Co-production: A resource to guide co-producing research in the sport, exercise, and health sciences

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ABSTRACT

There is growing interest in co-production in the sport, exercise, and health sciences. That includes from researchers in sport and exercise physiology, public health, sports medicine, sport sociology, sport and exercise psychology, sport management, physical education, sport coaching, leisure studies, geography, and occupational therapy. Despite the disciplinary spanning interest, academic resources in our field dedicated to the complex problem of comprehensively detailing the co-production of research and taking it forward are lacking. This paper is a modest attempt to do this. Rationales outlining the need for a resource are first presented. What is meant by co-production is then attended to. An original typology is developed to illuminate different ways co-production is defined and put to use. In the typology three differing types of co-production are described: *Citizens' Contributions to Public Services; Integrated Knowledge Translation*; and *Equitable and Experientially-informed Research*. Why researchers co-produce research, along with various challenges involved with doing it, are then offered. It is suggested that generally university structures and academic norms tend not to facilitate co-production processes. Next, working principles to promote co-production as a means to advance a participatory turn in sport, exercise, and health research are introduced. We also highlight practical options for how to co-produce research and advance various criteria for judging the quality of it. Throughout it is highlighted why qualitative researchers are well prepared to do high quality co-produced research and should be considered important collaborators for researchers without qualitative expertise intending to co-produce research. The paper closes with future directions.

As with most disciplines, traditionally in the sport, exercise, and health sciences research has been carried out by conducting work *on* people or doing things *to* them or sharing and explaining their experiences *for* them. Significant changes are though taking place. Increasingly there are calls for more research in our field to be conducted *with* or *by* non-academic partners who have typically been excluded but could otherwise usefully shape, contribute to, and benefit from research (e.g. Bundon and Smith 2017; Daly-Smith et al. 2020; Luguetti, Singehebhuye, and Spaaij 2021; Martin

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Ginis et al. 2021; Nobles et al. 2020; Petróczi et al. 2021; Popp et al. 2021; Potts et al. 2021; van de Ven, Boardley, and Chandler 2021). There are calls from across disciplines for a 'participatory turn' in our field. For example, researchers in exercise physiology (e.g. Buckley et al. 2019), sport and exercise psychology (e.g. Schinke, Smith, and McGannon 2013), public health and physical activity research (e.g. Rütten et al. 2019), sport sociology (e.g. Golob and Giles 2018), sport coaching research (e.g. Townsend et al. 2021), sports management (Schaillée et al. 2019), leisure studies research (e.g. Mansfield et al. 2019), critical geographies of physical activity (e.g. Wilson, Coen, Piaskoski, and Gilliland, 2019), physical therapy (e.g. Bird et al. 2021), and sport orientated occupational therapy (e.g. Pettican et al. 2021) have advocated the value of working *with* participants. Calls for a 'participatory turn' also come from research funders in efforts to reduce research wastage, increase impact, and address inequities (Graham, McCutcheon & Kothari and On Behalf of the Integrated Knowledge Translation Research Network Project Leads, 2018). It is perhaps unsurprising then that 'participatory' approaches have become a lucrative buzzword that has come into vogue among researchers (Palmer et al. 2019). However, both historically and now the participation agenda has largely been driven by individuals or groups who have personal experience of the issues being researched but have typically been excluded from shaping the research agenda (Beresford 2020; Jones, Byrne, and Carr 2020; Lambert and Carr 2018; Williams et al. 2020a).

How though can a participatory turn be achieved in sport, exercise, and health sciences? How can researchers working at universities collaborate in research in more equitable ways with partners whose primary contributions are derived from their lived experience of a particular social, physical, and/or mental condition? That is, how can researchers work with individuals or groups typically referred to in the literature as lay people, stakeholders, value holders, citizens, service users, patients, public contributors, community members, and (end) knowledge users? How can those with such lived experience be afforded more power in academia to ensure that research agendas and outputs address their needs, concerns, and preferences? How can research be done with or led by partners in ways that are transformative, equitable, and impactful? How can we take more seriously knowledge translation and ensure that evidence informs action and theory informs practice? Whilst not without its complications or challenges, co-production has been put forward as a way of achieving all of this and more.

Calls for and use of co-production are now gathering across the sport, physical activity, and exercise sciences (e.g. Buckley et al. 2019; Rütten et al. 2019; Smith, Mallick, Monforte, and Foster, 2021). Despite this, there is a dearth of literature comprehensively detailing co-production relevant to research in and for our field. This needs to be addressed for several interrelated reasons. First, a resource that details how co-produced research is being defined, how it can be done, and why it is relevant for our field is necessary to increase understanding and guide meaningful practice. A second reason why a resource is needed in our field is that it could support multi-, inter-, and trans-disciplinarily work. It can provide partners and researchers from all the sport, physical activity, and health science disciplines with a common point of reference. That can be useful to communicate with each other, guide joint action, and assess the aims and impacts of our endeavours.

Third, a resource that provides a detailed formulation of co-production that recognises existing variations is needed to provide, if not a shared understanding of what co-production is, some minimum expectations and standards for co-producing research. This will help our field to mitigate the trend of poor and tokenistic practice that has accompanied participatory turns in other fields. This trend has in part been facilitated by an under-appreciation of the significant distinctions between the different ways co-production has been defined and practiced in different disciplines and contexts (Green 2016; Williams et al. 2020a). For example, the term 'co-production' is variously used in applied health research to describe, amongst other things, partnerships between industry and academia as well as the involvement of patients and members of the public in research projects. The latter practice is known as Patient and Public Involvement (PPI) where, again, the term co-production is variously applied with some claiming co-production within this context is an impossibility (Rose and Kalathil 2019) while others claim it is 'just really good PPI'. These issues of

conceptual slippage in applied health research have subsequently received critical attention (for in depth discussion see Williams et al. 2020a, 2020b) but there is not yet comparable critique in our field. Though they may intersect, it is suffice to say that co-production and PPI have different origins, expectations, and norms. Whilst it is theoretically possible for research to be co-produced within a PPI framework, at this stage this is still exceptional and often achieved in spite of, rather than because of, the structures and norms of PPI. This resource will help to outline and explain where various participatory methodologies converge and diverge in their aims, expectations, and norms.

Forth, a resource could help peers and reviewers in our field make fair judgements about the quality of co-produced research. Moreover, it might protect against 'cobiquity'. As described by Williams et al. (2020b), this phenomenon refers to the conflation of the various 'co' words associated with participatory research. Mislabelling research as co-produced might be a genuine mistake or academic game-playing. However, it can lead to co-production becoming a meaningless buzzword that falls far short of the expectations for and stated objectives of co-produced research (Williams et al. 2020a, 2020b). This can result in particular projects appearing more novel, progressive, inclusive, and/or equitable than they otherwise are. Whether deliberate or otherwise, mislabelling research undermines efforts to improve issues of equality, diversity, and inclusion both in and with research and the impact that research could otherwise have. Therefore, it is imperative that our field recognises and attempts to limit this.

For the aforementioned reasons, the purpose of this paper is to provide a *practical* resource to guide thinking, practice, and assessments about co-produced research for researchers and others (e.g. funders, practitioners, service users, community partners). In so doing we make several contributions to our field. First, we advance a new typology of co-production. The typology helps address what is meant by co-production and how a certain type of co-produced research might be put to use across the sport, exercise, and health sciences. Second, we highlight various reasons for co-producing research as well as multiple challenges and barriers. Third, we advance various principles for consideration to guide co-produced research. Numerous practical tips for how co-produced research might be done are offered and various criteria in the form of questions to judge its quality are proposed. We invite researchers from all the sport, exercise, and health disciplines to consider co-production and how the ideas offered here might be useful for the kinds of research they do. Throughout we also highlight why qualitative researchers are well placed to co-produce research and should be considered important collaborators for those without qualitative expertise intending to co-produce research.

Before turning to all this it should be noted that this resource was developed by collectively reviewing and carefully mapping over 500 publications on co-production and other participatory approaches. That included empirical papers, commentaries, and reviews of reviews in journals along with book chapters, books, and grey literature. We also draw on practical experiences of co-producing research and researching co-production. This involved our own diverse experiences as a group with different positions (e.g. researcher, disabled person, social worker, community based physical activity lead) engaged for multiple years in the theory and practice of co-production [1]. It also involved the experiential knowledge of 80 people (33 academics and 47 non-academics) who generously shared with us their experiences of co-producing research.

