



KNOWLEDGE CO-CREATION IN ACTION

Learning from the Transforming Education for Sustainable Futures Network.
A Methodological Sourcebook

The text of this sourcebook was curated and compiled by Rhona Brown, Rafael Mitchell and Leon Tikly. This synthesis and curation built on the significant contributions of TEF members at the Kigali Synthesis Week and through ongoing input and feedback on earlier drafts.

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Transforming Education
for Sustainable Futures

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Chapter 1

INTRODUCTION

The purpose of TESF was to provide better understanding of how education can be transformed to support sustainable livelihoods, sustainable cities and communities and climate action.

1.1 Background

The Transforming Education for Sustainable Futures (TESF) network plus was funded by the UK government's Global Challenges Research Fund (GCRF) and involved partners from India, Rwanda, Somalia/Somaliland, South Africa, the Netherlands and the UK. The network was initiated in 2019 and officially ended as a funded initiative in 2023. Information about the 'network plus' is outlined below to provide context for the report¹. The purpose of TESF was to provide better understanding of how education can be transformed to support sustainable livelihoods, sustainable cities and communities and climate action. Aligned with these concerns in the contexts of India, Rwanda, Somalia/Somaliland, and South Africa, a focus of the network was to tackle intersecting inequalities including those based on gender, socio-economic status, race, class, languages, coloniality, and Indigeneity. Overall, the network funded 67 projects across the four countries of research focus. Researchers within the network sought to synthesise emerging findings and to generate learning from across the funded projects and diversity of global South contexts, shared in this document. It is in the spirit of sharing these learnings that we frame this as a 'sourcebook' rather than as a more conventional report.

Underpinning our approach was a methodological commitment to knowledge co-creation. As we discuss in subsequent sections of the sourcebook there are many, sometimes conflicting meanings of knowledge co-creation in the wider literature. Our understanding of knowledge co-creation has evolved over time and reflects the plurality of approaches adopted by TESF research teams operating across diverse contexts and with contrasting objectives. We offered a basic definition of knowledge co-production or co-creation in our background paper, [Co-Creating Education for Sustainable Futures](#) (Sprague et al., 2021) as a reference and guide for potential TESF projects teams.

At its most basic level, we understand 'knowledge co-creation' as research that is undertaken in equal partnership between academic researchers and other stakeholders including those who may potentially benefit from the research, have a deep understanding of the context of research and/or who may have a role in putting the findings of the research into practice. (Sprague et al., 2021, p. 2)

¹ For more about the 'Network Plus' model see [About us - TESF](#). For simplicity, we refer to the network plus simply as a 'network' in the remainder of the sourcebook.

In the same background paper, we elaborated on this rationale for adopting a co-creation approach. First, a knowledge co-creation approach can help ensure that results or outcomes are more meaningful and relevant to those it is intended to benefit by being grounded in the lived experiences of those people. These approaches often draw on different kinds of knowledge, across disciplines but also local and Indigenous knowledges. This bringing together of different knowledges and foregrounding of marginalised voices and neglected knowledge can be advantageous for tackling complex or 'wicked' problems – both to get a deeper understanding of the problem from the perspective of those experiencing it and to generate possible relevant, context-specific solutions. In addition, knowledge co-creation can lead to increased ownership and agency in research processes. This is not research about participants but research with, by and for participants, or, as they can often be reframed, 'co-researchers'. In TESF's case, these co-researchers worked in diverse partnerships which included practitioners, Indigenous groups, activists, youth, policy-makers and others outside the academy. This shift in ownership and power (though far from straight forward), and recognition of participants' agency, we argued, is fundamental to the democratisation of knowledge production.

a key motivation [of knowledge co-creation] is to democratise the research process itself through demystifying what it means to undertake research and breaking down traditional boundaries and hierarchies in the research process including what is considered to be 'expert knowledge' and who is considered an 'expert'. (Sprague et al., 2021, p.4)

Interlinked with this is the move towards decolonising research that knowledge co-creation approaches and different ways of doing research can enable. This includes challenging dominant colonial framings and conceptualisations of 'development' or other problematic and often taken-for-granted concepts, many of which perpetuate inequalities and injustices, and instead seeking to foreground Indigenous and other diverse, contextualised knowledges. In chapter two we revisit and further expand on this rationale in the light of our experiences of implementing such an approach.

Our methodological approach has also been informed from inception by three principles which are summarised below:

■ **Transdisciplinary**

Changing systems and developing pathways towards sustainability, unearth so-called 'wicked' challenges that require different ways of understanding the issues involved. Research that is able to draw on perspectives from different disciplines and interests in the development process, including those of researchers, policy makers, practitioners and community-based organisations, is best placed to meet this requirement. A key principle is to be inclusive and actively seek diversity, forgotten or neglected perspectives and unusual or non-traditional partners.

■ **Transformational**

Research has the potential to positively impact policy, structures and cultures, and social practices in organisations and communities and processes of teaching and learning in classrooms, informal settings, virtual and remote environments. Such transformative change may relate to processes, policies, cultures, structures and practices not only within but also beyond education. Transformation can happen across different levels, from within the individual to across institutions.

■ **Transgressive**

Transgressive research not only transforms but it overcomes existing barriers by generating agency and challenging oppressive practices. Transgression has to do with the disruption of, often highly resilient, patterns, routines and systems that have become so self-evident and obvious that people take them for granted and consider them to be normal. This need not be a problem when these patterns, routines and systems are helpful, healthy and sustainable, but this is highly problematic when they are not. Again, attending to diversity and inclusion are particularly important in this area.

From [Co-Creating Education for Sustainable Futures: TESF Methodology Background Paper \(Sprague et al. 2021\)](#)

These principles have been important for the way in which we have undertaken our research in TESF and have guided the analysis we present in the sourcebook. Realising these principles in practice involves overcoming many challenges that we document in the sourcebook. These include bringing together teams with sometimes conflicting interests to conduct research and with unequal access to different kinds of relevant knowledge, skills, material resources and

time. It also involves overcoming the colonial legacy of research in which research undertaken in the global South has often been Northern led and 'extractive' rather than empowering in nature, and has often reproduced hierarchies in the way that different kinds of knowledge are perceived and valued and of what counts as 'good quality' research. Much of the research was also conducted at the height of the global Covid-19 pandemic that presented additional practical difficulties for research teams in implementing a co-creative approach. Nonetheless, and in spite of these difficulties, we argue that the approach adopted has led to genuinely transformative and transgressive change.

Purpose

Knowledge co-creation is currently attracting increasing interest from a range of stakeholders including researchers, community based and non-governmental organisations, policy makers and funders for many of the reasons outlined above. The purpose of this sourcebook is to provide a critical overview of what we have learned as a network from our experiences of applying knowledge co-creation as a transformative practice in economically constrained and highly unequal contexts. It is not intended as a 'how to do it' guide to knowledge co-creation. Underlying our own approach is an awareness of the importance of context in shaping our uptake and use of knowledge co-creation and no two contexts of research are identical. Nonetheless, we hope that through presenting a candid overview of the opportunities and barriers we faced in implementing a co-creative approach to researching education for sustainable futures, the sourcebook will serve as a valuable resource for others interested in adopting a similar approach in their own context. In this regard, the sourcebook is intended to be of value not only to researchers but also for practitioners working in diverse organisational settings, policy makers, non-governmental and community-based organisations as well as funding councils who may be interested in commissioning research in similar contexts.

1.2 Context of the sourcebook

Key to understanding our approach to knowledge co-creation is being able to situate our research in local, national and global contexts. Several of our background papers, including country background papers ([Batra et al., 2021](#); [Elmi et al., 2021](#); [Lotz-Sisitka and Kulundu-](#)

[Bolus, 2021](#); [Tusiime & Imaniriho, 2021](#)) and our paper on [Addressing Inequalities \(Batra et al., 2023\)](#), provide a detailed overview of these contexts as do the project and country synthesis reports. Partner countries are located in sub-Saharan Africa and South Asia, regions profoundly affected by sustainability challenges, although these challenges are manifested differently in each context. To summarise, there is evidence that each country has experienced uneven economic development characterised by high levels of poverty and inequality. All have experienced rapid processes of urbanisation. Urban and rural populations remain largely dependent on low paid and precarious employment in the formal and informal sectors, or on remittances. There is increasing food insecurity in each country and a large proportion of the growing youth population is unemployed. In all cases, poverty is exacerbated by natural disasters.

In India and South Africa, rapid industrialisation and changing patterns of production and consumption linked to the emerging middle class are contributing to climate change through increased carbon emissions, while a dependency on mining and other extractive industries has contributed to pollution of land, air and water and the loss of biodiversity. Although the main causes of climate change lie in over-consumption in the Global North, it has also been exacerbated by a reliance on fossil fuels and charcoal linked to energy poverty in partner countries that contributes to deforestation. Three of the countries (Somaliland/Somalia, Rwanda and South Africa) are at different stages of emergence from protracted internal conflict and India is also involved in conflict.

Education and training are accorded a high priority in national, regional and global policy agendas (including the [Sustainable Development Goals \(SDGs\)](#) for addressing the problems of unsustainable development and promoting more sustainable futures. It is also clear from our country background papers that education and training systems as they are currently configured often fail to contribute to achieving sustainable livelihoods. Nor do they contribute to sustainable cities or to meaningful climate action. At the heart of the problem is that the majority of learners in our four countries of research focus continue to be denied access to a good quality education, i.e. an education that can develop the skills, competencies and capabilities required to support sustainable futures (e.g. Education International, 2019; Moyer & Hedden, 2020).

“...education and training systems as they are currently configured often fail to contribute to achieving sustainable livelihoods.”

Related to the problem of inequality in accessing a good quality education is how a good quality education is defined. That is to say, a good quality education is often defined in narrow instrumentalist terms as improvements in measurable cognitive performance in high stakes examinations. In this respect the content of the curriculum often remains irrelevant to the needs of learners and their communities. Little attention is paid to the development of the affective goals, including those contained in SDG goal 4.7 required for promoting peaceful, inclusive and democratic societies or in developing curricula that are rooted in principles of social and environmental justice.

In this sense, education systems, like the wider societies in which they are embedded, also remain profoundly unequal in terms of both educational access and outcomes. Education systems are also narrowly defined to include only formal education institutions. Our own understanding as a network has been based on a more expansive conception (see below).

