealthy

Urban Development') project. The project was established to improve understanding of decision-making in urban development, how that might result in healthy or unhealthy place-making, find ways to influence healthier decision-making, and create and evaluate a set of practical, knowledge based, interventions. It is a 5-year project (October 2019 to September 2024) involving around 40 researchers with a wide range of expertise including public health, planning, transport, urban development, economics, policy studies, public involvement and systems engineering across six UK Universities (Black et al., 2022). Phase one of the research included a large-scale in-depth qualitative interview survey which the researchers in residence were involved in, interviewing 132 stakeholders from different sectors and types of organisation involved in urban development decision-making from across England (Bates et al., 2023).

The researchers in residence were appointed to bridge the gap between academic research and practice, an approach that involves being purposefully located in the workplace amongst practitioners (Gera, 2012; Lomas, 2007). Introducing an academic into the practice operational setting responds to the 'ivory tower' criticism of the inaccessibility of academic research to connect more effectively with practitioners (Marshall, 2014). Being present within a partner organisation, such as a local authority, researchers have improved access to decision-making stakeholders and opportunity to appreciate the perspective of those who would use or benefit from research (Cairney & Kwiatkowski, 2017). Involving researchers in residence is an increasingly common approach, especially in health and education related settings, but it is still novel in urban planning and development. Given the nature of the issues connecting health and urban development, the approach has important potential to investigate wider causalities and to influence decision-making (Le Gouais & Peake-Jones, 2022; Marshall et al., 2014).

By embedding the researchers in residence in GMCA and BCC urban area teams, the TRUUD project aimed to engage the actors involved in shaping decision-making in urban planning and development within the two case study areas. This would help map and understand the systems of urban development decision-making with, and for, stakeholders (including the lay-public). The project sought to co-produce, implement and evaluate interventions that would enable the creation of healthier places. Understanding 'intervention complexity' (Thomas, et.al., 2022) as referring to the urban development policy and decision-making system within which an intervention is introduced, the TRUUD interventions were intended to be targeted at critical points of leverage within the urban development system. These leverage points constitute opportunities and mechanisms for change identified and tested with users and stakeholders to improve policy and decision practice. A priori project aims also included demonstrating health impacts associated with changes to the built environment, including modelling health economic valuations; development of citizen-led, professionally curated creative outputs to communicate health inequalities from those with lived experiences; and delivery of a knowledge exchange programme with a broad range of users and advisors to ensure long-term health improvement beyond the five-year TRUUD programme.

Through exploring the embedded research approach within the TRUUD project in the paper we examine how learning from this can be used to support more meaningful and effective engagement between researchers, policymakers and practitioners.

The research in residence case studies

The two case studies were conducted in English subnational urban government areas. Local authority councils in England have responsibility for the planning and oversight of urban development within their area. Some wider metropolitan areas comprised of several neighbouring local councils, have formed a higher tier Combined Authority (CA) with urban strategic responsibilities. CAs are led by an elected Mayor and rely on close working relationships with their component Local Authority Districts (LADs). One of our two case studies is situated in the Greater Manchester Combined Authority (GMCA) and its strategic transport authority, Transport for Greater Manchester (TfGM).

Agreement was reached in Greater Manchester to focus the TRUUD research on the city-regional healthier streets initiative - "Streets for All" - which was at an early development stage, to support the development of the initiative. The researcher in residence connected with the policy partners, GMCA and TfGM, through participating in research as well as working closely with academic colleagues in the University of Manchester's Planning and Environmental Management and Public Health departments and across the wider TRUUD research team. The researcher in residence takes part in facilitating knowledge exchange events such as consultation workshops, alongside interviewing and data analysis. Other activity includes one to one meetings and regular briefings about the TRUUD project to policy partners and updating policy partners on the progress of the research into urban development, planning and health. She has identified three areas of focus: helping to enhance the quality and impact of health measures using the latest academic research; identifying opportunities for systemic change to effect health equality; and supporting the creation of tools and visualisations that can aid healthier decision-making.