What is meant by co-production: a typology

Co-production is a contested term. Partly that is because it means different things to different people and is used differently in different disciplinary contexts (Brandsen and Honingh 2018; Ewert and Evers 2014). Therefore, any attempt to produce or find in the literature a clear-cut, definitive, and unanimously agreed definition of co-production is futile and unnecessary (Bovaird and Loeffler 2013;
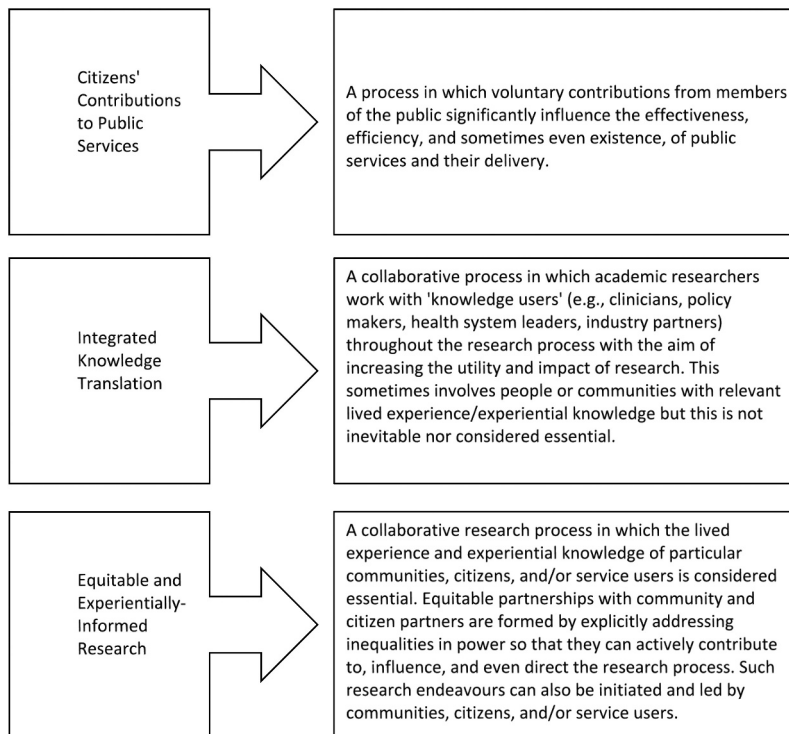
Figure 1. A typology of co-production.

Williams et al. 2021). We suggest that researchers do not then waste time searching for *the* 'true co-production' but rather appreciate definitional heterogeneity and the contextual/disciplinary factors that explain it.

While there is little value in a quest to find 'true co-production', this only highlights the need to provide contextually specific definitions. Definitions can serve as epistemological markers and ontological reference points by bringing conceptual clarity. They can reduce confusion and provide a vocabulary to guide conversations and practice. Accordingly, following Bovaird and Loeffler (2013), we suggest that research will be more productive if each team of collaborators discuss and accept one clearly set out definition, chosen from a range of current definitions of co-production, then explore different ways of realising co-production 'according to that definition and throw light on the actual and potential results' (p. 697). It is also vital that research teams clearly communicate in all outputs what definition of co-production was chosen (Williams et al. 2021). That would allow any 'co-production' to be evaluated against the conceptualisation from which it developed and the associated objectives.

Against this background, we offer a typology of co-production. Across the literature at least three common types are regularly cited as informing research processes. These types can be recognised as distinct and then critically engaged with (Williams et al. 2021). These are named and described in Figure1 and unpacked below.

Type 1: Citizens' contributions to public services

Many refer to this type as the original conceptualisation of co-production. It is defined as voluntary contributions from members of the public to improve the effectiveness and efficiency of public services (Brandsen and Honingh 2016). This type of co-production finds its scholarly origins in the

public sector. It is often attributed to Nobel Prize winner Elinor Ostrom (1996) and other economists from the 1970/80s who studied relationships between public institutions and citizens, with a particular focus on the role citizens play in service provision (Carr 2018; Ostrom and Ostrom, 1977; Ostrom et al. 1978; Parks et al. 1981). That work highlighted that whilst public services were traditionally viewed as best produced by public service staff and delivered via a one-way process from provider to user, to some extent public services are *inevitably* co-produced in a two-way process between provider and user. That is, users influence the delivery, effectiveness, efficiency, and value of these services. For instance, to explain why crime rates rose when the police changed from walking the beat to patrolling in cars, Ostrom and colleagues (1978) proposed that the relationships police fostered with people and the informal knowledge people in the local community shared with them when they 'walked the beat' were vital in preventing and solving crimes. Thus, it was argued that the effectiveness of a police service is not only determined by the police (the service providers). Local people (the service users) also play a vital role in how effective the service can/will be – in that sense, the service is *co-produced* (between service provider and service users).

A recent example of this type of co-production can be found in responses to COVID-19. To effectively respond to COVID-19 governments relied on voluntary contributions by citizens. Those contributions included adhering to social distancing policies, working with teachers to provide home-schooling, and producing medical and other goods that helped prevent the spread of COVID-19 and lessen its socioeconomic effects (Steen and Brandsen 2020). As this example suggests, this type of co-production is primarily concerned with understanding the contributions that citizens make to the delivery and outcomes of public services. It is often used within healthcare improvement as a critique of the notion of the 'passive patient' and to acknowledge that effective healthcare systems are largely reliant on voluntary contributions by citizens. For instance, a doctor's capacity to diagnose an illness often relies heavily on patients being willing to share, and able to effectively communicate, their symptoms. Some working in healthcare improvement therefore advocate for healthcare professionals actively working with service users to improve the design and delivery of healthcare (e.g. Batalden 2018).

Furthermore, recent literature highlights how co-production in public spaces can be informal and unsanctioned. For example, Stewart (2021) describes 'fugitive co-production' as when individuals and groups within communities collaborate with local staff in ways which significantly shape the provision of local services, without permission or authorisation from relevant authorities, to meet an immediate perceived need rather than strategic change. It is certainly conceivable that such measures could be taken in response to what are often hierarchical, exclusionary, and bureaucratic research structures.

Although frequently cited out of context, the literature associated with this type of co-production is less about co-producing *research* and as such does not always directly translate into the research context in a way that is in keeping with the wider aims of those advocating for a participatory turn in research. Therefore, researchers in the field of sport, exercise, and health sciences should be wary of re-appropriating definitions of co-production deriving from the work of Ostrom et al. (1978) and Public Administration and Public Service Management research more generally. If they wish to use participatory approaches in their research other types of co-production are likely to be more relevant and useful.

Type 2: Integrated Knowledge Translation

Integrated Knowledge Translation (IKT) is now referred to by a growing number of scholars as co-produced research (e.g. Banner et al. 2019; Dal Mas et al. 2020; Graham, Kothari, McCutcheon, and on behalf of the Integrated Knowledge Translation Research Network Project Leads, 2018; Graham, McCutcheon, and Kothari 2019; Pelletier et al. 2021). This increasingly popular usage of the term is why we include it in this typology [2]. *Integrated Knowledge Translation* is defined as a collaborative process in which academic researchers work with 'knowledge users' (e.g. clinicians, policy makers,

health system leaders, industry partners) in all parts of the research process, from shaping the research question to implementing the research findings, with the aim of making research more impactful (Graham, Kothari, and McCutcheon et al. 2018; Graham, McCutcheon, and Kothari 2019). *Integrated Knowledge Translation* was developed primarily by health-orientated researchers and research funders in the 2000s out of a desire to improve the translation of knowledge/evidence into practice (Leggat et al. 2021). In this sense, *Integrated Knowledge Translation* has been chiefly informed by technocratic rationales. That is, it has primarily been concerned with producing knowledge that is useful to and useable for people in policy and practice in order to improve specific 'end goals'/'outcomes' (Jull, Giles, and Graham 2017; Nguyen et al. 2020; Williams et al. 2021). This is a valuable exercise and tonic to the tendency for research and practice to be disconnected.

To produce useful knowledge and enable end goals to be realised, 'knowledge users' are deemed important in *Integrated Knowledge Translation*. To date in the *Integrated Knowledge Translation* literature the knowledge users commonly referred to and engaged with are trained professionals from practice settings (Banner et al. 2019). They are deemed important because not only may they hold insights into what knowledge is useful and relevant, they are also instrumental in deciding whether research findings will inform decision making and be implemented in practice (Graham, Kothari, and McCutcheon et al. 2018; Leggat et al. 2021; Williams et al. 2021). In this sense, *Integrated Knowledge Translation* is an approach to research that Martin (2010) defined as an exercise in breaking down the 'academic-practitioner divide' to promote evidence-informed practice by bridging the gap between research and practice. As such, it sits within the broader field of applied research – commonly applied health research and what is termed 'Mode 2' research. Examples of this type of co-production from the sport, exercise and health sciences include Gainsforth et al. (2020) and Pelletier et al. (2021).

Despite the growing popularity of *Integrated Knowledge Translation* and some impressive outcomes (e.g. Ma, West, and Martin Ginis 2019; Pelletier et al. 2021; Suderman et al. 2020), some have critiqued this type of co-produced research for failing to *systematically* include people who have experiential/lay knowledge of the issue being researched gained through their lived experience as a service user, patient, or community member (Banner et al. 2019; Williams et al. 2020b, 2021). This is not to say that people with such lived experiences are always excluded from *Integrated Knowledge Translation* work. The point is that with *Integrated Knowledge Translation* people who have this kind of lived experience/lay knowledge *may* be invited to participate but are not *required* partners (Banner et al. 2019; Bowen and Graham 2013). They *might* be collaborators, yet their participation is not considered *necessary*. Their participation also often relies on an invitation (that may never arrive) from academics and/or practitioners. Accordingly, there are many *Integrated Knowledge Translation* projects that have not included collaborators who are primarily there to contribute their lived experience/lay knowledge of being a service user, patient, community member, and so on. This is in stark contrast to the third type of co-production identifiable in the literature.