Our activities as a network coincided with the onset of the Covid-19 pandemic. As our own research into the impact of the pandemic makes abundantly clear ([Batra et al., 2021](#); [Herring et al., 2022](#); [Lotz-Sisitka et al., 2022](#); [Tusiime and Imanirho, 2022](#)), the Covid-19 pandemic wrought havoc on opportunities for learning as formal education institutions were forced to close for sustained periods and many learners were bereft of opportunities to learn. The pandemic highlighted the structural nature of inequalities too, in and through education, but also the potential of public education in partner countries for supporting community learning in the context of

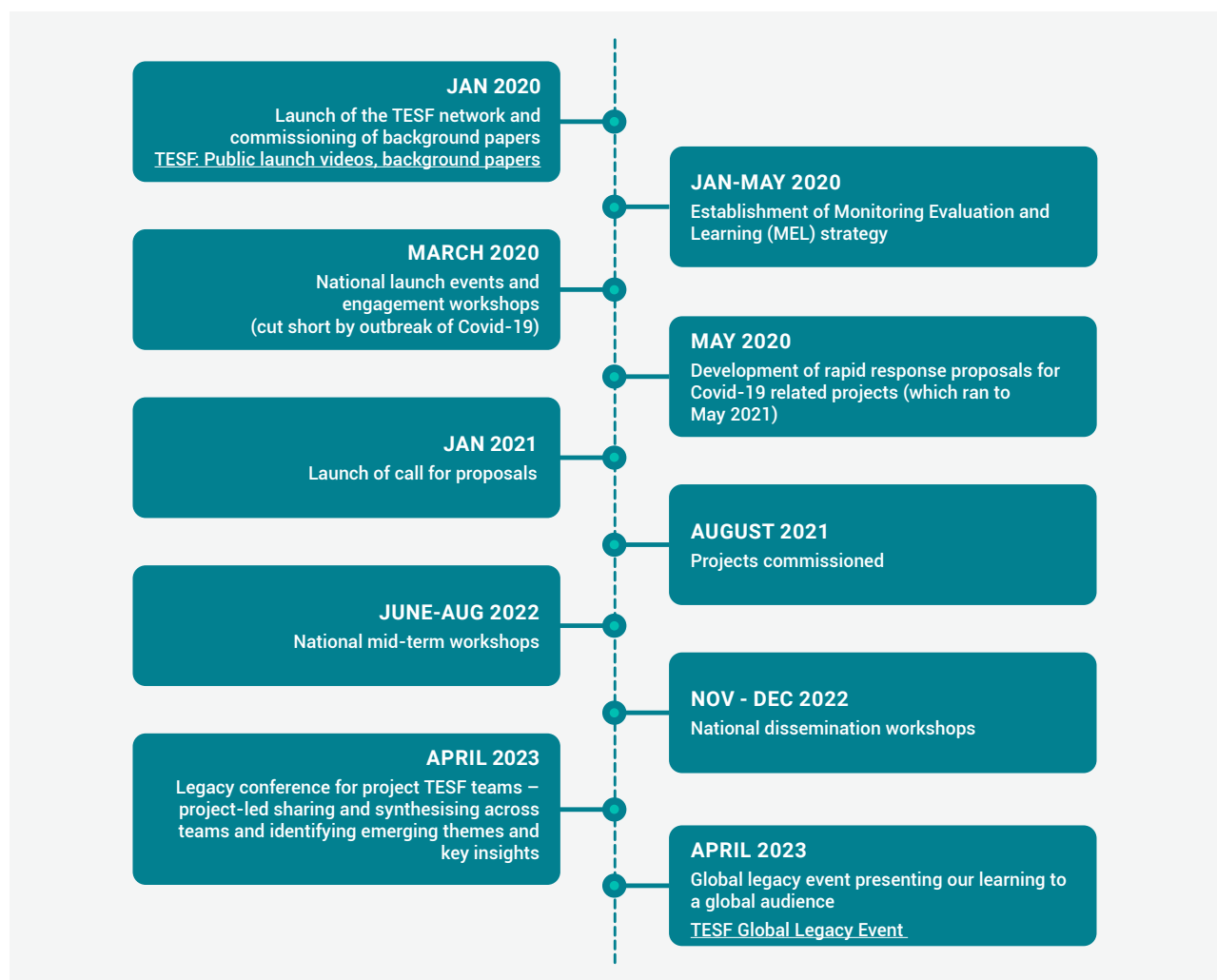
Covid-19 and in future crises including those linked to climate change ([Facer et al., 2020](#)).

At the same time, as is clearly demonstrated in our funded projects, new ideas about what education might be and do are emerging in each of the countries of research focus. Our approach as a network was to seek to strengthen learning for sustainable development, and amplify existing forms of agency for change. Such forms of learning and agency are present, even in the most complex of contexts, but are most often under-supported and under-valued, especially amongst communities and social movements, civil society organisations and education system actors that are seeking to respond pro-actively to emerging challenges in their societies.

1.3 Overview of TESH

In response to the above context, the aim of the TESH network was to co-create new knowledge that can assist education policy makers, practitioners, community-based organisations and other stakeholders in defining, framing, generating, evaluating and implementing policies and practices in education that can support socially just and environmentally sustainable development. TESH ran between November 2019 and October 2023. A timeline summarising our main activities and milestones is presented in Figure 1:

Figure 1. Timeline of TESH activities and milestones



The main research question that TESH sought to address is *how can education systems be transformed so that they can drive sustainable futures?* In particular, we were interested in how education could contribute to more sustainable livelihoods, to sustainable cities and communities, and to climate action ([Tikly et al., 2020](#)). Underlying our approach was a concern with the role of education in addressing inequalities caused by unsustainable development including those based on class, caste, clan, race, gender and language. We also set out to adopt a decolonising approach that could seek to redress the Eurocentric and Northern centred nature of much formal education in our countries of research focus.

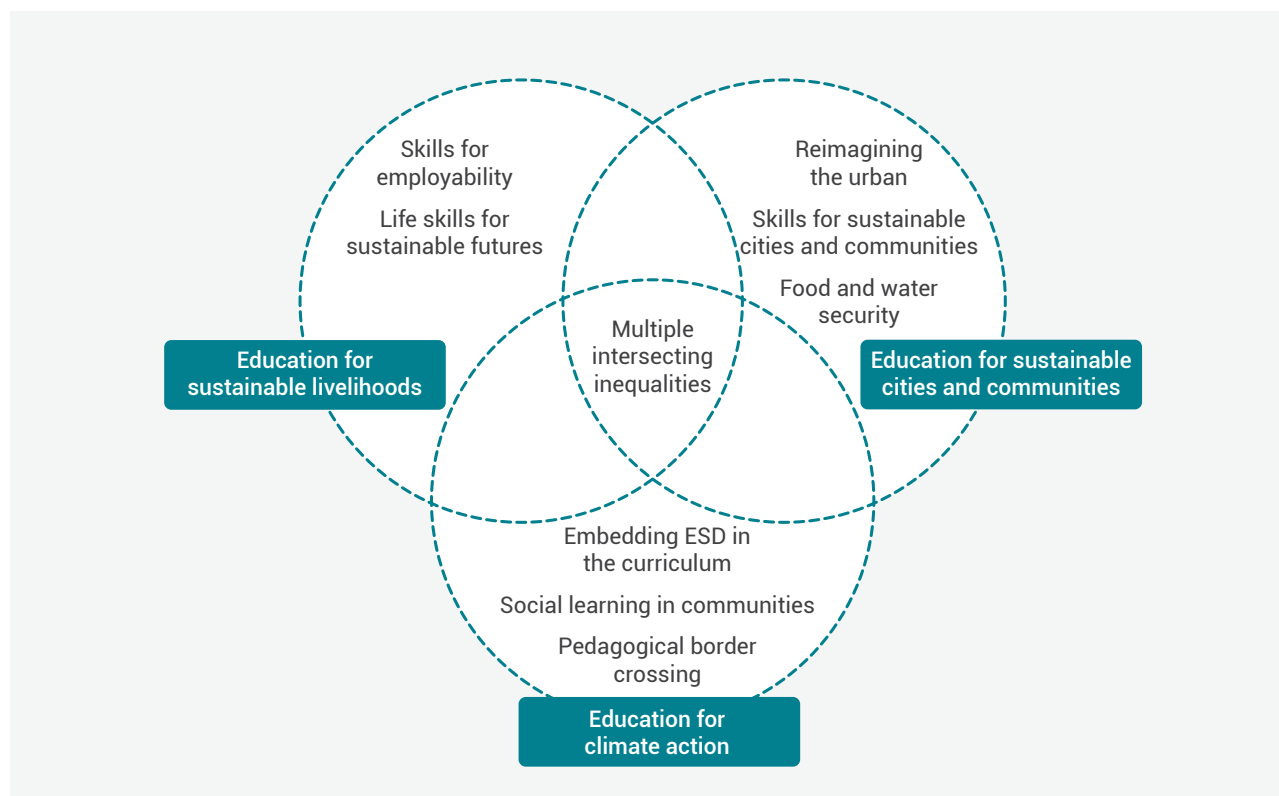
TESH adopted a broad view of education as embracing not only formal education (early childhood, primary, secondary, technical and vocational and tertiary

education including teacher education) but also less formalised processes of social education (also known as *peer-to-peer learning*) that often takes place in communities as they try to cope with the challenges of unsustainable development and realise more sustainable futures (Facer et al., 2020).

Rich information about our projects, their areas of focus, findings and impact can be found in the various project reports (links below) and in the synthesis level reports undertaken by country teams (Ali et al., 2023; Batra et al., 2023; Rosenberg et al., 2023; Tusiime & Imaniriho, 2023). It is nonetheless helpful to provide a brief thematic overview of the 67 TESH projects to provide some background and context for the discussion in the remainder of the sourcebook². The themes and sub-themes are represented in Figure 2 and elaborated on in the sections below.

² The projects are referred to by their abbreviated title for ease of reading. For each full title see Appendix 1. For more information about each project, click on the hyperlink and visit the project page on the TESH website

Figure 2. Thematic analysis of TEF research projects



1.4 Education for sustainable livelihoods

Several of our projects looked at the relationship between education and sustainable livelihoods, aligned with [SDG 8](#) which focuses on “*promot[ing] inclusive and sustainable economic growth, employment and decent work for all*” (UN, 2015) (see [McGrath, 2020](#) for an overview of how we have interpreted this theme). Within this theme, some focused on developing **skills for employability of disadvantaged groups**. In Rwanda, for example, the [Meet the NEET](#) project worked with Rwandan girls and young women identified as Not in Employment, Education or Training (NEET) to identify the factors that constrain them from entering the labour market and to provide insight into how these girls and young women negotiate the challenges they encounter whilst the [Skills Development for Work Readiness and Youth Employability](#) project worked with young people and skills providers to better align skills development efforts with employment opportunities. Also in Rwanda, the [Community Digital Literacy](#) project focused on developing digital skills alongside skills in weaving and entrepreneurship for girls and teen mothers. In India the

[Learning, Livelihoods and Possibilities for Socially Just Pedagogy](#) project focused on how to meet the changing skills needs required by students in smaller towns as they move between education and employment. Two of the projects, [Improving access to socio-economic services for deaf blind persons in Rwanda](#) and [Promoting Employer Understanding of the Skills of Deaf People](#) in Somaliland worked with deaf and deaf/blind communities respectively to develop skills that would improve the employment prospects for these groups.

Other projects focused on developing a range of **life skills for sustainable futures**. These included two projects in Rwanda on [Teaching Critical Thinking About Health Skills to out of School Youth](#). In Somaliland the [Education and Sustainable Livelihoods for Informal Traders](#) project focused on developing basic literacy and numeracy skills amongst informal traders, whilst the [From Aid to Sustainability in Education](#) project developed skills required for educational self-reliance working alongside a rural community. Also in Somaliland, [Girls Sport for Development](#) focused on developing the sporting skills of marginalised girls whilst the [Model Eco-School in the Horn of Africa project](#) imparted a range of life skills relevant for sustainable development. In South Africa, the [Developing a Framework for](#)

[Collective Community-level Economic Solutions in Makhanda](#) focused on developing a community-based collective approach to support ecologically and socially responsible economic agency among youth, whereas the [Agriculture, Arts and Livelihoods](#) project sought to investigate integrated school learning approaches for improved educational and livelihood outcomes. In India, [Mapping Educational Interventions for Social and Ecological Justice](#) mapped alternative educational and pedagogical interventions for developing life skills for sustainable futures. Two projects in India, the [Looking Inwards, Looking Forwards](#) and [Nilgiris Field Learning Centre](#) projects looked at creating greater synergies between formal education and the needs of Indigenous, Adivasi learners and their communities.