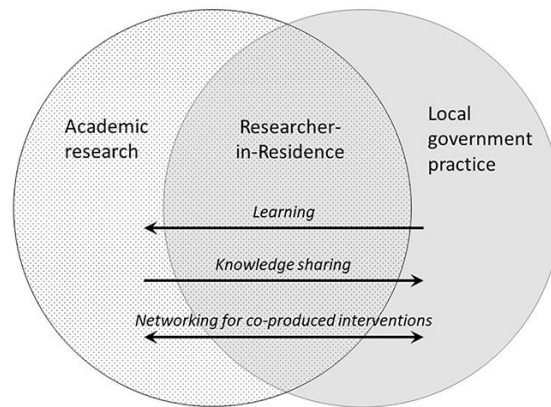
In Bristol, the researcher in residence is embedded within the BCC Regeneration team, while also working closely with the BCC Planning Policy and Public Health departments. Collaborating with local government colleagues, she has been able to identify three opportunities where the TRUUD project is able to support the Council's objectives and support healthier place-making. By working on a live regeneration project in the city she has helped to identify where health evidence can be used and continues to evaluate the impact of this intervention. The regeneration project has also provided the opportunity to evaluate early-stage public engagement approaches to support inclusive engagement in urban development by a diverse public. She has also been able to facilitate a health and local plan review by aligning research with windows of opportunity (Kingdon, 2010; Planning Inspectorate, 2022) for the City Council to influence healthier local planning policies (Callway et al., 2023).

The priorities of both case study host organisations were initially identified through observations and discussions by the researchers in residence, and the case study projects were jointly agreed. The TRUUD large-scale qualitative in-depth interview survey (Bates et al., 2023; Le Gouais et al., 2023) also informed the approach. The findings from the interviews were presented and discussed with the case study host organisations and their reflections helped to agree and refine an approach for further joint working and research.

Whilst being located in different settings and responding to their problems in different ways as appropriate, the TRUUD researchers in residence have also developed valuable commonality in their roles as illustrated in Figure 1. With the aim of facilitating learning and knowledge exchange and identifying and supporting interventions, the scope of the researcher in residence role includes both academic work and work in the host organisations. The researchers have regular discussions with practitioners and stakeholders and attend a variety of fact finding and decision-making meetings. They have formal connections within their host organisations through line management and team structures, while also being connected to a network of academic colleagues. The most critical

element of this is that they have regular working relationships with practitioners in the host LAD or CA organisations as well as with researchers in universities.

Fig 1: The multiple roles of the researcher in residence



(Le Gouais & Peake-Jones, 2022)

Using evidence in urban development

It was evident from the interviews conducted during the first phase of the TRUUD research, that health considerations, whilst well understood, were not routinely embedded in everyday practice in urban development systems (Le Gouais et al., 2023). This observation influenced the focus of the researcher in residence role towards advocating and facilitating impactful knowledge exchange.

The urban development process is an outcome of the balancing of many interests, perspectives and priorities that are constantly changing and subject to political imperatives and fashions. As one practitioner told us:

“health is not quite at the forefront of what we talk about, I genuinely don’t think that’s a factor in decision-making at the moment at all, it’s not something that’s ever talked about really” - Local government, transport and planning.

A simple knowledge transfer model assumes that there are two communities: practitioners and researchers, that fail to adequately relate (Cousins & Simon, 1996; Phipps & Morton, 2013). Marshall et al (2014) refer to a “pushing” of knowledge from research and a “pulling” of knowledge from policy makers and practitioners, with neither force working very effectively. Reflecting that practitioner and researcher communities will each have specific terms of reference and perspectives of what is important, the researcher in residence rests in this in-between space. Knowledge exchange and knowledge brokering literature refer to iterations of the brokering of knowledge such as identifying and bridging gaps (Frost et al., 2012). Others suggest that rather than concentrating on bridging, which implies two communities (academic and practitioner), it makes more sense to focus attention on the shared space in the middle, the space for collaboration, intimating a more complex and interactive process (Morton & Nutley, 2011; Phipps & Morton, 2013).

Effective, impactful knowledge exchange benefits from a better understanding of the complexity of the specific setting where the knowledge needs to be used (Skivington et al., 2021). For instance, in the case of urban development and planning, understanding the context requires an appreciation of the actors involved, the organisational relations and processes. Considerable navigation is required

through the many layers of responsibilities, departments, organisations, priorities, stakeholders and multiple interacting elements. This complex context is reflected in the following account from an interviewee:

“you have to work with so many different people. You know, planning, urban design, transport, economic development, leadership, senior leadership within the organisation, members. You have to work effectively with community development, employment and skills, so there’s a raft of multidisciplinary services that you need to be linked in with. And also, funding is key, so nothing can happen without the money, so wherever your funding sources coming from externally. Then the next layer, once you’ve done internally, is the community, stakeholders, businesses, partners. Then there’s statutory stakeholders, the next layer, so Environment Agency, Homes England, ((Combined authority)), the services and then beyond that there’s kinda, you know, government big scale schemes. So again, a raft, array of different and diverging partners and stakeholders to unlock delivery.” – Local government, urban development.