Type 3: Equitable and experientially-informed research

The third type of co-production identifiable in literature and practice refers to a collaborative process that, in an attempt to address various epistemic injustices (Fricker 2007), positions people or communities with relevant lived experience/experiential knowledge as *essential* to the research process. This approach prioritises addressing inhibitory structures and systems and hierarchies in power in order to demonstrate how they have marginalised various people and forms of knowledge. It promotes the validity of knowledge derived from lived experience and the importance of equitable research partnerships.

In this type of co-production, equitable partnerships between different contributors are fostered and maintained throughout the research process. There are at least two broad strategy pathways to forming these partnerships. In the 'outside-in' pathway, which is still relatively rare, citizens/service users identify issues, map what is needed, and can then choose to invite researchers to be partners in

a project (Loeffler 2021). In the 'inside-out' pathway, partners are invited by academics or other professionals to co-produce a research project (Loeffler 2021). Such approaches include Participatory Action Research (PAR), community-led, and user-led or user-controlled research (see Ersoy 2017; Beresford 2005, 2007). These partnerships will often include those working in policy, industry, and practice. However, in this approach any legitimate claims to research being co-produced rest on the participation of people with experiential knowledge based in their lived experiences and the extent to which they have power to inform and influence the research process. These people are otherwise commonly excluded or marginalised from influencing research that is consequential to their lives.

None of this is to deny that people working in research, policy, industry, and practice have useful experiential knowledge. It is vital also to remember that service users, patients, community members and so on can also be trained professionals working in research, policy, industry, and practice. People cannot be completely defined by one label or identity. We all often carry multiple agendas and constitute intersecting identities which we deploy in various contexts according to our own interests and priorities. With that recognised, the point is that this type of co-production attempts to address issues of equality, diversity, and inclusion partly through ensuring that those who have traditionally been excluded and/or marginalised are *essential* partners in the co-production process and their relevant lived experience meaningfully influences the research. To avoid confusion, from here partners whose participation is primarily due to their lived experience/experiential knowledge will be referred to as 'partners with lived experience' [3].

Let us also be clear that the requirement to work with partners with lived experience does not mean that those working in policy, industry and practice are excluded from this type of co-produced research. They *may* be included in *Equitable and Experientially-informed co-produced research*. Indeed, this type of co-production is more likely to be impactful when those working in policy, industry, and practice *are* involved in it. For example, in a co-produced study on the health of people living in coastal communities, a diversity of people from a local community would come together with researchers and professionals working locally to establish priorities, set the research agenda, come up with research questions, conduct and evaluate the research, and find ways to put the evidence generated through this process into action to support the community and promote health – this process could be initiated by researchers or community members. Or, in a study on physical activity, sport, and disability, partners could comprise those working in sport and physical activity promotion, coaching, and physical education, along with trained representatives from disabled people's (user-led) organisations but would *necessarily* also include or be led by disabled people/people living with a disability. Examples of *Equitable and Experientially-informed co-produced research* include Hunter and Gorst (2019) and Smith et al. (2022).

Overlaps and contrasts between types of co-production

As suggested, there are important similarities and differences between the types of co-production we have identified in the literature. In contrast to *Citizens' Contributions to Public Services* which is primarily about understanding the publics participation in producing/delivering public services, both *Integrated Knowledge Translation* and *Equitable and Experientially-informed* co-production are similar in that both seek to improve the *research* process in various ways. The two are similar also in that both recognise the importance of addressing ethical considerations, sharing decision making with collaborators, and communicating openly and honestly with them. Developing and maintaining relationships with collaborators based on trust, dignity, and transparency is valued by both types. In the two types of co-produced research the benefits of collaborating with trusted professionals to help move research swiftly into the right spaces so it may be more likely to be taken up and applied to generate impact is also recognised. Moreover, researchers working in either type of co-produced research can face some similar challenges. These can include bringing together and coordinating a team of collaborators, developing trust with them, and managing expectations.

Whilst there are overlaps between *Integrated Knowledge Translation* and *Equitable and Experientially-informed* co-production, the two types differ in several significant ways. First, *Integrated Knowledge Translation* originates from a health funding landscape and was developed specifically to make research more applied and impactful. In contrast, the origins of *Equitable and Experientially-informed* research are in grassroots activism and citizen-led, emancipatory traditions that promote egalitarianism by directly challenging traditional hierarchies of power. It has a longer history than *Integrated Knowledge Translation*. That is important to recognise also in order to avoid 'reinventing the wheel' and the problems of cobiquity (Williams et al. 2020b) highlighted in the introduction.

Second, whilst *Integrated Knowledge Translation* is chiefly informed by a technocratic rationale, an egalitarian rationale is fundamental to *Equitable and Experientially-informed* co-produced research (Williams et al. 2021). This means practice is centrally concerned with addressing issues of equality, diversity, and inclusion *as well as* improving technocratic aspects of the research design, process, and outcomes (Carr 2018). For example, these aims might include improving the quality of sport opportunities for marginalised, disadvantaged, and discriminated groups or creating and delivering interventions to tackle health inequalities.

Third, there is difference between the types of co-produced research in terms of *who must* be included in it. Unlike *Integrated Knowledge Translation* which has historically prioritised fostering academic-practitioner partnerships, *Equitable and Experientially-informed* research developed in response to the frequency with which partners with lived experience are excluded from research processes and thus prioritises their participation in part through addressing inequities in power. People or communities with knowledge that has its basis in their lived experiences and who typically are excluded or marginalised from influencing research agendas and endeavours are therefore essential partners in this type of co-production. The necessity of including partners with lived experience is captured well in the classic political moto "Nothing About Us Without Us" (originally 'Nihil de nobis, sine nobis') that has its roots in Central European political traditions but has since been adopted by groups advocating for co-production – such as those in the disability activist movement (e.g. Charlton 1998).

Fourth, in *Integrated Knowledge Translation* addressing unequal power relations between partners is not a primary aim (Jull, Giles, and Graham 2017). In contrast, an explicit aim in *Equitable and Experientially-informed* co-produced research is acknowledging and mitigating the undue influence of power differentials between collaborators. This is often done by establishing and working to maintain equitable relationships between those with academic and professional status and those traditionally absent or minimally involved in research (Kara 2017; Tembo et al. 2021; Williams et al. 2021). For example, that means these partners collaborate in agenda setting and the prioritisation and formation of objectives, rather than merely being 'recipients', 'informants', 'endorsers' or 'involved' once these important decisions have been made by those who traditionally hold power.

This said, it must be acknowledged that in recent years there have been some moves in *Integrated Knowledge Translation* work to include partners with lived experience and calls to address power relations, equality, diversity, and inclusion (e.g. Banner et al. 2019). We welcome change. But while such changes may appear to bring *Integrated Knowledge Translation* closer to what we have labelled here as *Equitable and Experientially-informed* research, the differing histories and traditions of these approaches are likely to continue to influence present practice and application. The differences should therefore be acknowledged and respected when claims of co-producing research are made by at least using appropriate labels in outputs. Labelling work appropriately and fairly might be challenging for researchers wedded to a certain label, especially if academic capital is gained from its use. But for reasons highlighted, such as the need to mitigate against cobiquity and to respect the differing histories of different types of co-production, labelling work in outputs properly is necessary. It is part of good scholarship.

With co-production being differently defined in the literature and applied in practice it might be tempting to ask, 'Which type is the best to choose?' Let us be clear that none of the types identified here are being presented as superior to another. Like all research approaches, which type of co-produced research is the best relies on what the aims of the project are. It is also worth noting that, for the same reason, within participatory approaches co-production should not be considered the 'gold standard'. Decisions about which participatory approach to use are dependent on numerous factors. These include the aims and objectives of the work, researchers' skillset and experience, the context within which the methods will be taking place, the resources that are available, and the benefits and challenges associated with each approach and method. It should also be recognised that co-production has a 'dark side'. That is, as with other methods, negative outcomes can occur through co-production processes and may require mitigation (for further discussion of the 'dark side' of co-production see Williams et al. 2021a). As with participatory approaches and methods more generally, different types of co-production identified in the literature will be more or less relevant and applicable to different research projects. That noted, we would argue that anyone planning to co-produce research without partners with relevant lived (rather than professional) experience, or claiming to have co-produced research without such partners, should be required to justify their exclusion.

In the rest of this paper we focus on co-producing research in alignment with the approach that we have identified in the literature and labelled as *Equitable and Experientially-informed*. Attention is given to this type because, of the three types identified, it is the one most centrally concerned with answering the calls for a participatory turn in research. It does this by addressing issues of equality, diversity, and inclusion by working in partnership with those with lived experience. However, this third type of co-production is prone to tokenism, poor practice, and mislabelling – issues we hope this resource can help to mitigate. Moreover, *Integrated Knowledge Translation* has received some attention in the sport, physical activity, and exercise sciences recently (see Leggat et al. 2021). While co-producing research in equitable and experientially-informed ways is currently underdeveloped in our field, If we are to protect against the tokenistic, poor, and/or mislabelled practice commonly seen in other fields – and how this can undermine attempts to address issues of equality, diversity, and inclusion – then it requires more attention. We hope the rest of this paper goes some way to addressing this need.

Why co-produce? bringing rationales, challenges and barriers to the fore

To support making informed choices about whether and/or how researchers might co-produce research, in this section we highlight various reasons for co-producing research. Highlighted also are various challenges and barriers. Summaries of these can be found in Table 1 and Table 2.