1.5 Education for sustainable cities and communities

Several projects were concerned with the links between education and sustainable cities and communities, aligned with [SDG 11](#) which is focused on “*making cities and human settlements inclusive, safe, resilient and sustainable*” (UN, 2015) (see [Bazaz et al., 2021](#)). Some of these focused on reimagining the urban from the perspectives of the marginalised. In India, the [Education Margins and the City](#) project explored the role that the educational processes play in maintaining the subservient status of slum dwellers, whilst the [Hum Hindustani](#) project explored the idea of the child citizen as produced in school education in relation to the everyday lived realities of children in marginalised communities. In South Africa, the [Re-imagining Greater Muizenberg](#) project sought to understand how courageous (transgressive) forms of education and learning can strengthen communities to dismantle the historical legacy of racism and inequality, whilst [Makhanda Ngoku!](#) worked with youth from Makhanda's townships to make sense of, engage, and articulate their sense of place, belonging and futures in the town drawing on Indigenous knowledge, historical archives and languages. The [Voices From the Margins](#) project in India sought to bridge the gap between school knowledge and the funds of knowledge held by Indigenous groups as a means of making formal education more relevant for the livelihoods of Adivasis.

Other projects under this theme focused on **Skills for sustainable cities and communities**. These included in Rwanda the [Coping with Kigali Urban Growth Challenges](#)

and [Involving the Community in Urban Life Skills Projects](#). In India the [Higher Education for Sustainable Urbanisation](#) project investigated the role of HE in supporting sustainable cities, whilst the [Educational Ecosystem of Architecture Education](#) project focused in particular on architectural education for improving living conditions in the city. The [Exploring Education's Role in Sustainable Urbanisation through PUKAR's Youth Fellowship Program](#)) project sought to understand how the role of a youth fellowship programme targeted at marginalised communities in India can contribute to processes of sustainable urbanisation. In Somaliland, [Greening the City Green Garowe](#) focused on skills for planting trees in the city of Garowe, whilst the [Leadership: Towards a Circular Economy in the Horn of Africa](#) project aimed to explore the meaning, possibility and relevance of the circular economy (i.e. a model of production and consumption, which involves sharing, leasing, reusing, repairing, refurbishing and recycling existing materials and products) in the context of the Horn of Africa. In South Africa, the project [Tipping the Social Learning Scale in Favour of Sustainable Land Justice for Women who are Land Dispossessed and Those From Mining Towns](#) sought to explore, enhance and transform the social learning of women in rural and landless contexts who were engaged in agroecology and fishing as a livelihood but faced barriers of hostile industrial companies. [Reframing Climate Messaging for Mobilising Youth in Cape Town](#) sought to investigate, unpack and co-create Afrocentric knowledge to capacitate people with information that will help with climate action.

Several projects looked at the role of education in supporting improved food and water security in communities. In India, the [There is a Bee on my Balcony](#) project explored the potential of local urban food systems in promoting socio-cultural and ecological sustainability, whilst in South Africa, the [Water Mapping as Community-Based Activist Research and Education for the Water Commons](#) mobilised households in the Western Cape to map their daily water use as a means to better understand how communities are using water to support a dignified life. Several projects explored the potential of food gardens for promoting sustainable communities. In South Africa, the [First We Eat!](#) and [The Utilisation of School Food Gardens as Educational Transformation Agent to Achieve Community-Wide Sustainable Livelihoods](#) projects sought to establish on-site food gardens in Early Childhood Development (ECD)

and primary school settings, respectively, so that they could become hubs for sustainable food production in the community, whilst the [School Principals as Conduits for Sustainable Livelihoods in Agricultural Communities in Rural South Africa](#) project sought to empower secondary school principals to re-imagine education towards sustainable livelihoods in the communities that they serve. In Rwanda, the [Promotion of food gardens through Junior Farmer Field Learning Schools Approach](#) project investigated how a school kitchen gardening model can improve the school feeding programme by increasing food production within school gardens.

1.6 Education for environmental and climate justice

Several projects focused on education for environmental and climate justice, linked to [SDG 13](#) which aims to "take urgent action to combat climate change and its impacts" (UN, 2015) (see [Facer et al., 2020b](#)) **embedding Education for Sustainable Development (ESD) in the formal curriculum** in diverse educational settings. This often involved developing and implementing innovative pedagogical approaches for teaching ESD. Examples from Rwanda include the projects [Eco Schools as a Way of Promoting ESD and Climate Action](#), [Research on the Ability of Education to Contribute to Climate Action in Rwanda](#), [Using Arts-based Approaches to Dialogue Issues of Sustainable Development in Rwandan High Schools](#), and in India the projects [Developing a Model of Holistic Climate Change Education](#), [Developing Water Classrooms](#) and [Summer School on Carbon](#). Also in Somalia, the [Education for Sustainable Development: Continuing professional development of teachers](#) project focused on how the professional capabilities of teachers working in low resource settings can be enhanced to support ESD. In South Africa, the [Universities as Sustainable Communities](#) project used participatory storytelling to co-create knowledge with university student activist groups on what it means and what it takes to build sustainable communities in the context of one historically white South African University.

Some projects focused on **supporting social learning in communities as a form of community empowerment**. The [One Child One Tree](#) project in Rwanda, for example, aimed to improve children's relationship with the natural environment along with their psychosocial well-being and to strengthen children's sense of belonging to their

community. The [Healing is in the Pot](#) project in South Africa centred on learning actions around sustainable food choices in the community and how these can make a positive contribution to climate action, as well as enabling people to live healthier lives. Some of these projects adopted an explicitly decolonising approach to knowledge generation. The project [Reframing Climate Messaging for Mobilising Youth in Cape Town](#) investigated how climate change education can be co-created using Afrocentric knowledge as a means to empower communities to take climate action. In a similar vein, the [Climate Action in Context: Learning from the creation of an indigenous language extracurricular course](#) project in Somalia sought to generate new knowledge about how to contextualise climate action in the Horn of Africa, whilst the [Nomadic Pastoralists and the Path to Sustainability](#) co-produced knowledge between scientific and pastoral communities about the economic and environmental impact of livestock enclosures, and the possible creation of alternative sustainable enclosures for nomadic rural communities in the Horn of Africa. The [Promoting Minority Bravanese Engagement with Formal and Informal Education](#) project employed innovative methodologies including working groups, radio broadcasts, education events and life history case studies to better understand how minoritized Bravanese people can be re-engaged with education for sustainable development. In India, the [Redefining Sustainable Development: Co-creation of Knowledge With The Bharia](#) project aimed to co-create knowledge on sustainable development with the Bharia (a tribal community in Central India) by examining the lived experiences of the Bharia community in relation to their ecology, livelihoods and schooling, whilst the project [Citizen Sciences: Generating GeoStories as Epistemic Maps](#) in South Africa supported citizen science projects in re-framing their understanding of knowledge work and representation from a decolonial perspective, while developing a range of knowledge tools to support the translation of these conceptual shifts into practice.

Other projects focused more on supporting pedagogical border crossing between formal institutions and the communities they serve through improving the synergies between pedagogical approaches used in the formal curriculum and social learning in communities. For example, the [Education for Building Climate Hazard Resilience](#) project in Rwanda sought to assess the extent to which climate change education in higher learning



Hum Hindustani



Nomadic pastoralists and the path to sustainability

institutions is able to empower farmers and vulnerable rural populations for climate hazards resilience building. In Somaliland, [The Meaning of Sustainable Development in Somaliland](#) project aimed to understand how graduates of the Climate Change & Environmental Sustainability (CCES) programme contribute to public understanding and practice of sustainable development. In South Africa, the project [Uncanny Lore: Transgressive Learning in the Legal Sovereignty of Indigenous Legal Practitioners for Sustainability and Climate Action](#) sought inspiration, guidance and transgressive social learning from Indigenous arts and lore, that could contribute to the creative collaborative development of a new legal pedagogy that is grounded and which embodies practices for heritage law and policy.

1.7 Tackling intersecting inequalities

Although all of the TESF projects dealt with one or more kinds of inequality, some projects focused centrally on the relationship between education, inequalities of different kinds and sustainable futures. Some projects focused on the role of education **tackling gender inequality**. For example, in Rwanda, the [Empowerment of women for Gender Based Violence Prevention](#) project adopted a participatory action research approach to empower women and men to tackle gender based violence in the community. Similarly, the [Theatre and Art in Education](#) project in India drew on theatre of the oppressed and embodied therapeutic practices to empower women and girls to deal with the effects of gender based violence. Also in India, and also making use of theatre, the [Understanding the Usefulness of Dialogic Pedagogy for Gender Sensitisation](#) project sought to raise awareness amongst teachers of how patriarchal gender norms are reproduced through education whilst the [No Space for Some: Transgender and Non-binary Persons Access to HE in Science](#) project focused on the lived experiences of exclusion of transgender people seeking to access STEM subjects in higher education.

Several projects focused on tackling exclusion based on caste (in India) and on clan and ethnicity (in Somalia/Somaliland). In India, the Facing Caste, Breaking Through the Inter-generational Cycle of Inequalities and Counter-imaginaries: Towards a new Cartography of Agency projects focused on the role of education systems in reproducing inequalities based on caste but

also on the potential role for education in overcoming these. The Interrogating What Reproduces a Teacher, Teachers negotiating professional agency project focused specifically on developing the professional agency of teachers as a means to overcome inequalities based on caste and gender, and to realise more equitable outcomes from education. In Somalia, the Self-financing of Basic Education for Minority Workers project created a space for workers from minority clans who have been historically excluded from educational opportunities to be involved in the design of their own education provision. The Promoting Minority Bravanese Engagement with Formal and Informal Education project employed innovative methodologies including working groups, radio broadcasts, education events and life history case studies to better understand how Bravanese people, who form an excluded ethnic minority, can be empowered through re-engaging them with education.

1.8 Curation as a methodology for producing the sourcebook

The production of this sourcebook can most accurately be described as a form of 'textual curation' (Kennedy, 2016). Although this term is usually applied to the production of crowd sourced, online resources such as Wikipedia, we think it is also useful for capturing the process of producing this sourcebook. That is to say that unlike traditional academic texts that are written by single or multiple authors, this sourcebook has emerged through forms of distributed collaboration that we describe below. This aspect of textual curation thus disrupts traditional notions of authorship and agency. In the process of curating, this text has involved a 'critical re-composition of prior texts' (Kennedy, 2016: 6) that have also been curated by project and country hub teams in the TESF network. Textual curation is thus an iterative, creative process and can also be described as 'a category of compositional craft' (ibid). It requires 'a rhetorical, dynamic skill set' required for the arrangement, filtration and recomposition of prior texts and other artefacts (ibid). In the case of TESF, these include team and hub reports, but also poems, songs, photographs and videos produced within the network and curated on our web pages. Incorporating strategic links to these elements to where they have been previously curated on our [TESF website](#) also sets the sourcebook apart from more traditional academic texts. As we discuss below, however, describing our

sourcebook as the outcome of textual curation does not mean that it does not suffer from the characteristics and pitfalls of more traditionally produced texts related to imbalances in power, time and resources in its production, a point we return to below.