As another interviewee put it succinctly: *“it takes quite a long time to get your head around it if you’ve never been involved before”* – Local government, public health.

Understanding this context or ‘getting your head around it’ is a reference to the tacit knowledge that practitioners and policy makers hold that is so crucial to the relevance and applicability of research. It includes how decisions are made, as well as the barriers that prevent and opportunities that support the translation of ideas into practice (Gera, 2012). Research may be useless and recommendations undeliverable without this depth of knowledge and understanding of how things work, or without adequate translation or interpretation of what this means. Such situational knowledge is consistent with the concept of *emic* knowledge, only held by people who are part of the organisation or culture; however, it may be possible to translate this so it can be interpreted in a more impartial way into *etic* knowledge (Harrison, 2018). Research that does not consider the role of tacit knowledge will undoubtedly struggle to transfer research into practice.

Using a ‘two communities’ analogy, is not just a problem for researchers that push ideas; the practitioners who pull research may also struggle to make use of research that does not easily translate. Academic research can often be too ambiguous, abstract and incoherent to practitioners for decision-making. (Gera 2012). The researcher in residence role creates an opportunity to create and work in a collaborative space, where researchers and practitioners can jointly reflect on the detail and nuances of research and help overcome translational issues through regular interaction.

Implementing and adopting evidence

A common approach taken is looking for what has previously worked to rely on evidence-based practice. However, evidence-based practice is limited and can fail in transferability across different contexts. Therefore, even approaches regarded as gold-standard, such as randomised control trials, may be inappropriate and unlikely to be feasible in complex and dynamic settings such as urban policy. Indeed, choosing and using appropriate evidence to inform practice can be ad hoc and problematic. It may involve translating an approach that has worked in one place into an entirely different place or setting. Critics identify that ‘fast policy’, relying on wholesale transposition of policy from one area to another, is fundamentally flawed and even pilot projects designed in place, frequently fail in scaling up (Peck & Theodore, 2010). Such failures in knowledge transfer from research and evidence into practice are described as failures in the utilization and adoption stages of knowledge exchange (Mitton et al., 2007).

The following interviewee explains that encapsulating learning and implementing change arising from the evidence is a long-standing concern:

“planning doesn’t work very well at the moment because it’s like we continue to build houses that are too big, too inefficient in health, in heating terms, too inefficient in terms of space, and yet the solutions are all there. [Name] has been testing energy neutral housing for 20 years and it’s there, and the models are there in the built environment labs, and the estate that was built is there.... and yet we don’t learn from those very local specific models and knowledge that’s already there” - Local government, strategic planning.

Transactional knowledge exchange, or the presence of an evidence base, such as that referred to in the above interview extract, is an insufficient basis for affecting change. In this example, the evidence exists yet it is not used in wider practice. As mentioned previously the reasons for this are complex but the opportunity presented is to use such bodies of knowledge and a nominal ‘collaborative space’ to actively support those responsible for the implementation of change, to overcome translational issues and attempt to unravel what leads to difficulties. In this way researchers can support a process of co-production of an approach whereby those who are affected or involved in a problem are best placed to help design or redesign it (Cheetham et al., 2018; Smith et al., 2022). The evidence can be translated and interpreted to respond to the issues and circumstances in context.

Consideration of the possibilities and potential benefits of embedded research working in this collaborative space has led to further exploration of what difference it might make. The approach is sometimes considered one of a plethora of ethnographic methods, but the approach in practice goes beyond observing events and involves actively participating in and influencing them. It may therefore more accurately be described as action-research or a service improvement intervention (Eyre, George, & Marshall, 2015). Developing and participating in a collaborative space moves beyond relying on identifying or exchanging evidence or knowledge brokering. Others have identified that embedded research includes observing, influencing and participating, and being a *“capacity builder and catalyst for change and improvement”* (Cheetham et al, 2018:68). This embedded research form of intervention is especially useful where a deeper level of technical or academic input is required to address complex phenomena (Marshall et al., 2014; Nyström et al., 2018). Embedded research therefore provides an enhanced opportunity to extend beyond the two communities approach, enabling knowledge exchange in a nominal collaborative space. The participative and action-research orientation is suitable to the setting and for addressing the problems identified, i.e., failure in the utilization and adoption stages of knowledge exchange.