One broad underpinning reason for choosing to answer the call for a participatory turn in research with co-production is tied to a democratic/egalitarian rationale (Graham, McCutcheon, and Kothari 2019; Tembo et al. 2021; Williams et al. 2020a, 2020b). A democratic/egalitarian rationale proposes that research which is co-produced makes society better in part by making it fairer. This is because not only can including partners with lived experience in research help to make research more fit-for-purpose by addressing the needs and preferences of public contributors/communities/ service users. But additionally working with partners with lived experience is seen to redress democratic deficits by providing those who are otherwise marginalised or excluded with a conduit to influence over research agendas, processes, and outcomes (Martin 2008). For example, if researching how to increase women's participation in football, it makes both ethical *and* practical sense to work with those who do and don't participate so that their experiences, needs, and preferences can shape any future policies or interventions being designed.

It is argued that co-producing research is inherently valuable because it brings citizens and researchers together in ways that seek to achieve more equitable relationships and research issues that are in the public interest and respond to need (Warwick-Booth and Nagnall, 2021). It can likewise be a means of working towards achieving epistemic justice. That is, rather than

committing 'epistemic violence' (Liegghio 2021) or 'epistemic injustice' (Fricker 2007, 2010) by marginalising the knowledge of particular groups, co-produced research includes experiential knowledge centrally and on equitable terms with other kinds of knowledge that have historically been afforded greater value (Beresford 2020). In such ways co-producing research goes some way to enabling the democratisation of science and the rights of citizens to influence studies, agendas, practices and so forth. Accordingly, although the driver for *Equitable and Experientially-informed* co-produced research may be to address issues of equality, diversity, and inclusion, a common motivation is also to create technocratic value at the same time (e.g. reducing health inequalities by designing/informing services and interventions that meet the needs of marginalised and discriminated groups).

Furthermore, high quality co-production can lead to a high standard of academic excellence (Redman, Greenhalgh, Adedokun, Staniszewska, and Denegri, 2021). Working in genuine partnership with partners with lived experience can foster academic excellence by ensuring research is not detached from societal and community/group issues, needs, and preferences which, in turn, can improve the quality of the research. For example, it can lead to richer knowledge of the particularities of issues and problems. It can result in better research questions and processes. When research is not detached from the priorities and needs of people with lived experience study designs and knowledge on how to better recruit and retain research participants can be also enhanced. New methods may be created. Novel and conceptually rich knowledge can be generated. Commonly used theories and logic can be shared and may be creatively rethought. Moreover, more effective interventions can be developed. People with lived experience might be more empowered to act as well. Research detached from the priorities and needs of those who are traditionally excluded and marginalised can be avoided. If research is to be equitable and experientially-informed then power sharing entails partners with lived experience being able to draw on their experiences to meaningfully inform, influence, or even lead the direction the research partnership and project goes in. This can result in the development of new research projects unanticipated or previously not prioritised by researchers – this is crucial. Without this potential, claims of co-producing research should be questioned. Co-production is, and must be, more than consultation or merely an opportunity to feedback.

Co-producing research also has the potential to enhance impact (Darby 2017; Kjellström et al. 2020; Miettinen, Tuunainen, and Esko 2015; Smith and McGannon forthcoming; Williams, and Grant 2018). One reason proposed for why this might be the case is that partners with lived experience can identify research priorities and questions that are relevant, timely, and meaningful to them and/or other knowledge users, stakeholders, and places and communities they live in or are part of. This is instead of researchers, who may be detached from these issues and/or communities, determining what the research priorities are. Partners with lived experience can not only use their experiential knowledge to improve the design and evaluation of a research project. They can play a key role in ensuring a project addresses relevant and prioritised issues and is fit-for-purpose. This potentially positive impact is often dependent though on bringing together diverse teams of collaborators, including those working in policy and practice. That is because they often have power, access to certain people, and influence within organisations to improve and accelerate the active translation of research into action. However, it is important to address the unequal power relations between those within diverse groups of collaborators. This is to ensure, for instance, that high status researchers, policymakers, or practitioners do not unduly influence the course of a project and/or drown out or undermine the contributions and ideas of people with less power and influence.

Co-produced research has the potential to deliver multiple benefits but there also are challenges and barriers (Smith and McGannon forthcoming; Wilkinson 2019). Many of these are embedded in university structures and systems (Banks et al. 2018; Beresford 2020; Williams et al. 2020b). For example, increasingly in certain countries grant funders (e.g. the *National Institute for Health Research* in the UK and the *Social Sciences and Humanities Council* in Canada) are mandating or calling for

Table 1. Strengths of co-produced research.

Co-produced research can:

- Enable research to support the creation of a fairer society and do work that addresses public concerns and needs
- Address inequities in power and amplify marginalised or excluded voices
- Recognise, value, and utilise experiential knowledge
- Support the prioritisation of research topics, aims, and questions by people who are typically excluded from or marginalised in the research process
- Enhance study design and research processes
- Enable the recruitment of a diverse range of research participants
- Identify appropriate research methods and revise or create new methods
- Generate novel and conceptually rich knowledge
- Advance innovative theories and new concepts
- Deliver impactful research that can provide solutions to problems and positively influence people's lives

Table 2. Challenges and barriers to co-producing research.

- Grant applications and protocols often call for predetermined research designs and outcomes, but that predetermination does not fit with the logic and processes of co-producing research
- The often-lengthy timescales associated with achieving research impact are commonly experienced as frustrating – as is the experience of lacking the power to ensure impact
- Funding to co-produce research and evaluate its impact is often inadequate
- University structures and policies can deter and hinder co-production
- Building and maintaining relationships with diverse groups of people can be difficult, complex, and messy
- Agreeing a plan of action can be complicated when there is a diversity of (sometimes contradictory) perspectives shared
- Building trust and sharing power are fluid and fragile processes that are in need of constant negotiation and re-negotiation
- Significant emotional labour is commonly required. Co-producing research can often lead to difficult conversations being had and tension building between partners
- Experiential knowledge will not always be valued or accepted by all collaborators
- Qualitative expertise is often necessary but not everyone has that training, skill, or disposition
- Motivations, agendas, and prejudices for doing and participating in co-produced research can differ and may not always be positive or acceptable
- Academic norms and practices tend to relegate the value of lived experience and co-production processes. This can lead to co-produced research lacking credibility and recognition within academia.

more research to be conducted *with* communities. Often the funding to co-produce research and evaluate its impact well is inadequate. If seed funding and the like is not available, it can be very difficult to resource the formation of genuine and equitable partnerships with people and communities outside of academia. This is vital as it facilitates beginning a co-production process by collectively establishing research priorities and shaping research design. Funding applications often require research questions and designs to be set before funding can be awarded. In many cases researchers will therefore either write an application claiming that the research will be co-produced despite them already setting the course that the research will take or choose a different, less participatory, methodology.

It can be incredibly challenging to build and maintain relationships in ways expected of co-produced research (Banks et al. 2018; Hickey et al. 2021; Smith, Mansfield, and Wainwright 2021). Within current academic structures and norms, and because developing partnerships is often complex and messy, it should not be underestimated how difficult it can be to establish genuine partnerships that are built on trust, power sharing, reciprocity, and mutuality with a diversity of people who are mostly unknown to each other. That can be especially so when universities have a history of not working as well as they should with local communities (Armstrong et al. 2022). Additionally, contemporary pressures to secure funding in academia can mean that a researcher is structurally encouraged or pulled towards simply doing what is fundable. Many researchers of course do co-produce research for worthy reasons. However, when researchers latch onto co-production as a buzzword that merely enhances their capability to secure funding (and thus their promotion

opportunities and academic capital) there is the real danger that co-production in research is undermined and/or becomes tokenistic. This is especially so when the research team have no or little experience in co-producing research.

At the same time, researchers may feel dis-incentivised to co-produce research as it is often considered to be incredibly time-consuming, admin-heavy, and both emotionally and practically challenging in comparison to other forms of research or research practice that would otherwise be suffice and rewarded within the academy (Flinders, Wood, and Cunningham 2016; Lambert and Carr 2018; Lenette et al. 2019; Pearce 2021; Thomas-Hughes 2018; Williams et al. 2020b). This is a particular issue because the academic system typically rewards fast scholarship and output quantity over slow scholarship and quality outputs (Staniszewska et al. 2018). Co-produced research is also typically not valued as highly by current academic performance metrics in many countries. Researchers may moreover find that a barrier to doing high quality co-produced research is that academic timelines do not align with non-academic timelines (van der Graaf et al. 2021). Such challenges and barriers may be amplified for those who occupy less prestigious academic positions – whose labour is typically relied upon to ensure co-produced research can be done. None of these are justifications for rejecting co-production. Rather, as Williams et al. (2020b) argued, these challenges and barriers illuminate the structural inequalities in academia that undermine the feasibility and importance of more participatory research approaches and the status and labour of those who typically undertake them. Whilst not easy, such challenges and barriers may allow us to 'position co-production as a means of transforming academia itself' (Bell and Pahl 2018, 112).