This version of the sourcebook has been curated by a team from Bristol (Rhona Brown, Rafael Mitchell and Leon Tikly) but is the outcome of a multi-layered process of collaborative synthesis to which all members of the network have contributed during the lifetime of the TESH network. Indeed, ensuring the validity and reliability of the sourcebook has relied upon providing multiple opportunities for all members of the network to contribute but also to provide feedback on the trustworthiness of the process and outputs. A rich synthesis working group comprising research associates, postdoctoral fellows and hub leads from each of the countries represented in the network, as well as members of the Advisory Group, has been meeting regularly since the inception of TESH. In this group we reviewed our overall approach to synthesis which we describe as 'rich synthesis'. Discussions of how to go about this were guided by principles of democratising knowledge. A South African Hub research associate reflected on this as a refreshing process;

So it's a dialectical knowledge approach which underlines knowledge, co-creation as a concept. ... For me, I thought it was a significant thing in terms of the project, and how it enabled certain things to emerge. And ... from our perspective, ... working on international projects from the Global South, it's extremely uncommon. (South Africa Hub research associate in Synthesis Group Discussion)

These discussions led to the original plan to prioritise 'synthesis' being complemented with a focus on 'curation'. The following guiding principles informed the TESH approach to synthesis:

Principles guiding rich synthesis in TESH

- **Pluralistic** – recognising multiple, discrete areas for synthesis rather than one whole, and recognising multiple knowledges and ways of framing ideas.
- **Emergent** – recognising the shifts over time and leaving space for interesting or unexpected patterns and exceptions, and being open to new questions and ideas that are emerging so as to push the agenda/dialogue in new directions.
- **Iterative** – continuously revisiting, reflecting on and refining emerging themes, e.g. across key activities:

“ At the heart of our approach is a concern to develop understanding of the underlying processes of knowledge co-creation.”

project proposals, mid-term reports, national conferences, end-of-project reports, legacy events.

- **Hybrid** (inductive and deductive) – in developing our thematic analysis, we used both inductive and deductive forms of inference that allowed us to answer our research questions on the one hand whilst also allowing for new themes and ideas to emerge alongside.
- **Retrospective** – through our processes we have sought to better understand the underlying causal powers that reproduce different inequalities and injustices through education but also that give rise to the transformative potential of education.
- **Collaborative** – involving project teams and hub teams and members of leadership team and advisory group in different parts of the synthesis processes.

At the heart of our approach is a concern to develop understanding of the underlying processes of knowledge co-creation. This has involved two inter-related aspects. Firstly, we have sought to foreground the voices and perspectives of those involved in the knowledge co-creation process in the project and country hub teams. The project reports, videos and other outputs have proved an invaluable resource in developing this sourcebook, as have the hub synthesis reports produced by the country teams. National workshops held in June and July 2022 and again in November and December 2022 provided opportunities for teams to reflect on the process of knowledge co-creation, to learn from engaging with each other's work and of the opportunities provided by knowledge co-creation, but also of the

challenges involved in putting co-creation into practice. The workshops included dedicated sessions where teams were encouraged to reflect on different aspects of the knowledge co-creation process, including the use of different research designs and methods, and on the ethical dimensions of co-creation and collaborative working. The insights recorded during the national workshops also proved an invaluable resource for the work of the synthesis working group.

In March 2023, members of the rich synthesis working group, along with the TESF leadership team comprising the Principal Investigator (PI) and Co-Investigators (Co-Is) from each country assembled in Kigali, Rwanda, for a synthesis week. This week was crucial for identifying emerging themes from the projects and national workshops and for identifying a structure and core ideas to feed into the sourcebook. Writing sessions were held during the workshop, in which participants contributed their thoughts and reflections in the form of 'tiny texts' relating to different aspects of the co-creation process, and which have provided a rich resource in the development of this sourcebook.

Ideas emerging from the Kigali workshop fed into the legacy conference for project teams. Held in April 2023, the TESF legacy conference, provided an opportunity for project teams from across the network to feed back to the synthesis group their thoughts on the emerging understanding of knowledge co-creation processes in and across the network. It also provided a further opportunity for teams to get to know more about the work going on in other country contexts and to work in cross-country groups to deepen thematic understanding of emerging issues.

A second aspect of our understanding of 'rich synthesis', closely related to the above, are the opportunities and challenges involved in drawing together and developing emerging understanding and learning from the very diverse forms of evidence related to the co-creation process produced through the above activities. These include the qualitative and quantitative evidence written in project, hub and workshop reports. It also includes, however, synthesising ideas and learning from the incredibly rich range of arts-based outputs including the Mobile Journalism (MOJO) videos, songs, poems, theatre, photography and works of art produced by the project teams. Making sense of these diverse forms of evidence during workshops and meetings entailed developing a deep understanding of diverse

methodologies, which is widely recognised as a prerequisite for successful transdisciplinary working (Sprague et al., 2021).

It involves a process of embracing different methodologies and their resulting forms of evidence and this can only be achieved through processes of deep listening to the work of other project teams. It also requires being 'epistemically humble' in the face of quite different approaches to understanding reality and addressing the research questions (Srivastava, 2022). This is arguably particularly the case for university-based researchers who have been trained and enculturated in traditional, university ways of 'doing' qualitative and quantitative research. Part of this process involves being prepared to embrace insights gleaned from different knowledge systems including Indigenous, local and tacit knowledge held in communities. This in turn in some instances might involve letting go of received understandings of what counts as 'valid' knowledge and embracing the idea that whilst all forms of knowledge have their strengths and their fallibilities, each can contain valid insights through their ability to surface and draw attention to different aspects of complex reality. Developing such transdisciplinary understanding, however, takes time and considerable patience – a point that is taken up in chapter four. It also requires creating 'safe spaces' (see chapter five) where people can express their ideas without fear of ridicule and in the expectation that their thoughts will be taken seriously.

It is important to be clear about the limitations of our methodology. The first relates to the power imbalances that inevitably influence the process of textual curation. These manifest in multiple ways. At an epistemic level, and despite efforts to provide opportunities for capacity mobilisation and safe spaces for discussing emerging findings, the existence of knowledge hierarchies and hegemonies in the academy and in wider society, compounded by historical issues of inequality of access to formal and informal education, affect the confidence of some members of the network to contribute to the curation process. These imbalances are overlaid by the existence of other intersecting forms of inequality including fluency in dominant languages (and especially English which has been the primary language used for communication in the network), but also the patriarchal, class, caste, race and clan based nature of the societies we were working in. These power imbalances are reinforced by differential access in time and resource

to contribute ideas amongst different members of the network.

There is an imbalance, for example, between members of the network in the amount of time that is resourced for them to engage in synthesis work. These imbalances are to some extent also linked to imbalances between Northern and Southern partners that are in turn rooted in the nature of the funding call that we responded to. The requirements of the call meant that research needed to be focused on Southern partners, with Northern partners therefore having greater time to lead on aspects such as synthesis. In chapter five we outline our approach to equitable partnership working and the measures we took to mitigate these imbalances. Nonetheless, it is important to acknowledge that despite our best efforts it is impossible to completely redress these imbalances given their deeply entrenched and structural nature.

1.9 Navigating the sourcebook

The remainder of the sourcebook is organised as follows. Chapter two considers in more depth the rationales for using a co-creative approach in our research, whilst chapter three focuses on the diverse methodological approaches adopted by project teams. Chapter four seeks to probe in more depth some of the practical barriers and affordances involved in

implementing a co-creative approach, whilst chapter five deals with the complex ethical issues involved. Whereas chapters two to five focus largely on the experiences of undertaking co-created research at a project level, chapter six considers the dynamics and challenges involved in equitable partnership working at a network level and the role of processes of monitoring, evaluation and learning in supporting ongoing processes of reflection and learning within the network. The concluding chapter summarises some of our key learnings, and offers some suggestions and recommendations in the form of a call to action for policy makers, practitioners and activists who are interested in adopting a co-creative approach in the future.

We have attempted to produce the document in such a way that readers will find it relatively easy to navigate to the parts of the sourcebook that may be of particular relevance for their work. Further, whilst we have sought to synthesise learnings from across the 67 projects, it is impossible to capture the full depth and diversity of learnings, and readers are therefore encouraged to follow the links provided to individual projects and to engage with the rich outputs produced by project teams including videos, poems, photographs that are available from the TESF [website](#).





One child, one tree

Chapter 2

THE WHAT AND THE WHY OF KNOWLEDGE CO-CREATION FOR TRANSFORMING EDUCATION FOR SUSTAINABLE FUTURES

2.1 Chapter summary

This chapter introduces the idea of knowledge co-creation as a way of researching and understanding how education can contribute to sustainable futures. Drawing on learnings from the TEF projects, we reflect on our conceptualisation of knowledge co-creation and further strengthen the rationale for adopting this approach to transform education for sustainable futures. We also expand and illustrate our evolving understanding of what knowledge co-creation is. The TEF projects let us see what this could look like in practice when addressing the complex issues of education and sustainability that TEF is concerned with. Through their work, the importance of four key underpinning, interlinked aspects of knowledge co-creation are highlighted: the role of knowledge co-creation approaches to understand and tackle complex problems; grounding research in lived experiences; attending to diversity, inclusion and social, epistemic and environmental justice; and the value of explicit, intentional approaches for decolonising research and practice.

2.2 Our evolving understanding of 'knowledge co-creation'

Sustainability is not something which can be discovered by scientists and disseminated through policy and practitioner networks. ([Mitchell et al., 2020](#))

This quote by members of the TEF team reflects the underlying view guiding our approach to knowledge

co-creation that research into sustainability is not something that can be achieved by researchers based in universities alone. In the context of TEF research, we have evolved our own understanding of how knowledge is produced and of knowledge co-creation to emphasise deliberate collective processes and equitable and diverse partnerships. 'Knowledge co-creation' is part of a family of overlapping concepts which have emerged to counter the idea that academic research is the only source of knowledge and knowledge production. There are overlaps and blurred boundaries between knowledge co-creation and several other concepts that are often used interchangeably (see [Sprague et al., 2021](#)), for example, collaborative research, engaged research and co-produced research (Facer & Pahl, 2017); co-designed research (Lotz-Sisitka et al., 2016); and participatory action research (Openjuru et al., 2015; Zeller-Berkman, 2014). Since these approaches are often used by and with diverse communities beyond academia, the range increases further as each community draws on its own rich traditions and processes (Facer & Enright, 2016).

With so many overlapping terms and their sometimes-imprecise use, it is important to hold on to the meaning of knowledge co-creation in the context of TEF. Facer and Enright (2016, p. 81) concluded that "There's no such thing as 'co-production'" per se and instead showed that collaborative research looks dramatically different depending on who is undertaking it, and where and how. In TEF, different hubs and projects articulated different definitions and understandings of what co-creation meant, reflecting the importance of context in how knowledge co-creation is understood.

Figure 3 below presents some of the definitions from hub members' perspectives.