Problems of multi-disciplinarity

The advantages and opportunities associated with embedded research explored above suggest that it helps create a valuable collaborative space where new and relevant knowledge can be co-created. There are also limitations. Researchers in residence may have academic backgrounds with practitioner experience which helps them to connect and act as knowledge brokers. However, their experience in work-settings often benefits from a degree of serendipity, taking advantage of ‘windows of opportunity’ (Kingdon, 2010). A common criticism or challenge of the embedded research approach is that, given the organic nature of research, the researcher who is appointed may ultimately not be a perfect fit with any unpredicted or emerging policy issues (Van Aken 2001, Kelmen and Bansal 2002). In the case of the TRUUD project this risk was mitigated by the appointment of researchers in residence who had broad skill sets but were also appointed as part of

a large multi-disciplinary academic team, with the potential to draw on an extensive range of multi-disciplinary academic expertise. This was of critical importance given the complexity and breadth of the urban development and planning domain and the substantial overlap with public health objectives. However, it also raised challenges: how best to connect multiple strands of expertise and research into a collaborative space essential for exploring the wide-ranging issues that arise in practice?

Multi-disciplinary research teams, not based in the field, will tend to adopt non-participatory methods and approaches to research rather than those that require consistency with collaborative or action-research methods. This is not always a problem but where there are epistemological and methodological inconsistencies, some academic disciplines would tend to value research independence over opportunities for co-creation. Some would understandably have little familiarity with such an approach. This can create tension and incompatibility that requires ongoing and concerted effort (Bates et al., 2023) which is a frequent problem encountered with embedded research initiatives in public health. Marshall et al (2014) suggest that when there is doubt, scholars involved in public health research should always attempt to value public health over academic 'purity' but this is not without difficulty in practice.

Cornwall and Jewkes refer to the institutional nature of this challenge, identifying a need for "*wider institutional changes, which accommodate new roles for researchers within a process which is flexible and reflexive, rather than linear, in structure. Slowly, and often painfully, conventional researchers are coming to realise that working with [subjects of research] is infinitely more rewarding than working on them*" (Cornwall & Jewkes, 1995 p.1674). The challenge here is to develop an overall approach that retains the significant benefits of multi-disciplinarity and specialist research, while also ensuring essential participative and collaborative approaches are developed to overcome potential inconsistencies. The solution we present here is a hybrid collaborative approach.

A hybrid collaborative model based on action-learning

Building a simple hybrid collaborative model through discussion with policy partners and experience of working as researchers in residence, we illustrate how different actors take different roles at different stages in the overall action-learning process. The stages are conceptualised here as discovery, envisioning, planning and design, delivery, and reflection. Figure 2 illustrates this action-learning process schematically. It shows the cyclical nature of the process of knowledge exchange in a nominal collaborative space which we acknowledge to be a simplification since stages can be repeated or skipped during cycles. The roles of the different actors (researchers in residence, multi-disciplinary project teams, and practitioners and other stakeholders) in each of these stages are represented in Table 1 which shows identified needs and limitations of different methods followed across multi-disciplinary teams.

Figure 2 : A hybrid collaborative model

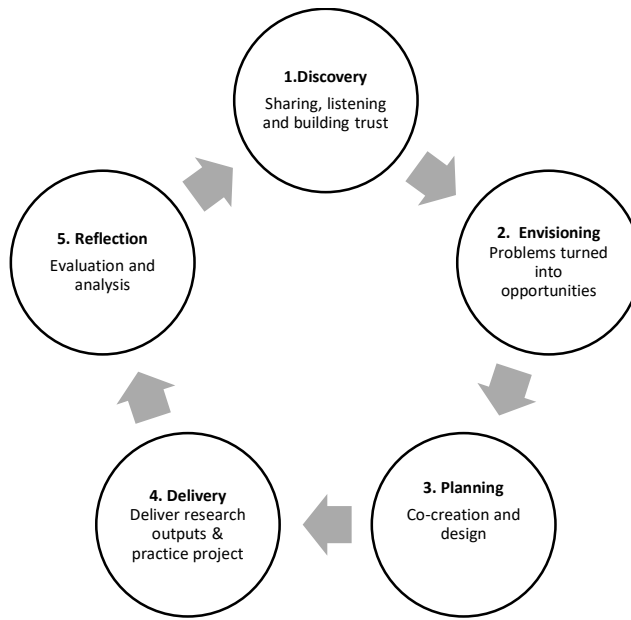


Table 1: Roles of researcher in residence, academic and practitioner teams in a hybrid collaborative process