There are also challenges and barriers to co-producing research that relate to epistemology and methods (Beresford 2020). Traditionally experiential knowledge has been devalued by policy makers, certain health professionals, and academic researchers as biased, unscientific, subjective, anecdotal, and unreliable. What has traditionally been valued instead has been positivistic research that assumes knowledge should as best as possible be unbiased, reliable, and objectively found by a researcher who is the expert and considered capable of offering an 'unbiased' view distant from their participants. Supporting this has been the belief in a universal methodological hierarchy. Irrespective of the purposes of the research, that hierarchy places randomised control trials at the top as the very best methods. These are considered the 'gold standard' for providing the best evidence. Close to the bottom of the hierarchy and by implication inferior to those above are qualitative and participatory methods. However, lived experience is valued and incorporated as an essential component of co-produced research. These epistemological and methodological norms within academia can though mean that researchers who co-produce research encounter barriers. When people in positions of power devalue experiential knowledge and apply methods hierarchically it is likely they will reject co-produced projects and outputs as not 'proper' research. This can mean co-produced research is often unfairly assessed in university assessments and dismissed as irrelevant to influence policy and practice. People involved in the research may end up feeling like they and their work does not count and/or feel that they are in a constant battle for legitimacy.

Researchers who have a disposition for positivistic research and quantitative methods are not immune to such barriers should co-produced research be of interest. Co-production for most researchers irrespective of their paradigmatic disposition requires much emotional labour because it can often be 'more emotionally taxing' (Lenette et al. 2019, p.164) than traditional ways of doing research. It can at times be experienced by researchers and others as very uncomfortable, demanding, and scary – in part because it is unfamiliar to them or challenges the conventions of their usual practice. Co-producing research is also practically challenging for many researchers. That extends to gaining novel yet needed research questions, working within a diverse group, and honouring conflicting views among collaborators. The increased emphasis on ensuring the research is impactful and managing expectations of those unfamiliar with research processes (especially expectations related to how quickly impact can be made) also present challenges.

All this recognised, some researchers may face greater challenges to co-producing research than others. For example, researchers with a history of doing qualitative research underpinned by interpretive and/or critical approaches could feel *reasonably* well equipped to co-produce research. That is because co-produced research can 'fit' well with their training, skillset, and beliefs. They will have had experience of working in highly reflexive ways, dealing with uncertainty, engaging with the messy realities of people's lives, and applying different qualitative methods. These researchers would also likely believe that lived experience is valuable knowledge and acknowledge that the unbiased, 'objective' researcher that can get at the reality independent of them is an unhelpful but persistent myth.

However, for a researcher with a history of doing positivistic research and/or subscribing to a methodological hierarchy, co-producing research may bring very different challenges or amplify difficulties. If qualitative methods are used in a project, as is common in co-produced research (Goldsmith et al. 2019), they are unlikely to have the skillset and expertise to do high-quality qualitative research. That means rather than thinking qualitative methods are easy and quick to learn, which none are, these researchers would benefit from reaching out and being open to learning from or working with experts in qualitative research. Reaching out and deferring methodological expertise can be challenging for some. Co-producing research also might feel troubling to do because it demands a radical epistemological and methodological turn. It would necessitate a change in which experiential knowledge is now valued and methodological hierarchies are flattened. Co-produced research moreover questions positivistic ontological assumptions. As possibly representing a form of revolutionary science in ways articulated by Kuhn (2020), co-producing research might cause other challenges or problems for positivistic orientated researchers. For example, their co-produced work might be devalued and their credibility as a legitimate researcher questioned by peers. Established academic relationships built on positivistic values might moreover erode and career opportunities decline.

Lastly, when experiential knowledge is brought to the foreground as a positive it can be easy to slip into representing people with lived experience as the virtuous vulnerable. As well as being patronising, this fails to acknowledge that the participation of lived experience practitioners will not always be motivated by benevolence or simply a desire to share their experiences. As with any partner in a collaboration (e.g. researchers, policymakers, healthcare professionals), different lived experience partners will have differing motivations and agendas for participating in co-produced research. That might include furthering their own beliefs or agendas (which may not always be positive, e.g. racist or homophobic beliefs) and/or simply responding to an opportunity for paid work. Negotiating this may make managing co-produced research and the collaborations it requires more challenging. All this may amplify the need for emotional labour that goes with co-producing research. This emotional cost is often gendered and reinforces existing hierarchies as many have noted that this research is disproportionately done by women and early career researchers (Lenette et al. 2019; Oliver, Kothari, and Mays 2019; Williams et al. 2020b).

Table 3. Working principles.

Working principles to promote co-production as a means to advance a participatory turn in sport, exercise, and health sciences research
• Co-production is adequately resourced
• Power is shared through equitable partnerships which include those with relevant experiential knowledge, expertise, and assets
• Different knowledge bases and contributions are respected, valued, and blended
• Relationships are built and maintained based on mutual respect, dignity, trust, transparency, humility, and relational ethics
• Diversity is important and supported when agonistic pluralism is practiced
• Reciprocity and mutuality are practiced

Co-producing research: working principles, practical options, and judgment criteria

Co-production in research has been informed by different and sometimes contrasting principles. Here we advance 6 working principles for co-producing research that we feel keeps co-produced research in alignment with and supportive of the wider aims of those advocating for a participatory turn in research. Here principles are understood to refer to normative values and optimal processes that represent and govern co-production (Hoekstra et al. 2020; INVOLVE, 2021). The working principles are highlighted in Table 3 and expanded on below. We also offer related strategic options for action, that is, practical examples of how each working principle might be achieved. Criteria for judging if each working principle has been met is advanced as well.

The working principles, practical tips, and criteria were developed in several interrelated and iterative ways. They are developed against a vast literature comprising academic work, grant funding body sources, and national organisation information on co-production that we read, mapped, and synthesised (e.g. Banks et al. 2018; Canadian Institutes of Health Research. Strategy for Patient-Oriented Research, 2014; Co-production Collective 2021; Co-production Network for Wales 2021; Edwards and Brannelly 2017; Farr et al. 2020; Gainforth et al. 2021; Hoekstra et al. 2020; Hoekstra and Gainforth 2021; Howard and Thomas-Hughes 2021; Knowles et al. 2021; Kraff, 2020; Liddiard et al. 2019; Mind 2021; Mouffe 1993, 2000, 2013; INVOVE 2021; Nabatchi, Sancino, and Sicilia, 2017; National Development Team for Inclusion 2021; Nguyen et al. 2020; Pearce 2021; PCORI Engagement Rubric, 2016; Radl-Karimi et al. 2020; Scottish Co-Production Network 2021; Social Care Institute for Excellence 2013; Slattery, Saeri, and Bragge 2020; Tembo et al. 2021; van der Graaf et al. 2021; Warwick-Booth, Bagnall, and Coan 2021; Williams et al. 2021; Williams, Lindenfalk, and Robert In press; Wilson, Ostrom, and Cox 2013).

The working principles, practical tips and criteria for judging the quality of co-produced research are also grounded in the experiences of 97 people who have co-produced research and researched co-production. These people have approached this work from a diversity of identity positions, perspectives, and roles. That includes as an academic researcher, disabled person, mental health survivor, refugee, retired athlete, LGBTQI+ activist, social care professional, health professional, sport coach, physical activity community champion, physical activity government national lead, and representative from a user-led organisation or national sport organisation. As noted in the introduction, 80 people from this group informed this work through lengthy informal conversations with us about their experiences of co-producing research. The working principles, practical tips, and criteria were also grounded in our experiences (BS & LB) of co-producing research for many years and the experiences of 14 people who have been core partners in a project on physical activity and social work entitled *Moving Social Work* (see endnote 1).

All of this group are deemed to have contributed sufficiently to warrant individual recognition as authors of this paper, but the group chose to have their authorship recognised as a collective. The *Moving Social Work Co-production Collective* is a diverse group who developed and implemented principles to meet the goals of co-producing the *Moving Social Work* project. These principles were developed and continuously reflected on through dialogues about how the project could be genuinely co-produced and tokenism could be avoided. They have been put into practice by, for example, the partners jointly identifying priority research questions, shaping the impact plan, directing how we communicated and when, changing how we used the budget, recruiting participants, designing, testing, and leading World/Knowledge Cafés, influencing interview guides and doing interviews, analysing data, determining the content of research, and disseminating findings.

Against this backdrop of how the working principles, practical tips, and criteria for co-producing research were developed, and before unpacking these, multiple points need stressing. The principles offered here are not exhaustive or definitive. Claiming principles are exhaustive or definitive would finalise co-production. Offering the last word or claiming consensus through research designs like a Delphi consensus study is not what we are attempting to do. Co-production is more complex than that. We also acknowledge the legitimacy of other's views, experiences, and expertise gained

through co-producing research. This is why we stress that these are our 'working principles'. These principles are ambitious, will not always be easy to achieve, and are not a recipe or universally applicable. However, if deemed applicable and useful, the principles can be transferred, used, and/or adapted by others in the sport, exercise, and health sciences and beyond to guide the co-production of their research.