Though contextually distinctive, they share a common core in recognising and valuing the knowledge and expertise of diverse partners and co-researchers and the power of this kind of research to tackle social injustice and address inequalities.

Figure 3. TEF hub members' definitions of knowledge co-creation

TEF HUB MEMBERS' DEFINITIONS OF KNOWLEDGE CO-CREATION
<ul style="list-style-type: none"> ■ Knowledge co-creation is an important process of enabling knowledge democracy as it allows everyone to contribute to the creation of knowledge and therefore to give us wider, deeper and more nuanced understanding of education and what it means in the lives of communities and cultures (Research Associate, South Africa Hub).
<ul style="list-style-type: none"> ■ The evidence from TEF Rwanda hub projects show that the co-creation is understood in the pluralistic perspective. It is seen as a strong engagement and commitment from multi-sector and multi-level partners at all levels of the project, from downstream to upstream, followed by integration of the ideas, experience and knowledge provided by each partner in order to bring added value to the collective work. Consequently, each partner is empowered and the collective capacity of the whole group is strengthened (Rwanda Hub report).
<ul style="list-style-type: none"> ■ A central priority of the TEF project is reducing inequalities through co-production. Co-production of research and social change simply means doing things with, rather than for, those meant to benefit (Somali Hub report).
<ul style="list-style-type: none"> ■ In Somalia knowledge co-creation allowed marginalized, ignored, vulnerable communities to enter circles of decision making, sit side by side with representatives from different ministries to have their voice shared and valued. Knowledge co-creation is necessary in breaking down psychological barriers ... in other words, walls that have unjustly divided people (Project PI, Somali Hub).
<ul style="list-style-type: none"> ■ Co-creation of knowledge can be defined as producing knowledge together and learning together; valuing what other people involved in the project can bring towards the project goals. This involves partnerships within projects and depending on the expertise of everyone we can all learn from each other's experiences and add to the knowledge creation sphere. It can also mean that the people who produce the knowledge can also have ownership right to the knowledge that would have been created (Research Associate, South Africa Hub).
<ul style="list-style-type: none"> ■ They all come together: experts, learners, other knowledge systems – [there is] no need to build consensus but understanding differences is important. ... [we] recognise that we are in a moment of rupture, stress, discontinuity – and we need a clear way out – recognising this is very important and necessary. We need to do this (co-creation) because we need 'stability and meaning' – meaning making that is jointly done, owned and internalised (India Hub Anchor).

2.3 Rationale for using knowledge co-creation in the context of TEF research

In this section we explore the reasons why a co-creative approach to knowledge production was adopted by the programme. This is especially important given the challenges involved in implementing such an approach, which are explored in more depth in later sections. It is possible to identify four related rationales:

- Knowledge co-creation opens up opportunities to understand and tackle complex issues
- Knowledge co-creation allows research teams to ground the work in lived experiences
- It allows the teams to attend to diversity, inclusion and social, epistemic and environmental justice
- It facilitates a decolonising approach to research

Each of these rationales is explored in more depth in the sections below and illustrative examples from hubs and projects are shared. At a general level, the rationales relate to our aims as a network and specifically to our commitment to transformative research that can have a tangible impact on the lives of the beneficiaries of the research (see chapter one).

2.3.1 Developing understanding of complex realities

Problems of unsustainable development are often described as “wicked, complex problems”. That is to say that tackling the problems of unsustainable livelihoods, cities and communities and the effects of climate change involve dealing simultaneously with intersecting social, economic and environmental issues. Education systems are themselves best characterised as complex systems in which change takes place in non-linear and unpredictable ways. In addition, education systems both sustain and perpetuate multiple intersecting inequalities which add to the complexity (Batra et al., 2023). Developing an understanding of the complexities of issues of education, sustainability and inequalities requires an iterative approach to defining and redefining the problem (Tikly et al., 2020). It requires a problem-solving orientation and relies on deep collaboration. Knowledge co-creation provides a practical means for dealing with complexity through harnessing diverse knowledge and expertise including that held by

practitioners and policy makers and within communities as well as different kinds of disciplinary expertise held by researchers based in universities (Lotz-Sisitka et al. 2016; Mauser et al., 2013; Tikly, 2020; Wals, 2007). The role of, and possible mechanisms for education to contribute to or drive sustainable development are excellent examples of the complexity and dynamics of complex systems. Contemporary education systems have emerged out of processes of unsustainable development but at the same time, have the potential to play a role in supporting sustainable development (Tikly, 2020).

The problem areas that TEF project teams were interested in involved very complex realities and to understand those complexities it was essential to work with diverse groups and the people who had those lived experiences.

Several projects showed that diversity, different modes of inclusion, and ensuring that neglected and marginalised voices are included lead to a better understanding of complex problems of inequalities. For example, investigating the lived experiences of transgender, gender non-conforming and gender non-binary persons to understand the mechanisms of exclusion they faced while accessing science education ([Transgender and Non-binary Persons' Access to HE in Science](#)); and researching first-generation university students whose parents had stigmatised occupations to “unravel ... the deeply intertwined inequalities of caste, class and gender” that shaped students' participation ([Breaking through the Inter-Generational Cycle of Educational Inequalities](#)). The problems identified were specific to the communities and contexts but represented wider issues and communities. For example, exploring the understanding of what “the law” is by comparing “positivist western law” and San culture's “living law” which is adaptable, lived and performed, not as an academic exercise, but by looking at how indigenous people can represent their laws in court cases, land and heritage claims ([Uncanny Lore](#)).

2.3.2 Grounding research in lived experiences

A distinctive contribution [of TEF] is our efforts to foreground the lived experiences of the most marginalised. (Principal Investigator, University of Bristol)

Grounding research in lived experience is a foundation of democratising knowledge co-production and achieving agency for change. (Hub lead, South Africa Hub)

A key rationale for and advantage of using the co-creation approach that was identified by our research teams was the ability to ground the research in the lived experiences of the participants. This is important for several reasons: it makes research more relevant; it helps to situate the research, making context more comprehensible as lived experience is part of complexity; and it contributes to the quality and credibility of the research. Each of these three areas will be expanded in the sections below.

Firstly, grounding the research in the lived experiences of the participants is crucial for ensuring the relevance of the research. For many projects, this grounding was the starting point. Many researchers and participants had direct experience of the injustices and inequalities they were committed to addressing and designed the research proposal to address these. Across other TEF projects, we also see the importance of grounding research in lived realities to ensure research directly benefits those with that experience. For many, this was strongly linked to their commitment to tackle social inequalities and social injustice.

“We are not mapping the water for Bristol but for the poor and elderly people of Cape Town.” [Water Mapping](#)

“The lived experiences of the people and their perspectives on the needs of their children are at the centre of our research.” [Looking Inward, Looking Forward](#)

“Skilled minority workers were co-production participants from inception and design stages.” [Self-financing of Basic Education for Minority Workers](#)

For others, the contextualisation and grounding in lived experiences were essential to ensuring relevance, understanding and engagement with climate crisis and climate action knowledge.

[Climate Action in Context: a Somali Extracurricular](#)

[Course](#) developed online and mobile resources in local languages, seeking to contextualise climate action knowledge in the Horn of Africa. They found this was vital because “if people are to understand the climate crisis and press for action to address it, they need to be able to relate it to their identity and situation” (Somali Hub report).

Similarly [Reframing Climate Messaging for Mobilising Youth in Cape Town](#) found that

the language of climate change is often exclusionary, disconnected to the global South and coupled to the view of the crisis being a ‘white environmental issue’. Talking about rising sea levels seems disconnected from youth in an informal settlement, facing socio-economic challenges.

Secondly, grounding the projects in lived experiences was also crucial for understanding the complex contexts that the projects were seeking to engage with. A project PI and member of the Somali Hub team offers a clear example of how a deep understanding of the context and his lived experience formed the basis for his research proposal and highlighted the need for knowledge co-creation.



Looking Inward, Looking Forward

2.4 Project spotlight 1 – research grounded in lived experiences

[Nomadic Pastoralists and the Path to Sustainability](#)

I was born and raised in a nomadic pastoralist family who move their herds [wherever] they are getting water and pasture. ... I joined school at age of 10 where some of my brothers didn't get that chance. Whenever I go and visit my family in BashBusk village, I have realised the land is degraded and [there has been a] tremendous [loss] of [its beauty] and jungles, while livestock are on brink to starve and die without pasture. In my subconscious mind, there [are] stores [of] photos of how beautiful the land was decades back. Some livestock are distinct to that area but [these specific cattle] are no longer seen in that area. ... Families lost 40% or [more of] their goats and sheep and around 70% of the camels due to recurring droughts.

I feel agony and upset how our land is dramatically changing and seems an inhabitable place due to [the] cutting down of trees to [build] the livestock enclosure. [Because of this] when TESH and Transparency Solutions (TS) intervened, I asked myself, 'what I can do?' Then I switched angles through my heart and brain to [write a proposal] on impact of livestock enclosure on environment and climate change and research alternative solution to livestock enclosure. Fortunately, both TS and Bristol accepted my proposal to research on the impacted livestock enclosures and getting sustainable solutions to livestock enclosures (HERO).

[Livestock enclosures and the path to sustainability - YouTube](#)

A deep understanding of the context of the research enabled TESH project teams to identify who needed to be involved in the research, and how and where, in order to address social inequalities in and through their work. "Social inequalities" play out differently across and within the four TESH hubs. For example, where racial

inequality was targeted in South Africa, in India a key focus was caste, and issues related to clans required special attention in Somalia/Somaliland. Further, social inequalities have deep-seated structural roots, so research aiming to address inequalities needs to work at multiple levels. In the South Africa hub, for example, this meant crossing boundaries between formal and informal education and learning settings, and the "*mobilisation of capabilities and agency for transformative changes at all levels of society*".

Finally, this grounded approach is central to our claims of research quality and credibility as the research is firmly based in the voices, beliefs and perspectives of those who have lived experiences of these complex realities (Tracy, 2010). For many teams, this meant that rather than "outside" knowledge, ideas or theories being applied to understand or solve a very real, immediate problem, the knowledge and theories being generated were grounded in and emerged from the specific contexts and conditions of participants' and co-researchers' everyday lives. This new grounded knowledge could then sit alongside and contribute to wider existing knowledges, for example formal academic knowledge.



Nomadic pastoralists and the path to sustainability: the case of livestock enclosures

2.5 Project spotlight 2 – who is a researcher?

Interrogating What Reproduces a Teacher

The principal investigator (PI) is a teacher and mentor at Shaheed School. For the past eight years, she has been engaged in designing the academic curriculum and transforming classroom practice and is an active member of the women's group of the workers' union. The other three members of the research team also teach at Shaheed School and have been teaching for the past seven, six and four years, respectively. Two of them are now lead teachers, mentoring and supporting new teachers. All three were once students at the school themselves and have grown up in the bastis surrounding the school. Since this study was envisioned with a commitment to collectivising the process of knowledge creation in a way that encourages teachers to reflect on their practice, a central aspect of the research process was the work done to make it a collaborative endeavour. The research team engaged in guided theory reading sessions, worked on framing the research questions and drawing up the research plan, collectively conducted the initial fieldwork, and received feedback on the interview tools generated and how interviews were being conducted. The teacher-researchers also provided guidance in discussing the findings and arguments and developed auto-ethnographic accounts.