Stages	Multi-disciplinary academic teams	Researcher in residence	Practitioners and stakeholders
1.Discovery	Listen to practitioners. Gather and analyse evidence of relevance to practitioners.	Listen and learn. Develop trust. Support academics and practitioners with understanding each other's worlds	Reflect on practice and policy impact: <i>"appreciate"</i> what works well.
2.Envisioning	Structure and communicate evidence. Orientate towards opportunity to influence change Organise academic team to prevent duplication and unwieldy demands.	Translate problems into opportunities. Build alliances around opportunities.	Explore possibilities and opportunities: <i>"what could be"</i> .
3.Planning and design	Support emerging aspects of practitioner project design. Assist with data, evidence, models of change and/or connect to theory.	Facilitate co-creation of joint research and practitioner actions.	Action aspects of design: <i>"what should be"</i> . Design for service improvement with researcher support. Ensure participation by appropriate stakeholders
4.Delivery	Deliver timely research outputs to practice partners. Collect data (qualitative or quantitative) to	Support delivery of research and practice. Observe impact. Manage relationships.	Deliver projects and integrate research outputs where appropriate.

	understand impact of research.		
5.Reflection	Evaluate impact of co-produced interventions. Share findings.	Facilitate a process of reflection.	Reflect and evaluate change.

The framework in Table 1 provides a collaborative structure as a guide to maximise the opportunity to co-create knowledge, create service improvement and action-learning, whilst minimising chances for conflict, misunderstandings and epistemological clashes. The structured nature of the framework allows for the integrity of both participatory and non-participatory methods, with participatory methods situated in the right-hand column of the table (practitioners and stakeholders), with more scope for non-participatory methods towards the left-hand column of the table (academic teams).

The different roles connect through a typical cycle of action-learning or service improvement. The roles might be amended on each cycle and could be used for discussion and management of expectations across a large research and practitioner team. In practice, it has transpired that action-learning in our case studies is an ongoing iterative process.

Our framework illustrates the divergence of tasks at the delivery stage, where research is led by research teams with the cooperation of practitioners and service improvement actions must be led by practitioners with the cooperation of researchers. Research and practice converge for reflection, planning and (re)design.

Developing a hybrid collaborative approach

In developing this hybrid collaborative approach, it was important to be mindful of the common failures in knowledge exchange, in utilization and adoption phases, as well as what may be better characterised as a form of inertia when research pauses after producing evidence. Even if academic evidence is identified by practitioners, it may result in words in a document but fail to follow through into concerted action. As the following interviewee points out:

“...it’s kind of the evidence base element of it and that’s the bit that is how do you ...build that into stuff in the sense of it’s quite easy, I mean with sustainability and also with health and wellbeing stuff, it’s quite easy to say quite a lot of nice words and actually not deliver that much...” – Local government, sustainability.

The hybrid collaborative approach was required to ensure that research moved on from *nice words*, to focus overtly on facilitating or supporting tangible actions which are seen to *do something*. Conceptualising such a hybrid collaborative approach is useful to share understanding of how different actors fit into the process of knowledge exchange and how and where they play their role within the collaborative space. More importantly, it demonstrates the purposeful shift towards action, or what the TRUUD project has described as ‘co-produced interventions’.

Existing action-learning and participative models and approaches are consistent with collaboration but also with the action-learning provenance of the role of researcher in residence. Using a review of relevant processes including appreciative inquiry (Coopriider, 2011), cooperative inquiry (Reason 2003), action learning approaches (Checkland & Scholes 1990, Avison et al 1999, Ryecroft- Malone et al 2016), participatory research (Cornwall and Jewkes 1995, Minkler and Wallertein 2003, Bellman

2003) as well as citizen engagement (Arnstein, 1969, Mizoguchi et al., 2004), we worked to develop this hybrid collaborative approach consistent with the issues identified. All these approaches focus on the delivery of actions through the participation of stakeholders and are forms of participatory research.