We should moreover stress that the practical suggestions for how each principle might be practiced are not exclusive to that principle. They overlap and intersect. The criteria offered is also part of an ongoing list of criteria (see Smith and McGannon 2018) for judging the quality of co-produced research. Co-produced research, like all research, needs to be held to high and aspirational, perhaps even utopian (Bell and Pahl 2018), standards. Yet, as Howard and Thomas-Hughes (2021) point out, 'Whilst different notions of quality criteria have generated much debate in qualitative research, these are less discussed in co-produced research' (p. 791). This is perhaps partly explained by Dudau, Glennon, and Verschuere (2019) feeling the need to call for a 'constructive disenchantment with the magic that surrounds co-design, co-production and value co-creation' (p. 1577) – with assumptions about such participatory practices being inherently positive seeming to blunt the criticality with which the associated methods and outcomes are assessed. We thus develop and highlight different criteria in the shape of questions which can be critically applied throughout the co-production process – from planning to evaluation. Along with the working principles that may be directly used by others or tailored to their specific study aims and context, these can serve as minimum standards for co-producing research in the sport, physical activity, and health sciences (and, where appropriate, elsewhere). One reason it is important to have these sorts of criteria is that it helps our field fairly assess co-production efforts and to tackle tokenism.

Principle 1: Co-production is adequately resourced. This is our first principle because – whilst resources are never infinite – adequate resources are often necessary for ensuring other principles can be legitimately achieved. Practically that means resources like time and money need dedicating to co-production activities. Partners with lived experience should be rewarded in ways that are agreed to be fair and appropriate – this should include the possibility of payment. Payment for time and contribution (as well as expenses) is an important issue to consider for other reasons. Who is excluded from co-producing research if participation requires giving time freely without remuneration? Is it fair for some people working on a project to be paid (e.g. researchers) while others are not (e.g. partners with lived experience)? Each case is different and there are important factors to consider. For example, payment may not be welcomed/accepted due to implications on welfare claims, but partners should not be expected to participate for free. In cases where payment is welcomed, prompt financial payments for participation without overburdening bureaucracy is essential. In line with the formation and practice of equitable partnerships, partners should collectively decide what, when, and how co-production resources are used during the process of writing a grant together or after the project has been resourced. That might include prioritising certain activities over others and how all partners will be reimbursed for their contributions.

To judge if this principle has been met, partners and peers might ask: Was the project resourced appropriately? Who decided what, when, and how co-production resources were used? Did partners feel that they received fair remuneration for their contributions? Did remuneration arrive in a satisfactory timescale and without too much effort?

Principle 2: Power is shared through equitable partnerships which include those with relevant experiential knowledge, expertise, and assets. Sharing power means more than partners with relevant lived experience influencing decision-making. It means more too than being engaged in research only once researchers have already set the parameters for a project. Sharing power can mean researchers joining partners with lived experience in projects they themselves have initiated and/or are leading. More often to date though it means that researchers and others whose expertise

derives from their status and training as professionals work in equitable partnerships with partners with lived experience from the beginning and throughout a project. Partners with lived experience play an active role in driving research throughout the project life cycle so that it focuses on issues that are relevant and important to them or the organisations or communities they are part of. They have assets, including expert knowledge and skills, that are often a forgotten engine of change.

How this principle can be facilitated in practice, like all principles, is multifarious. Whilst sharing power does not always come easily and can be uncomfortable at times, we would advise that it includes all partners knowing and valuing what each member of a partnership brings to a collaboration. It should involve explicitly addressing issues of power and authority. That can be done by discussing how decisions will be made (e.g. by vote) and how each member can influence decision making. It is also helpful to manage expectations by having honest conversations not only about power within the group but also beyond it. That is, teams should discuss what power they 'have' to influence decisions and effect change beyond the research itself (e.g. research findings having impact on policy or practice). Significant within these discussions is establishing what the priorities of the group are and how best to achieve them together. This will then set research agendas, questions, and designs. How sharing power can be practiced might also include partners engaging in one or more activities like co-applying for funding, co-constructing impact plans, co-determining outcomes, co-planning the research, co-gathering and co-analysing data, co-authoring publications, and/or co-facilitating the dissemination of research.

All partners can also co-identify where, when, and how meetings will take place, and how regularly the team should get together. For example, what location and/or digital spaces suit people? How can ways of working be accessible for all partners? How should partners communicate (e.g. preferred methods of communication like face-to-face, smart phone, email) with each other? How often will information be shared so that partners feel they can influence the research whilst not feeling overwhelmed? Equitable partnerships are also about adapting the research (e.g. how meetings are conducted or how the findings will be disseminated) on the basis of what partners with lived experience propose. That is not to say that partners with lived experience will always have all the answers or feel best placed to make key decisions themselves – although this may be the case in user- and community-led projects. Rather, it is to acknowledge that listening is not enough. The experiences, views, and preferences of partners with lived experience must meaningfully influence the research, including decision-making processes, how collaboration is practiced, and outcomes.

Collaboratively mapping the teams' assets, discussing together the different and complementary strengths brought to the project, and co-identifying how assets can be put into positive action can be useful. Doing this can help demonstrate the value and diversity of contribution that each member brings to the team and make explicit what the team would lack without them. Arnstein's (1969) ladder of citizen participation might help to facilitate discussion and appreciation of this principle along with others that follow. Whilst the ladder has been critiqued for presenting participatory approaches in a linear, decontextualised, and hierarchical way, it can be useful to facilitate dialogue among all partners about what equitable relationships might mean and what partners can expect from one another. Any 'egos' should always be left at the door when engaging with partners. Listen, learn, and act accordingly. Useful too is a relational leadership style. Rather than adopting a hierarchical leadership perspective which casts the researcher as the leader who controls and directs others, when co-producing research leadership is a relational process. That process is about tending over time to the quality of the relationship, relating with others, and facilitating collaboration and action rather than making commands. It can also include creating personal biographies and sharing these among the team and/or publicly. It is important to be honest about and openly discuss leadership in an attempt to manage expectations and outline commitment.

To judge if principle number 2 has been met partners in the project team might ask: how were the research topic, aim and question(s) conceived? What characterises an equal and unequal partnership? Were equitable relationships formed and sustained? Did everyone feel that their contributions were genuinely engaged with and made a difference to the decisions that were made? How were equitable relationships achieved? Peers who might review the research might ask: how were the research topic, aim and question(s) conceived? What evidence do the project team offer to demonstrate the research explicitly addressed hierarchies in power and was informed by different knowledges, including experiential knowledge? To what extent did all partners believe their personal skills and insights contributed to the research and were valued? In what ways were assets used, and how did these impact on the research? Did partners gain new assets? How were decisions made about how to utilise the assets available to the team in order to have a positive impact?

Principle 3: Different knowledge bases and contributions are respected, valued, and blended. All partners are important. They have different forms of knowledge to share and contributions to make. These are encouraged, recognised, shared, valued, and blended. That hybrid of knowledge includes *scientific knowledge* (episteme) *and craft knowledge* like practical skills and expertise (techne). Importantly, it also necessarily includes *experiential knowledge/lived experience* and practical wisdom relevant to knowing how to act (phronesis).

How this principle can be put into practice might include frequently acknowledging that all partners have valuable knowledge and different expertise that is all valued. That can be acknowledged and assured through in-person and tele-communications as well as through actions. It might be helpful to have a 'co-production charter' the team create together to outline working principles and shared values to guide conduct. Creating appropriate and inclusive spaces for different knowledges to be shared and honoured is valuable. Bear in mind that some people will not necessarily consider what they have to contribute to be particularly valuable. Others however may intentionally or otherwise dominate conversations. It is vital then to ensure all partners have the chance to fully express their thoughts and feelings in ways they are comfortable doing so. It is also important to actively listen and respond to these throughout the research. Facilitators can be useful to support that process as can the use of wide-ranging techniques, like sandpits, brain storming meetings, roundtables, Basecamp, and qualitative approaches like diagramming and Knowledge/World Cafés (Löhr, Weinhardt, and Sieber, 2020). Inviting, sharing, and witnessing stories from all partners in meetings, social events, and other spaces can be a useful way to generate different knowledges. It is also helpful to document in various ways the different knowledges and explore in collaboration how these knowledges might work together to advance the research.

To judge if this principle has been met, partners and peers might ask: To what extent did all partners feel confident in sharing their knowledge? How, if at all, was that knowledge received and valued? How were the different knowledges used, and to what effect?

Principle 4: Relationships are built and maintained based on mutual respect, dignity, trust, transparency, humility, and relational ethics. Rather than consulting, involving or merely engaging with partners, co-production necessitates building and maintaining collaborative partnerships over time. How to do this in practice cannot be captured in a formula or recipe. Nor can it be simply represented or fully captured through words on a page. Building and maintaining relationships is an embodied, material, contextual, and multi-sensorial relational process that ebbs and flows over time (Armstrong et al. 2022). It requires nurturing and genuine investment. Relationships need to be built and sustained through trust, mutual respect, dignity, humility, openness, and an ethics that places emphasis on meaning created through dialogue, the coordination of actions, and a mutual relatedness (Smith, Mansfield, and Wainwright. 2021). None of this is easy. Building and sustaining genuine

partnerships between researchers and those outside of academia is often made more challenging or even unfeasible by contemporary academic systems, practices, and norms (Batlle and Carr 2021; Mason 2021).