NB. Team's further reflection: "While our collective efforts to try and make the research process more democratic did challenge some of the hierarchical ways in which knowledge is produced, we would also strongly caution against fetishising or celebrating our attempts, given the ways in which power 'is never really external to dialogue, participation and experience'" (Rege, 2010, p. 97).

2.5.1 Attending to diversity and inclusion to address issues through the research process

We explicitly sought to maximise the diversity of our interviewee pool the best we could. ... We sought to emphasise particular histories, plurality of voices and geographical contexts. (['There is a Bee in my Balcony'](#))

The above quote from an Indian project characterises the approach to diversity and inclusion taken by many projects. Knowledge co-creation, by its nature, allows us to be inclusive and to bring in multiple voices and multiple lived experiences. This in turn helps us understand and tackle inequalities. This links to the underlying principles of epistemic justice in the TESF programme and our vision of sustainable futures. A key part of tackling injustice is that

...the rights, needs and cultural identities of existing and future generations including the most marginalised are recognised, that their knowledge, agency and capabilities are valued, that their voices are amplified in co-constructing futures that are meaningful. (Tikly et al., 2020)

Co-creative approaches can be an important way of attending to these principles through research processes that prioritise diversity of contexts, cases and participants (Lotz-Sisitka et al., 2016).

The project cited above, ['There is a Bee in my Balcony'](#), illustrates a common approach across the network – to actively seek diversity and ensure inclusion in research planning and practices. From the outset, TESF recognised that education often fails to meet the needs of historically marginalised groups most affected by poverty. Furthermore, research and the politics of knowledge production privilege dominant western scientific knowledge, keeping other forms of knowledge and knowing invisible and oppressing those knowledge holders.

This compounds the neglect of marginalised groups in education overall by excluding their perspectives and experiences in research about education, such as how education excludes and how it reinforces and reproduces inequalities and in transforming education, for example cultivating teacher agency or addressing

diverse children's learning needs. This is why research that is both transformational and transgressive is needed.

With this landscape in mind, the TESH network sought to include marginalised groups, including socially and economically disadvantaged women, youth, people with disabilities, Indigenous peoples, and those living in informal urban and rural areas in research and knowledge production processes:

...rather than seeing historically marginalised groups as 'subjects' of research, the network seeks to legitimise their voices and experiences including through processes of knowledge co-production. (Tikly et al., 2020, p. 6)

This was "an intentional effort to redress historical inequities in knowledge production" (Tikly et al., 2020, p. 6) with the goal of decolonising research practices through Southern-led research.

In some cases, addressing social inequalities meant ensuring the inclusion of the most marginalised or those experiencing the greatest social injustice. For example, in a Rwandan project tackling the effects of climate change which exacerbate inequalities, they worked with women farmers who are the main producers of agriculture (food), water and energy ([Education for Climate Hazard Resilience](#)). However, in others, working with the privileged to examine and understand their privilege and learn how to take steps towards equity produced powerful results (e.g. [Facing Caste](#)). This kind of work requires specific skills, grounded in an "ethics of care" – this will be explored further in chapter five.

Project teams gathered online at the TESH Legacy Conference (see chapter one for more information about TESH events) to look across their work and synthesise learning on educational and other types of inequalities. Presenters in the session on *Inclusion and Social Justice in Education for Sustainable Futures* expressed their shared views:

We hold the view that every act of education is shaped by different forms of privilege and disadvantage, which affect inclusion, participation and social justice.

They emphasised the importance of engaging with and understanding multiple intersecting inequalities and power dynamics on the ground and the need to understand and work from intersectional perspectives to talk about inclusion and social justice.

Several TESH projects looked at the ways education systems and schools discriminate against and alienate groups they are supposed to support and serve, for example with misinformed narratives in textbooks, misalignment of home and school languages and neglect or dismissal of the knowledge and resources children bring to school from their communities. These teams foregrounded the perspectives and experiences of the marginalised groups. Several Indian projects focused on the challenges facing marginalised Adivasi children in Indian schools and found that new insights could be gained to open up stale and damaging discourses about sustainability and to find new ways forward:

A close examination of the Adivasi view of the natural and social world in many of these projects reveal a refreshing perspective on what education can aim to do towards sustainable ways of living, learning and earning. (India Hub report)

Critical, inclusive approaches also meant recognising intersectionality. For example, the team [Reframing Climate Messaging for Mobilising Youth in Cape Town](#) recognised and worked with many different identity factors, beyond race and ethnicity, to ensure "authentic Afrocentric" climate change knowledge and resources were developed. Further, taking a critical approach to diversity and inclusion also meant questioning the idea and language of marginalisation. For the [Water Mapping](#) team this meant acknowledgement that the people on the so-called margins "might be described as 'central' to the functioning of a city that runs on low paid labour, the continuous threat of unemployment and the unpaid reproductive labour of woman, instead of 'marginal'". The India Hub recognised another paradox highlighted by several teams' work and the importance of actively seeking and foregrounding marginalised voices:

...despite being referred to as Adivasis or the 'first inhabitants,' India's indigenous communities (some of the most marginalised sections of Indian society) are often the last to be considered in discourses of development [emphasis added] (India Hub report).

“ In other projects, teams reflected that working with diverse partners aided the sustainability of the project and the uptake of interventions.”

Seeking diversity in partnership formation (see chapter six for more) and participation was an important part of TESF's transdisciplinary approach. Many projects demonstrated this principle in practice showing that drawing on diverse perspectives across disciplines, organisations and interests was the best way to understand, explore and tackle “wicked” challenges. In this way, TESF teams have pushed the boundaries of disciplinary knowledge, showing how new knowledge has been co-created at the intersections. For example, when developing content for their project [Water Classrooms](#), the Indian project team involved: water researchers, educators, ecologists, biologists, data scientists, climate scientists, disaster management experts, artists – musician, filmmaker, experts working on issues of gender, equity, water justice and governance as well as student interns. The team reflected on what this diverse involvement helped them achieve:

In addition to the physical and biological aspects of water, students were able to correlate social, cultural and ethical aspects of water to their everyday lives after the sessions. A student noted, ‘I never thought water and gender could be related topics.’ ([Water Classrooms](#))

In other projects, teams reflected that working with diverse partners aided the sustainability of the project and the uptake of interventions. For example, for the project [Education for Building Climate Hazard Resilience in Rwanda](#), working across universities, NGOs and government as well as with community representatives “ensured ownership, customization and equipped the local leaders with skills to sustain the project activities after the

project termination”. This is in line with evidence of the need to foster relationships and ownership of research “beyond the academy” to achieve “real-world impact” (Mitchell et al., 2020).

TESF aimed to “actively seek diversity, forgotten or neglected perspectives and unusual or non-traditional partners” (Sprague et al., 2021, p.), and this, combined with grounding research, learning and practice in lived experiences has allowed us to generate new kinds of knowledge to hold alongside existing knowledges in a pluralistic approach. However, these approaches come with significant challenges as power asymmetries cannot be wished away. The Somali Hub report highlighted the diversity of project participants and co-researchers including youth, women, minority clans, pastoralist farmers, minority workers, academics, activists, policy-makers and marginalised groups. They reflected that facilitating a shift in ownership and power is “far from straightforward ...[but] is fundamental to the democratisation of knowledge production”. Further, the Rwanda Hub observed “the danger of imbalance in distribution of power, capacity and resources during knowledge co-creation, knowledge management and knowledge dissemination” when working with the entangled stakes and interests of multiple actors across sectors. These issues will be explored further in chapters four, five and six.

2.5.2 Decolonising research – challenging, rupturing and reframing

The ability to experiment and try out approaches to research that did not privilege scientific knowledge production over all other ways of knowing, and did not reduce what we discovered together into purely scientific terms – recognising that the knowledges and expertise that are valuable for enacting change come in many forms – was invaluable in our project. ([Citizen Sciences: GeoStories](#))

A key objective of TESF research from the outset was to decolonise research. A key aspect of decolonising involves delinking ideas of knowledge from those of Western knowledge and western science and of the commodification and marketisation of knowledge and education (de Sousa Santos, 2018; Mbembe, 2016). This requires “a stripping away of conditioned norms that no longer serve us or that were never of us” (Kulundu



et al., 2020, p. 114) and opening up to multiple ways of knowing (Tikly et al., 2020). This can be seen as a shift, for example, from a *university* with one way of knowing and one universal truth to a *pluriversity* (de Sousa Santos, 2018). This links strongly to TESF's methodological principle of transgressive research (see chapter one) as transgressive decolonisation involves:

...challenging the very ideas we use to think ideas with. Are these ideas a product of coloniality? Are these ideas even mine? Did I inherit them? Do I really believe them? How do these ideas conflict with other ideas?" (Kulundu et al., 2020, p. 115)

Interwoven with the principles outlined in previous sections, decolonisation also then involves 'giving voice' and opening up spaces for historically marginalised groups (Barnes, 2018), which in turn demands challenging and changing power relations (Ndlovu-Gatsheni, 2013).

For TESF, one aspect of decolonisation is challenging and rupturing dominant framings of research and seeking to reframe the 'problem' to be addressed in terms of the lived experiences and epistemological standpoints of the participants. The opening quote above ([Citizen Sciences: GeoStories](#)) illustrates projects' desire for and commitment to transforming the act of research itself, and several projects aligned their work with decolonising approaches. How this was done and articulated differed across contexts. Projects also highlighted that it was about more than just subverting colonial framing and challenging 'western knowledge' and extractive ways of producing knowledge. The emphasis on prioritising lived experience and foregrounding marginalised voices and diverse contextual and Indigenous knowledges laid out in the sections above was also an important characteristic of decolonial and anti-colonial methodologies in TESF projects. When summarising TESF projects' approaches, the India Hub lead described:

Projects have engaged with a series of issues to deconstruct conceptual contradictions around coloniality, modernity, institutions and practices of patriarchy, impact of climate change on the most vulnerable, urban and spatial injustice, upsurge in racial, casteist, communal behaviours across societies.

Projects critically examined how issues of concern had been investigated and understood before and considered alternative ways of learning, knowing and doing research. As highlighted above, a key part of this was to consider how to work collaboratively, respectfully and in socially just ways with participants and co-researchers. Decisions on research methods, pedagogical practices and ways of facilitating learning were central - this will be discussed in more depth in chapter three.

Several projects' central concern was to create an alternative narrative and disrupt the dominant ways of thinking about and acting on sustainability issues. In a session on *The role of 'local' and 'Indigenous knowledges' in transforming education for sustainable futures* at TESF's Legacy Conference (see chapter one for more information about TESF events), the South African [Citizen Science GeoStories](#) team highlighted the danger of dependence on narrow knowledge sources:

Over-reliance on one type of knowledge, and corresponding exclusion or denigration of other knowledges, leads to stunted and imbalanced knowledge and related social systems, destabilising the entire system into less sustainable forms. It leads to more shallow, representative forms of public consultation into decision-making processes.