Established approaches to participatory research are typically cyclical processes. For example, Appreciative inquiry (Coopriider, 2011) involves collaborating with participants to consider and consolidate around an issue, followed by a process of design, then action and finally evaluation. Action learning approaches (Checkland & Scholes, 1990; Avison et al., 1999) include a broad set of intervention methodologies which include identifying and designing structured interventions and a process of reflecting on what is not working, alongside collation of evidence. It is again a cyclical process, usually involving planning, acting, observing, and reflecting. Each different participatory approach considers and defines the problem, co-creates a plan, acts upon it, reflects, and then feeds back into the process. The cyclical nature of such approaches allows for the identification of appropriate points of involvement or interjection for researchers.

Five phases can be identified in the in-practice experience which we describe here as a hybrid collaborative approach: discovery, envisioning, planning and design, delivery, and reflection. These are as described below.

Discovery

Appreciative inquiry (Coopriider, 2011) and cooperative inquiry (Reason and Riley, 2003) approaches have a focus on extending the research beyond the observational or the exchange of knowledge to widen the space of possibilities and choices with host organizations and policy partners. However, the emphasis in appreciative inquiry approaches is to lead participants to first *appreciate* what they are capable of through a discovery or inquiry phase that seeks to avoid focusing on problems. Those involved consider and constructively build on what already works or 'what works well'. This is reflected in the approach the TRUUD embedded researchers have taken to gain trust in their host organizations. It has been possible to identify innovative practice, including a process of reviewing health in urban planning policies involving a selection of local government areas with BCC (Callway et al., 2023) and the healthy streets initiative in GMCA, illustrating how the researcher in residence collaborative approach to co-production has made a positive difference.

Envisioning

Researchers in residence, from their position within the organization, can help to extend the 'space of possibilities' by collaborating with colleagues to develop 'what could be' and introducing academic evidence and research whilst ensuring practitioners apply their own knowledge and experience. Whether the agreed research turns out to be concerned with a small technicality or wider systemic issue there will always be limits to knowledge on the part of the researchers *and* the practitioners. Methods and techniques that allow policy partners and academics to reflect on opportunities outside of their usual choices or frames are important to extend research and research impact. This space where choices are extended is conceptualised in complex systems thinking as the 'fitness landscape' (Kauffman & Weinberger, 1989), similar to a 'space of possibilities' (Boltzman 1866), 'choice opportunities' (Cohen et al., 1972) or a 'performance landscape' (Siggelkow & Levinthal, 2003). Actors effectively see what they consider possible and make choices differently from one another (Holland, 2006). For example, in Greater Manchester it was envisioned that refining the health measures could help support the delivery of the healthy streets initiative. Many other barriers to healthier urban development were identified in the main research but were thought less relevant when discussed with practitioners. In Bristol it was envisioned that

demonstrating the health impacts of urban development changes could be impactful to influence decision-making for a regeneration project, while also considering constraints associated with the scope of influence of public sector stakeholders.

Planning and design

The structured nature of action-learning approaches (Checkland & Scholes 1990, Avison et al 1999, Ryecroft- Malone et al 2016) offers focus on targeted data gathering. When the problem or improvement area can be identified, data is used to inform and organize action: 'what should be'. Researchers in residence are ideally placed to share ongoing research with host organizations and other policy partners at each stage of the process, as well as provide opportunities to get involved in design and reflection. Local practitioners already hold a wealth of data about their area so it should be possible to plan a research design around the gaps and opportunities, and to avoid conjecture. For instance, researchers and practitioners have been planning health measures together in Greater Manchester using both practitioner sources and academic sources of data. The TRUUD project researcher in residence role presented a novel way of addressing extant research gaps.

Participatory research methods (Cornwall and Jewkes 1995, Minkler and Wallertein 2003, Bellman 2003) are particularly useful for highlighting the importance of stakeholders contributing to the design of research. Participatory workshops and online participatory tools that involve gathering data on the views of the public and organising participation in the design of potential interventions are useful for gathering rich, multi-dimensional data and can be used to feed into the ongoing action-research processes as well as the evaluation of wider research projects. These approaches are being explored for application in Bristol and Greater Manchester assisted by the researchers in residence working with the wider academic team and practitioners as well as seeking to further develop the involvement of the wide variety of community stakeholders.

Delivery

The preparatory planning work done in the previous stages ensures that when it comes to delivery of co-produced interventions there is clarity of understanding so that practitioners and research teams all know what their roles are, or how their work relates to that of others. Delivery is usually the responsibility of the practitioners as they attempt to implement planned changes and this proved to be an excellent opportunity for the researchers to observe actions and collect data for evaluation. In Bristol and Greater Manchester, data collection included both qualitative and quantitative data. It included the use of economic valuation of health data to support the case for practitioner projects, as well as interview and observational data to understand the impact of the interventions.