Building and sustaining relationships needs genuine commitment. People can often sense a façade. They can see through front stage performances to appear respectful, trustworthy, and authentic when interaction is tokenistic. This is why authenticity is also important in relationships. Project partners need to be open, honest, credible, sincere, and, at times, willing to demonstrate vulnerability (Batalden 2018). Learning each other's language, recognising the value of all contributions, doing mundane tasks, preserving confidentiality, actively listening to others, appreciating difference, expressing gratitude, and following up on actions go a long way in showing how authentic a partnership is. Sharing stories can be useful for building and maintaining relationships also. That is because storytelling is an invitation into a relationship and sustaining it. *The Rivers of Life* method may be a valuable tool here as it can help bonding (Moussa 2009). In this method people are invited to use the symbol of a river to reflect on and draw key stages in their lives, positive experiences, and influences (tributaries), and difficult challenges (rough waters).

Remuneration is moreover an important and all too often poorly attended to aspect of building authentic and respectful relationships in co-produced research. As noted, too often researchers expect or ask partners with lived experience to contribute to projects without payment. That commonly (but not always) means covering expenses for attending meetings and offering shopping vouchers as a 'token of appreciation' but little more. Regularly this is only what happens because researchers have not sufficiently costed for co-production costs when applying for funds. It also happens when university finance systems are not set up to quickly and efficiently pay collaborators who are not offering professional or academic services. While getting funders to agree to sufficiently fund co-produced research and navigating the internal bureaucracy of university finance systems can both be significant challenges for researchers – not least because they present many factors that are out of their control – these are necessary challenges to negotiate. Those embracing the participatory turn do not want to do so only to exploit the labour and charity of partners with lived experience.

To judge if this fourth principle has been met, partners and peers might ask: How would the project partners define their relationships with each other throughout the project? What do they think makes a quality relationship in co-produced research, and have these qualities been met? How, if at all, were partners respectful, dignified, trustworthy, transparent, humble, and ethical? Has the research strengthened relationships among partners? Have lived experience partners been offered payment?

Principle 5: Diversity is important and supported when agonistic pluralism is practiced. Partnerships should be accessible, inclusive, and diverse. They should embrace a plurality of people, including those from marginalised or disadvantaged groups, whose experience, knowledge, and priorities are often neglected in research, policy, and practice. In co-production the task then is not always to seek consensus among partners. The task is to honour and accommodate diverse views, feelings, and perspectives. To support this the idea of 'agonistic pluralism' is useful (Mouffe 2000, 2009). Different to antagonism, agonistic pluralism is grounded in the assumption that agreement and conflict-free consensus are likely to neglect difference, generate a marginalisation of minority positions, and feed the acritical assimilation of hegemonic values. It suggests democracy is dependent not on consensus but instead on difference and dissent. It is characterised by allowing opposing systems of thought to be expressed. Thus, rather than seeking to reach consensus through a panel or different methods, or viewing a lack of consensus as failure, agonistic pluralism calls on academics and partners to understand that conflict is part of relationships and is a condition for equitable partnerships. It requires being and becoming different in the same space, deliberation, and accommodation.

What this principle looks like in practice includes remembering there is no one voice for partners with lived experience and other partners. That is, there is not a singular 'patient voice', 'service user voice', 'community voice', and so forth, however convenient it is for researchers to present uniformity. It is important then to ensure as best as possible that a diverse range of people (including regarding gender, sexuality, race, disability, class, education) are included in the research. Using wide-ranging engagement processes, including accessible and different forms of communication inviting people to be part of a project, can help with this. Although the 'usual suspects' (i.e. patient advocates, activists, community leaders) should not be dismissed due to their long-term commitment to certain causes (Beresford 2020), inviting 'recurring friends/the same faces' from past research or handpicking people from a small group known to the research team, or simply selecting people who are likely to just agree with what a researcher proposes, should be avoided. The consequences of such narrow partner selection processes can mean that an echo chamber is created, the unnoticed partiality carried by researchers is concealed, and those with most to gain are commonly most excluded from leading, shaping, and/or informing research. It is often important to also take the time and responsibility to connect with and support so-called 'hard-to-reach' (but perhaps more accurately 'seldom heard') groups and understand their needs, including what is 'at stake' for them in terms of the research. To help connect with a plurality of people, including the seldom heard, working ethically researchers might reach out to user-led organisations (e.g. Disabled People's User Led Organisations), community groups, faith groups, schools, colleges, and hospitals, for example.

Other practical tips to help with the inclusion of different people and support accessibility include the following:

- Check that the timing and length of your co-production activities (e.g. workshops, meetings) are appropriate to the needs and lifestyle of the people you want to reach. For example, early mornings may not work for some people who have health conditions because they may need more time in the mornings to get ready. This time may not also work for parents who need to do the school run.
- Choose a venue that offers people easy access, and which is also served by good public transport.
- Have regular refreshment/rest breaks at any events you are holding.
- Invite people to bring someone with them if they feel anxious about participating for the first time or about travelling.
- Offer training, such as in computer skills to make tasks more accessible.
- Provide an appropriate Sign Language interpreter or induction loop facility for service users with a hearing impairment.
- Provide documents in large print or Easy Read format. Use plain language and avoid unnecessary jargon also.

Practicing agonistic pluralism is challenging of course. For example, conflict among partners can be hard to manage. Finding practical solutions to a problem when people disagree can require significant emotional labour and be experienced as awkward and/or frustrating. Moreover, conflict can pose a risk to producing meaningful project outcomes in the time frame of the research. To help practically navigate such challenges and support how this fifth principal might be achieved, it is crucial that spaces of communication remain open throughout the project. It is vital that momentum is maintained with regular updates, feedback, and reflections on actions. This can help support ongoing dialogue between all those working on the research project. Dialogue is useful to get different views. It can help the project team get to know each other. But dialogue does not often happen easily. It often requires different, flexible, and varied creative approaches. That might include sharing stories in loosely structured meetings, sandpits, World/Knowledge cafés, and/or via digital communication, photographs, poetry, animation, dance, and/or reflections on statistics. It might also

include using qualitative methods like cards on the table methodology (Österåker 2001), timelining (Williams 2018), mobile methods (Kusenbach 2020), and story completion (Williams, Lozano-Sufrategui, and Tomasone 2021). The inclusion of different voices in dialogue can moreover be supported through partners acting as co-researchers. With training and mentorship if needed, they can gather, analyse, evaluate, report, disseminate and implement research evidence.

Diversity is important and with this conflict can occur between people in a project. It is important then to respectfully balance agreement with dissent and unity with plurality. Partners may at times feel they have 'adversaries' or 'friendly enemies', but ultimately all partners need to respect each other's right to exist in the same space. If a diverse group has been brought together then differences of opinion and views are to some extent inevitable. This is no bad thing and being aware of this inevitability can help teams to negotiate it better. To support this and help deal with the challenges that agonistic pluralism can bring, establishing ground rules is important. Establishing roles and expectations, including the need to always listen respectfully to all voices, is vital. A charter/set of working principles can help document these – including collectively deciding how decisions will ultimately be made. Spending time to discuss issues is necessary and inclusive spaces to do this should be built into the research. Good facilitation is important here. Vital as well throughout co-production, and supporting the principles, is the need for continuous reflexivity. It is helpful to encourage reflexivity among all partners regarding how they are working together, how they respond to conflicting views, and how their assumptions, power, and lived experiences influence the conversations and overall research. This can be facilitated from the outset by discussing openly what reflexivity is, involves, and why it is valuable. It is worth considering together how reflexivity might be facilitated, e.g. using diaries, a padlet board, drawings, a blog, Basecamp, post-it-notes, autophotography (Reis et al. 2021) and other creative qualitative methods as outlined in Evans et al. (2021). Discussing how insights might be respectfully shared, remain confidential, and/or incorporated into the research can also be practically useful to help manage any conflict.

Regarding criteria, to enact this principle during a project or assess its achievement at the end partners and peers might ask the following questions: What has been done to ensure different perspectives and skills were included in the research? How are/were different voices and experiences recognised, valued, and integrated into the research? Who is/was absent, why, and with what possible effects? What can be done to mitigate this in the future? Are/were safe spaces created for difference and dissent to be aired? How are/were differences of opinion dealt with by partners, and what impact is this having/has this had on the research? How and why are/were any conflicts or tensions beneficial or harmful to the research and relationships? Do/did we collectively agree how we negotiate situations where there is/was disagreement and, if so, is/was this effective in practice? Are a diversity of perspectives and knowledges represented in outputs?

Principle 6: Practice reciprocity and mutuality. Reciprocal partnerships are about giving and taking. Everybody should benefit in some way from working together. Partners can put a lot into co-production. Practically, for researchers, this might include exchanging resources, sharing knowledge, providing training and support for co-production, volunteering in a partner organisation, supporting a campaign, and/or offering university certificates and references as evidence of partner expertise, skills, and knowledge. Co-operation, accountability, and mobilisation are moreover important when co-producing research. These can be achieved through actions and dialogue about how people practice reciprocity.

To judge if this principle has been met, partners and peers might use these criteria: What did reciprocity and mutuality look like across the research? How did academic researchers treat partners with lived experience, and with what impact? What did academic researchers and/or the university do to support partners with lived experience/partner organisations? Who benefited from the research, and how? What did I/they get out of this experience?