Several projects worked on the underlying premise that we cannot expect the thinking and practices that have caused the problems to be the same ones that can solve them, again linking back to the need for transgressive approaches, a key principle underpinning TESF's work (see chapter one). This involves "*unlearning, re-learning and challenging the status quo*" ([Healing is in the Pot \(Okuphilisayo Kusembizeni\)](#) – see Project spotlight 3 below). However, that is not to say that wholesale rejection of dominant conceptualisations is always required or desired – taking a pluralistic approach, some projects highlighted the valuable contribution that new knowledge can make to ongoing discourses and debates. For example, knowledge and expertise from tribal communities in India offering a more balanced view to concepts such as wellbeing, "*that can hold ecological and social nuances, which the rhetoric of capitalist development is unable to do*" ([Redefining Sustainable Development with the Bharia](#)).

2.6 Project spotlight 3 – decolonising research

[Healing is in the Pot \(Okuphilisayo Kusembizeni\)](#)

The very name of our research project “Okuphilisayo Kusembizeni” (Healing is in the Pot) is an old metaphor in isiZulu that encapsulates the heritage approach we took to this research project. It was important to be acutely aware that the nature of the issue we were addressing i.e. the link between food and climate and health issues we face today, is a problem that has been generated by Western/colonial erosion of sustainable food choices and practice of Indigenous communities globally. This meant that our research approach had to be one that didn't repeat the same patterns of colonial errors that have been made in the education context. Healing is in the Pot.

[Healing is in the pot: Food choices for Climate Action - YouTube](#)

[Learning in dynamic groups – a recipe! -YouTube](#)



Other projects highlighted gaps between the knowledge informing policy and the knowledge of those affected by the policy, and how decolonising approaches can help bridge that gap by understanding the structural factors that “*impede processes of social and environmental justice to take root*” (India Hub lead), and by contributing new local or Indigenous perspectives. They demonstrated that communities have deep understanding of key sustainability issues but are not consulted or given due recognition and instead are subjected to alien notions of “sustainable development” through policies, school curricula and textbooks or conservation plans. There was a significant disconnect, for example, between the knowledge and experience Rwandan farmers had of dealing with climate variability and the national policies that were developed ([Education for Climate Hazard Resilience](#)), and a harmful dissonance between tribal communities' diverse dependencies on forests and ways of collective ownership and harvesting sustainably and portrayals of sustainable practices by state agencies or in school curricula ([Voices from the Margins](#)).

Projects highlighted the opportunities TESF had given them to co-generate “*different stories than those that dominate*” and not only allow those stories to come into co-presence, but to give those stories a “*chance to lead the directions of the actions and the learning that was taking place*” (Session chair in *The role of 'local' & 'Indigenous knowledges' in transforming education for sustainable futures* session at TESF Legacy Conference).

Although the projects offered rich and varied illustrations of decolonising approaches and practices, several also acknowledged that these were not straightforward processes; they require ongoing (and often unsettling) reflection and critical engagement which makes decolonising work emotionally demanding. [Makhanda Ngoku!](#) acknowledged that “*decolonial work, with all its tensions, uncertainties and paradoxes, requires deep patience and love*”. Other teams saw their work as a small step on a much longer journey, recognising that decolonising practices are not always carried out easily or consistently. For example, [Universities as Sustainable Communities](#) reflected on their attempts to “*flatten the power inequalities and knowledge asymmetries*” through participatory practices with student activists, concluding that it was “*not done perfectly*” but did enable them to open up and negotiate diverse worldviews.

2.7 Knowledge co-creation for transforming education for sustainable futures

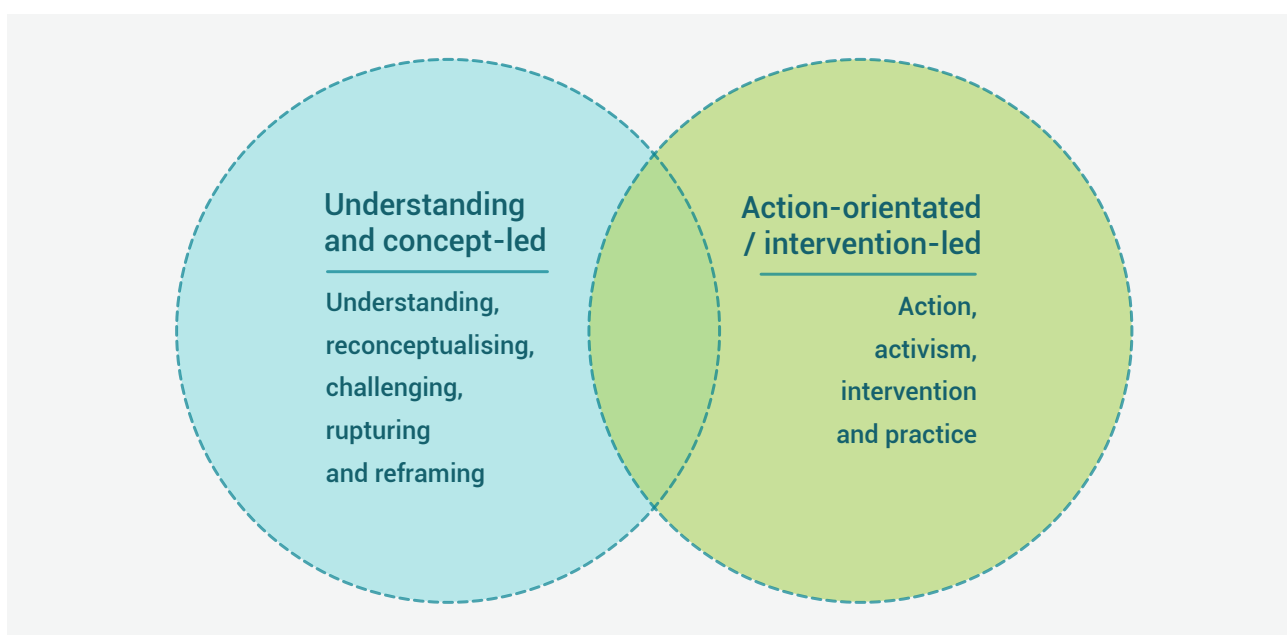
In the preceding sections we have seen that co-creation can mean many things to many people. In the wider literature, there are different rationales for the use of different types of co-creation, and different approaches to research that fall under the umbrella of co-creation from participatory research to citizen science. In many respects, TEF projects reflect that diversity, however, where it is distinctive is in relation to specific TEF contexts and objectives. When applying co-creation approaches in the challenging situations experienced in hub contexts such as climate crises, historical inequalities, poverty and rapid urbanisation, and when trying to address the very real, visceral problems participants and researchers were experiencing, the section below presents the forms that co-creation took for TEF projects.

The TEF projects largely sat in and between two broad camps of more conceptual, understanding and research-led projects and more action-oriented or intervention-led projects (see Figure 4 below). However, these categories have porous boundaries and many projects included elements of both.

As highlighted at the start of this chapter, a key part of understanding complexity and complex systems is to take opportunities to redefine the problem (Tikly et al., 2020). Many project teams committed to understanding and re-examining key issues of gender, caste, race, citizenship, curriculum and colonialism and questioning dominant discourses of “sustainability” and “sustainable development”. Some of these were conceptual studies, with the aim of taking new knowledge and learning and using it to inform action, practice and policy/curriculum in the future. In these projects, although the main action focus lay outside the scope of this project cycle, the knowledge and insight generated is fundamental to future transformation. For participants, the aim of taking part in the project might not be to see direct immediate change or impact on their circumstances, as with some action-oriented projects, but rather to “correct the record” and the “silences in the knowledge landscape” (Facer & Pahl, 2017, p. 7), for example, by contributing knowledge and understanding of “sustainability” from an Adivasi perspective to counter the narratives represented in curricula.

However, many of these conceptual projects were able to realise some form of transformation within the projects. For example, the Somali Hub highlighted that *“the research process became a process of social change by reducing inequality in its own activities”* (Somali Hub report).

Figure 4. The two broad camps of TEF research





Some of the different ways that projects articulated the aims of these conceptual studies can be seen in the box below.

The language of aims of conceptual and research-led projects:

- Exploring meaning, possibility and relevance
- Rethinking, redefining and revisiting
- Seeking to unravel
- Tracing journeys
- Making visible and articulating
- Mapping, analysing, understanding and investigating

Two examples of conceptual studies are:

- [Voices from the Margins](#) which aimed to map the cognitive and cultural resources that lie within the Adivasi community (a tribal community) in India.
- [The Meaning of Sustainable Development in Somaliland](#) which aimed to understand what the Somaliland Climate Change and Environmental Sustainability Master's programme graduates understood by "sustainable development".

Other projects sat in the middle of Figure 4 and, within the scope of the project, developed conceptual understanding or carried out some form of formative research to guide the development of the intervention stage and then took action based on that knowledge and understanding. For example:

[Education for Building Climate Hazard Resilience in Rwanda](#) aimed to:

- assess the extent to which climate change education as articulated and used in higher learning institutions are contextualised for the farmers' understanding and intake;
- assess the knowledge, understanding and practices of the vulnerable farmers on climate hazard resilience; and
- empower vulnerable populations with capacity (skills and knowledge) for climate hazard resilience building. [Universities as Sustainable Communities](#) was

designed to take action within and beyond the project, aiming to co-develop a conceptualisation of a sustainable university community that would inform an action plan for an African/Indigenous/ locally centred conception of Higher Education for Sustainable Development at the University in the Free State.

A final group of projects took as their starting point a problem or opportunity that they already understood in an area they were already working on and acted collectively on a priority area. For example: [Developing a Model of Holistic Environmental Education including Teacher Training for Eco-Schools in Tamil Nadu](#) – part of an ongoing programme.

Some of the different ways that projects articulated the aims of these action- oriented projects can be seen in the box below.

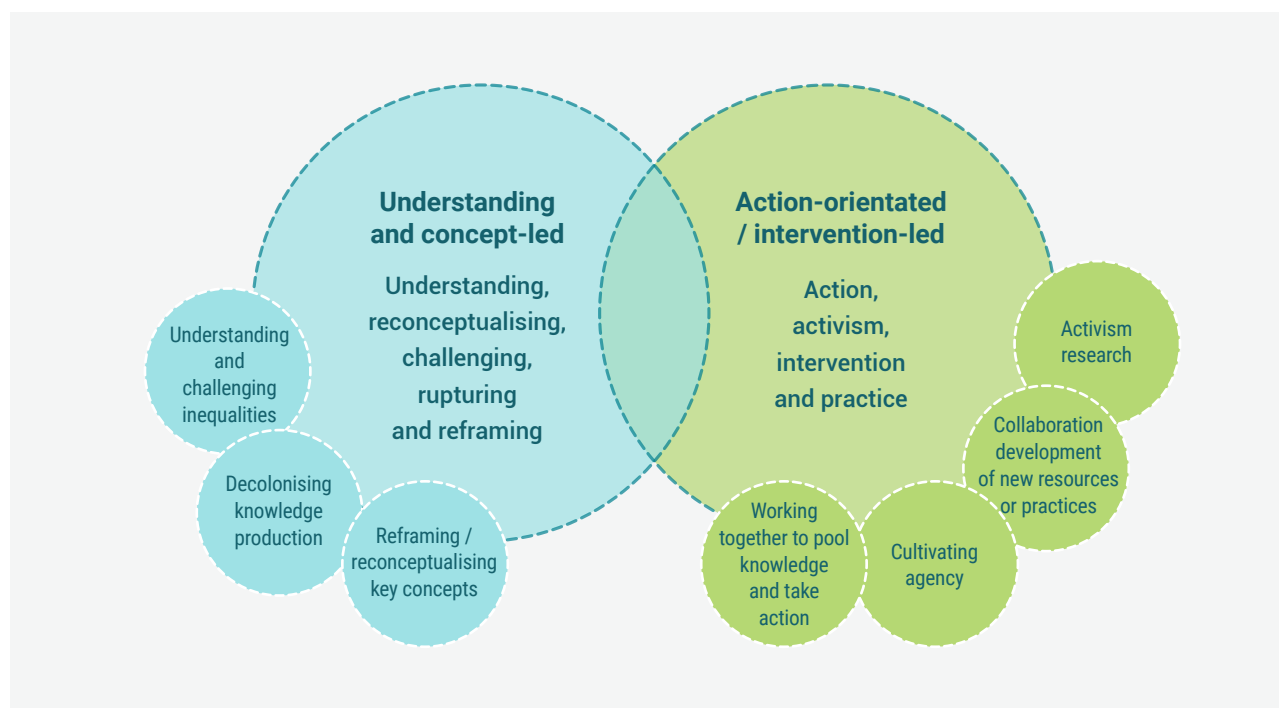
The language of aims of action and intervention-led projects:

- Initiating, invigorating, researching and documenting
- Empowering and revitalising
- Building and creating
- Developing, contributing and evaluating
- Mobilising capacity
- Cultivating agency via transformative pedagogies
- Addressing and exploring how

These examples highlight that projects span the formal and informal education sectors and address issues of education and learning for children and adults.