Reflection

The final phase in the participatory research cycle is reflection, which is a critical element in any action-learning or service improvement process. The data gathered at each stage of the process forms part of a knowledge exchange and research process, including evaluation. In the reflection phase, the data, experiences and learning are all reviewed. It is an opportunity for the academic teams to be involved in providing timely ongoing feedback from any pilot work and other delivery so that practitioners and stakeholders can reflect on what worked and what did not work and begin the improvement cycle afresh, as well as providing opportunity to share learning more widely.

The process can continue beyond the life of the research residency, and/or ensure that learning is transferred to other contexts by understanding the interventions better.

The hybrid collaborative model in practice

The hybrid collaborative model presented here evolved through our interpretation of action-learning approaches and through practice. Here we explain how the model is applied in our Bristol and Greater Manchester case studies. Table 2 summarises the developing research to support the innovative streets initiative in Greater Manchester, 'Streets for All'. It illustrates how academic teams and practitioners have been sharing information but also working independently with the researcher in residence able to maintain the collaborative space as work progressed.

Example of the model in practice – Greater Manchester

In the Discovery stage, academic teams were largely self-contained, developing a broad programme of research extending beyond the two case studies (Le Gouais et al. 2023). In the nominal collaboration space, the process of developing trust, listening and learning was largely undertaken by the researcher in residence with regular feedback to all parties. Through discussions with the practitioners, the overall scope of the work was agreed. The scope was consistent with the overall academic research programme as well as being a strategic priority for the transport authority, TfGM. It was clear that this was an aspirational collaborative area of work with elements consistent with the envisioning phase and potential still for more sharing of ideas.

In the Envisaging stage the wider academic team benefitted from an extended period of exploring scholarly and interview evidence-based ideas in the phase one research. At this point in the process it was obvious that the work of the practitioners was progressing at a much faster pace than that of the academic team, including the development of detailed guides for the LAD partners involved in developing Streets for All proposals. Nevertheless, the best fit with academic support opportunities in this dynamic situation began to emerge.

At the Planning and Design stage the academic research teams were able to consider how the research across the wider research programme connected to the case study. For example, system analysis was being used to attempt to identify leverage points in the overall system of urban development, health pathways were being created to enable the economic valuation of urban developments. Interventions were agreed with the practitioners, including reviewing the outcome metrics of the Streets for All programme, developing delivery tools and visualizations to allow health outcome data to support healthier decision making and examining how evaluation of pilots could be used differently to influence future practice. The researcher in residence was responsible for supporting this process, managing expectations as well as exploring new possibilities for collaboration. The role involved monitoring progress across the multi-disciplinary teams to ensure research continued to be focused on delivery or action as well as attempting to provide feedback on the very dynamic and evolving situation due to a turbulent national policy environment.

The Delivery stage for the start of plan execution, involved working within agreed levels of engagement which these differed according to the area of joint working. Some academic partners required meetings and co-working with practitioners whilst others were engaged in independent work such as where analysis was due to be developed and applied later. The process allowed for variation.

In the Reflection stage, crucially, progress continued to be reported and a process for deliberative reflection was scheduled to take place. The reflections proved very important to build the future iterations of the work and its co-creation, without requiring unreasonable demands on practitioner

time and resource. The researcher in residence is well located to facilitate this process in a seamless way.

The hybrid process allowed academics to work at a distance from practice but allowed meaningful targeted engagement preventing the need to involve the practitioners in everything, all the time. The knowledge exchange was tailored to actions that were considered useful and could be adopted.

Example of the model in practice – Bristol

Examining the researcher in residence experience in Bristol through the lens of the hybrid collaborative model highlights the extent to which the knowledge exchange and interventions in policy have been a non-linear process. Planning and delivery have been back and forth iteratively, while the discovery phase continues in parallel, identifying new opportunities for additional researcher inputs.

As in the case of the GMCA case, the Discovery stage started with background literature reviews and semi-structured stakeholder interviews designed to capture perspectives relevant for action-learning (Le Gouais et al. 2023). The researcher in residence received on-going exposure to relevant meetings and issues with internal and external stakeholders, including Council officers, Councillors, developers and their agents, and members of the public. As the project developed understanding grew about relevant issues that are specifically related to certain aspects of the project cycle. During the discovery stage, the researcher in residence also helped local government partners to understand health and wellbeing impacts of urban development, e.g. health impacts associated with noise; cases of disease avoided with provision of additional new greenspaces.