Concluding thoughts

Not all research should be co-produced. Co-production is also not for everyone. But as more funders and researchers pivot to align their agendas and practice with the participatory turn, there has been growing interest in co-production in the field of sport, physical activity, and health sciences. Despite that, there is a lack academic resources in our field dedicated to laying the groundwork necessary to guide and support the co-production of research and for taking it forward. This paper has been a modest attempt to do this. Without claiming to be exhaustive or definitive, we have delineated 3 different types of co-production: *Citizen Contributions' to Public Services, Integrated Knowledge Translation*, and *Equitable and Experientially-informed research*. We have shared empirically-derived working principles for co-producing research and related strategies/practical tips for doing it. Criteria for judging the quality of co-produced research were also advanced. In these ways, this paper makes an original and hopefully impactful contribution to our field. We hope it is a useful, useable, and used resource.

For example, we hope this paper facilitates and supports researchers to navigate the differences and similarities between the different types of co-production they will find in the literature and the ways each can be put into use within our field. Navigating these is vital. That is because research progress can be hampered by conceptual fuzziness and a lack of comparability between different practices and phenomena that have all been termed co-production (Fledderus, Brandsen, and Honingh 2015; Williams et al. 2021). Research can likewise be hampered when one type of co-production gets conceptually over-stretched. When overstretched or conceptually fuzzy there is the risk that differences between types of co-production are erased, one type of co-production is mislabelled as another type, and co-production can become a 'catch-all' term or 'buzzword'.

Given such points, it is important to advance our reporting and reviewing of co-produced research in the field. It should no longer be acceptable for a research team merely to state that research was 'co-produced'. It is vital that research teams clearly communicate in all outputs what definition of co-production they chose/followed. That will also help peers to assess fairly and rigorously the quality and fidelity against the recognised aims, objectives, and criteria for the stated type of co-production chosen/followed. Introducing a new typology to our field might however pose challenges for researchers wedded to a certain label. It might mean that they need to change how they label their work moving forward so it reflects better the specific type of co-produced research they are seeking to do (e.g. from *Integrated Knowledge Translation* to *Equitable and Experientially-informed research* or visa versa). Changing labels in the future is not easy given the investment people have in a term they have used and promoted for many years. But it is necessary for reasons described above. We also want to set/promote the expectation that anyone planning to 'co-produce' research *without* partners with relevant lived (rather than professional) experience, or claiming to have co-produced research without such partners, should be required to justify their exclusion.

In addition, we wanted to highlight the important role qualitative researchers can play in advancing the co-production of research. As described above, qualitative researchers are well-placed to support co-production endeavours and have been early adopters and developers of participatory methodologies (Rolfe, Ramsden, Banner, and Graham, 2018). This experience and expertise should be recognised by others planning to co-produce research. One reason for this is that whilst co-production is neither fixed nor identical to qualitative methods, co-produced research predominately uses qualitative methods (Goldsmith et al. 2019). Qualitative research and co-produced research also come together through shared characteristics that help define them. That includes an appreciation for experiential knowledge, diversity, context, flexibility, engaging with different people over a prolonged period of time, and developing trusting and empathic relationships (Leggat et al. 2021; Sparkes and Smith 2014). The synergies also extend to the belief that researchers inescapably influence research. Moreover, thinking and acting qualitatively is much like

how we need to think and act when co-producing research. That involves thinking and acting analytically, reflexively, realistically, symbolically, ethically, multi-, inter- or trans-disciplinary, creatively, summarily, interpretively, and/or narratively (see Saldaña 2015).

It is sometimes believed that qualitative methods can be quickly learnt and put into practice easily. However, this is not the case. Qualitative research is a complex craft that takes much time to learn and should be respected as such (Brinkmann 2015; Smith and Sparkes 2020). Therefore, if the aim is to conduct high-quality co-produced research, then those with expertise in qualitative research have an important and unique contribution to make. We call on scholars thinking about co-producing research but who have little qualitative expertise to honour this by ensuring qualitative researchers are appreciatively brought into a project that has a qualitative component to it.

What might other 'next steps' be for co-producing research in the field of sport, exercise and health sciences? It is important that co-production papers like this are translated into different formats. From our side we have begun work with a co-production team made up of different partners with lived experience plus several professional knowledge users and stakeholder organisations to translate this paper into accessible, relevant, and meaningful resources (see http://www.getyourselfactive.org). Building on this paper and our other work (Smith and Wightman 2021; Smith et al. 2022; https://www.youtube.com/watch?v=N1t6fD_LGWU), a project is also being co-produced to embed co-production into sport and physical activity organisations across the UK.

Whilst we have outlined some of the philosophical foundations of the participatory turn and co-production, further unpacking of these and delineation of the epistemological and ontological differences between each type would increase understanding and aid the endeavour of co-producing research. Such work would be well complemented by dedicating rigorous and critical attention to the conditions and mechanisms that facilitate co-production and optimise value co-creation. The evidence base on the processes and benefits of co-producing research need strengthening. We also need to develop evidence on the outcomes and impacts of co-produced research in our field. A meta-synthesis of that evidence as it 'accumulates' is needed too (Williams and Shaw 2016). More needs to be known about the impact of co-production, when, where, and how it can be used most effectively, and when it might be best to choose a different approach. We also need more reflexive accounts (Townsend and Cushion 2021). Confessional tales and biographies documenting co-production processes have a part to play in generating such knowledge (Kara 2017; Rogers, Papathomas, and Kinnafick 2021). These reflexive tales could also be useful to know more about why people were motivated to co-produce research and how they attempted to align personal motivations with power sharing and collective decision making. They can moreover be beneficial to shed more light on the challenges, conditions, and facilitators of co-production and generating impact. For example, where and how our principles are put into action and with what consequences, what attempts work and might not to address inequities of power within partnerships, and how do ethics and politics play out in a project?

Another 'next step' is acting on the need for universities and other education providers to work with local communities and other partners to integrate co-production more in their research agendas and curricula. Doing so would mean that researchers are sufficiently supported to co-produce research and students become aware of the potential value and legitimacy of doing so. Strategies to incentivise co-produced research in universities need creating and implementing. Long-term commitments to creating spaces and opportunities in universities for 'outsiders' to engage with staff and students, and concerted efforts to support staff to 'get out' into and work with local communities and services, are needed. This includes greater openness to and possibilities for researchers joining projects that are being led by people, communities, and organisations outside of the academy. That is, we need greater recognition that co-produced research does not have to be instigated by research staff nor is it always best served by being so. The burden of the responsibility to make research more inclusive, diverse, equitable, and impactful cannot fall to researchers alone – structures and

systems must be (re)created to support this aim and the work it requires. It is important moreover to advance understandings on how best to train people in co-producing research and facilitating partnerships with organisations outside academia. Last, but not least, we need to work with funders and publishers to advance how co-produced research can be adequately funded and fairly reviewed during and after publication to support sustainable partnerships, research infrastructures, long-term projects, and research appropriately informed by lived experience.

Notes

[1] Each of the following members of The *Moving Social Work Co-Production Collective* are authors of this paper: Wendy Adams, Eleanor Armstrong, Chris Davis, Kush Kanodia, Danny Lloyd, Sarah Markham, Javier Monforte, Jake Netherway, Andrea Reid-Kelly, Shaesta Saleem, Isaac Samuels, James Scorer, Alexandra Summer and Elliot Watson. The *Moving Social Work* project aims to co-produce an evidence-based education programme to effectively train social workers in how to promote physical activity with disabled people. More details can be found here http://www.getyourselfactive.org/resources/social-work/ twitter @MovingSW

[2] In reviews IKT is at times positioned as different to co-production (e.g. Hoekstra et al. 2020; Nguyen et al. 2020; Leggat et al. 2021). One reason for this is that IKT is compared with approaches that have also been described as co-production in other fields – for example, those we identify here as Type 1 and/or 3. Our ambition with this typology is to make explicit the definitional and processual differences of various approaches and activities that are commonly labelled co-production. By highlighting these differences, we are seeking to promote logical and fair evaluation of any given type of co-production as there is little value in, for example, evaluating one type of co-production against the aims and expectations of other types of co-production.

[3] This approach to co-producing research is now becoming more established, as evidenced by emergent roles such as 'service user researcher' and 'lived experience researcher'. These roles are sometimes held by those with or conducting a PhD but more commonly by those within research teams who have received some form of research training. They are variously integrated into formal academic structures, sometimes as full time salaried members of staff and other times occupying more voluntary roles

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Notes on contributors

Brett Smith is a Professor of Disability and Physical Activity. He is the current President of the International Society of Qualitative Research in Sport and Exercise. Brett leads the Moving Social Work project and UK Chief Medical Officers' physical activity guidelines for disabled people.

Oli Williams is a Postdoctoral Research Fellow based at King's College London and funded by the Health Foundation's grant to the University of Cambridge for The Healthcare Improvement Studies (THIS) Institute. His research focuses on co-production, health inequalities, equitable intervention, weight-related health issues, and stigma.

Liddie Bone works for Disability Rights UK as a programme manager for the Get Yourself Active programme. The programme aims to break down barriers and improve opportunities for Disabled people to be more physically active. Liddie is a qualified social worker and has worked in various roles in the voluntary sector before joining Disability Rights UK. She leads on various projects within Get Yourself Active, including upskilling the social care sector around promoting physical activity and advocating for co-production approaches within the sport sector.

The Moving Social Work Co-production Collective are a group of people with lived experience who inform and direct the Moving Social Work project [see endnote 1].

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