In the Envisaging stage academics explored research ideas to meet the needs of policy and practice partners (initiated by the researcher in residence), for example, using health modelling to identify impacts of new greenspaces on local populations, and opportunities to support development of a new health modelling tool, using the researcher in residence case study project to pilot the tool (Eaton et al., 2023). Using interview data to understand limitations of local planning policies in supporting the creation of healthier places, researchers also developed a framework to evaluate local planning policies (Callway et al. 2023). This was made possible by the researcher in residence identifying opportunities for research to input into real world projects to support healthier place-making, e.g., identifying opportunities for health impact data to inform decision-making for new urban development. Importantly, practitioners in the local authority agreed to be involved in this collaboration with researchers to receive health impact data that could be used alongside other evidence to inform urban development principles.

The Planning and Design stage involved academics developing research plans to meet the needs of policy and practice partners. They discussed ideas directly with partners to co-design interventions and sense-check plans with iterative feedback. This was facilitated by the researcher in residence who identified appropriate points in local government projects to input research data and helped to arrange meetings between researchers and practitioners to discuss and provide feedback. This was all made possible by local government partners agreeing that the researcher in residence could observe key meetings and learn about opportunities for research inputs. Practitioners also agreed how research outputs would be used within local government project timeframes. They scheduled timepoints to share research outputs with key stakeholders in the administration.

In the Delivery stage research outputs were shared. This included visual summaries of health impacts associated with features of the built environment and summaries of cases of ill-health avoided by creation of new greenspaces. Recommendations were also shared about how to improve

policy and practice. The researcher in residence supported this by arranging meetings between researchers and practitioners to discuss and provide feedback. They also sense-checked researcher outputs to ensure relevance for local government work and collected data about how the research had been received by practitioners to evaluate impact. Practitioners continued to deliver their urban development project during this period, considering how the research outputs could be used to inform decision-making. Through close working relationships they provided honest feedback to researchers to support improvements by the academic team.

In the Reflection stage the researchers conducted interviews with practitioners and documentary analysis to understand the impact of the research outputs. Participant-observation and discussion with local government colleagues was also conducted by the researcher in residence to understand how research outputs were used and to identify opportunities for improvement. Practitioners were also encouraged to reflect on the value of the research inputs and share ideas for improvement to inform later project stages. Reflections on how the researcher in residence role could be achieved in other contexts is also important for this stage.

Conclusion

In this paper we set out the relevance and importance of academics and practitioners sharing and using knowledge to tackle health inequality related to urban development. We consider how problems with such an exchange of knowledge and research can be overcome to support action and improved intervention outcomes by using an approach that adapts to the complex and dynamic realities of everyday practice. This has involved orientating research activity towards firm action rather than simply *nice words* and focusing on collaboration and meaningful engagement with practitioners.

We show that an embedded research approach is well suited to responding to the problems of effective knowledge exchange but there are limitations. We identify that using the approach in projects with a large multi-disciplinary research team offers important exchange opportunities but also raises potential incompatibility of research methodologies. Drawing on action-learning approaches we present a hybrid collaborative model to illustrate how academics and practitioners can nevertheless facilitate the exchange of knowledge in a nominal collaborative space to overcome these difficulties and potential confusion. We find that the researcher in residence approach plays a key facilitation role in this, particularly where research teams may otherwise default to methods that are not participative.

The model seeks to address the weakest points of knowledge exchange by ensuring that practitioners take an active yet proportionate role in the research and intervention design. The hybrid collaborative model provides a structure for the different roles that researchers and practitioners take at different stages in the action-learning process to ensure effective collaboration and interventions are prioritised and there is a mutual understanding of the iterative nature of the approach. We conclude that the model could be applied in other urban contexts to support the incorporation of health into complex planning and development policy and decision-making by accommodating a wide range of important research from across disciplines in collaboration with practice.

Data availability

The data supporting the findings reported in this paper consists of primary interview and secondary data. A redacted and anonymised version of all primary interview data will be made available via the University of Bristol Research Data Repository [data.bris](https://data.bris.ac.uk/) two years after the completion of the project, 'Tackling the Root causes Upstream of Unhealthy Urban Development (TRUUD)'. All secondary data used in this paper is available at locations cited in the 'References' section.

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