Figure 5 below shows the breakdown of categories of knowledge co-creation according to different aims and rationales, different ways of collaborating in the research process, the use of different research methods and different intended outcomes of the 67 TESF projects. Individual projects do not necessarily sit neatly within one category, and some straddle two or more. This model builds on and adapts categories developed by Keri Facer and colleagues cited in our background paper (see Facer & Pahl, 2017b in [Sprague et al. 2021](#)).

Figure 5. Categories of TESH knowledge co-creation according to different aims and rationales



We have seen from TESH projects that there is no one way to “do” knowledge co-creation and indeed these processes should not be entered into lightly. As we will see later, this is a challenging, time-consuming kind of research which takes significant time, resources and emotional investment (Cook, 2012). However, the “wicked” challenges being faced in the areas of education and sustainable futures, demand research approaches that can embrace complexity and actively tackle injustices rather than reinforcing them.

The South Africa Hub reflected that:

...our findings have shown that co-creation of knowledge is not something that you can talk about in a romanticised way considering the way that projects have navigated the paths of injustices, inequalities, poverty and exclusion and brought together people with such diverse experiences and histories of pain due to inequality and injustice, unemployment, poverty and marginalisation.

2.8 Conclusion

Summary of key learnings

The meaning one gives to knowledge co-creation varies according to context but contains key, distinctive elements linked to our research questions, the participants we were engaging with and the contexts we were working in.

It is important to clarify the rationale for adopting a knowledge co-creation approach. In the context of our research, knowledge co-creation allowed us to engage with complex realities through grounding our research in the lived experiences of the participants. This also allowed us to challenge dominant framings and to frame the research from the perspectives of the participants, drawing on their indigenous and local knowledge as well as disciplinary knowledge.



Chapter 3

METHODS AND APPROACHES FOR PUTTING KNOWLEDGE CO-CREATION INTO PRACTICE

3.1 Chapter summary

This chapter extends the rationale and principles introduced in chapters one and two and illustrates how these were applied by project teams in diverse and challenging contexts. We start by providing an overview of the diverse designs and methods used by project teams, highlighting that there is no one way to 'do' co-engaged research. However, we highlight that the majority of teams used more participatory, action-oriented and critical approaches aligned with the specific aims of the project and TESH rationale. We then illustrate the methodological range of research and project designs and methods raising critical questions about expectations, familiarity, power, and capacity when advocating co-creative approaches across diverse contexts and partners. In the final three sections we look in more detail at key aspects of co-creation in practice that emerged strongly across all four hubs: the importance of adaptation and fluidity; the contribution of arts-based methods; and methods for engaging with children and young people.

3.2 What did undertaking knowledge co-creation involve in TESH?

The concept of co-creation has been informed from many traditions and has a wide range of interpretations. TESH plus funded projects will necessarily take varying forms and use different methods. ([Sprague et al., 2021](#), p. 5)

The TESH methodology background paper, *Co-creating education for sustainable futures*, laid out a range of forms that co-creation might take and the quote above

“...in-depth life stories may provide valuable insight into individuals' experiences to challenge existing inequities.”

highlights that there is no one way to 'do' knowledge co-creation. The commissioned TESH projects all answered a call for innovative, transdisciplinary, co-created, transformational research and within this demonstrated a wide range of methodological approaches, sharing some common principles, but with distinct designs and methods to fit their aims and rationale. The examples given by Sprague et al. also demonstrate that knowledge co-creation is not aligned with any one research paradigm; surveys, questionnaires and large-scale data sets may allow teams to get an initial baseline understanding of a situation, whereas in-depth life stories may provide valuable insight into individuals' experiences to challenge existing inequities ([Sprague et al., 2021](#)). In particular, when challenging the epistemic and academic structures rooted in the Global North, it is important not to over-simplify the relations between methods, methodologies, and epistemologies. For example:

...we should not assume that certain methodologies are *de facto* more likely to contribute to decolonisation than others. (Barnes, 2018)

The overview of TESF project designs and methods below attempts to reflect the language used by the project teams themselves to describe their work, drawing largely on the *methods* sections of project reports. This highlights the areas of convergence and divergence across contexts and illustrates the ways in which teams explore and take action concerning the complex issues, the challenges being faced and the tools they adopted.

3.2.1 Overview of TESF research designs and methods

Research design

Some TESF teams had significant previous experience in knowledge co-creation while others were adopting these approaches for the first time or drawing on aspects of co-creation within a more traditional research design (see chapter one for more on the four hub contexts). Learning through and about knowledge co-creation happened in all projects in different ways. The following sections provide a breakdown of the broad methodological approaches and research designs that were used.

The 67 projects were predominantly **qualitative** in their methodological approaches which to some extent reflects the rationale and principles laid out in chapters one and two, for example the commitment to grounding research in lived experience. However, it should be noted again that we do not equate knowledge co-creation with qualitative research. These studies were generally characterised by the use of multiple, often creative methods which allowed participants several different contextually relevant ways and opportunities to express their ideas and multiple ways of making meaning. Several identified with the concepts of 'knowledge co-creation', 'co-production' and 'participatory research'. Three qualitative Indian projects conducted **ethnographies** (e.g. [Education, Margins and City](#), with two drawing on **critical ethnography** ([Voices from the Margins](#) and [Looking Inward, Looking Forward](#)). Both of these projects were researching with marginalised Adivasi communities, addressing social inequalities through their research and so chose methodologies that were "overtly political" ([Voices from the Margins](#)) and could "forefront the power relations that are socially constituted within this context" ([Looking Inward, Looking Forward](#)).

However, a small number of projects used **mixed methods** and one took a **quantitative** approach, looking at *the meaning, possibility, and relevance of the circular economy in Somalia*. Within these studies, teams still demonstrated opportunities for collaboration and participatory approaches, for example using *participatory survey design*. In projects employing **mixed methods**, the quantitative components, usually questionnaires, surveys or analyses of secondary data, were done in the early stages to "sketch the bigger picture" ([Meet the NEET](#)) or "assess the situation" ([Teaching Critical Thinking about Health Skills](#)) and was followed by a qualitative explanatory phase. In addition, several projects started with some kind of document or textual analysis, developing a deeper understanding of key artefacts affecting participants' lives and learning experiences: e.g. a *Retrospective and community consultation-based policy analysis* of legislative and policy documents that govern transgender, gender non-conforming, and gender non-binary persons' access to the Indian science ecosystem ([Transgender and Non-binary Persons' Access to HE in Science](#)).

Mixed methods approaches were also drawn on in several projects planning and implementing some kind of **intervention**, often linked to baseline and endline evaluations, e.g. a survey to assess participants' caste-related knowledge, attitudes, and practices before and after the intervention ([Facing Caste](#)).

Responding to TESF's call for projects to "impact and transform existing policy and practice", this action-oriented or intervention-led approach was the most common across the four hubs with almost half of the research teams implementing an action-oriented project or intervention (see chapter two: Knowledge co-creation for transforming education for sustainable futures). The focus and objectives of these interventions were wide-ranging and in accordance with the specific challenges being faced in each context.

- [Gender education of pre-service teachers through dialogue-based pedagogy](#)
- [Curriculum and manual design and teacher training in Eco-schools](#)
- A systemic intervention using transformative pedagogies for preparing teachers
- [The role of theatre in cultivating agency in "Counter Imaginaries: Toward a New Cartography of Agency"](#)

- [Developing modules and training for community members to help them to cope with urban growth challenges](#)
- [Capacity building activities to build climate hazard resilience capacity for farmers and vulnerable communities](#)
- Designing teaching materials and delivering teaching of basic literacy and numeracy courses [for skilled minority workers](#) and [informal traders](#)
- [Adapting and delivering Continuing Professional Development \(CPD\) courses on Education for Sustainable Development \(ESD\) in Somali to middle and secondary school teachers](#)
- Investigating the enabling and constraining (conversion) factors underpinning possible transition to a more sustainable and nutritious diet through an educational course: [Okuphilisayo Kusembizeni \(Healing is in the Pot\)](#)
- [The utilisation of school food gardens as educational transformation agent to achieve community-wide sustainable livelihoods](#)

Several intervention projects explicitly referred to an **Action Research** approach with several cycles of collaborative planning, action, and reflection.

Participatory Action Research (PAR) methodologies were used by projects in both formal educational settings, e.g. [in arts-based approaches to explore issues of sustainable development in Rwandan high schools](#) and the [potential of school food gardens to contribute to community-wide sustainable livelihoods](#) as well as in informal learning settings, e.g. to support development of [urban life skills for sustainable livelihoods](#). This approach was generally selected as it centres the participants' perspectives, "*provokes real world action*" ([Community Education for Urban Life Skills](#)) and gives the potential for co-creation: "*It recognizes the role and agency of participants in knowledge production and creation*" ([Arts-based Approaches for Sustainable Development](#)).

Other forms of action research were also adopted, including **Feminist Participatory Action Research** (e.g. [Mapping Educational Innovations for Social and Ecological Justice](#)) which challenges social power hierarchies. One South African project, [Universities as Sustainable Communities](#), drawing on various action research principles, opted not to name their approach

but rather "*focus on applying participatory practices in ways that felt organic and intuitive*". This suited their specific context, their decolonising agenda, student activist participants and research questions. In one final example of the range of action research approaches, a [South African Water Mapping project](#) framed their research as **community based activist research**, explaining that activism and social movements have reflective action and learning cycles at their core:

While the knowledge generated in social movements may not resemble knowledge production as it has come to be known and enclosed within formal institutions, research practices developed and used within social movements have a kind of rigour and orient knowledge production towards social change. They also require continuous reflection and ought to be articulated in ways that can enable them to be shared and developed further. ([Water Mapping](#))

What is clear here is that though TEF projects demonstrate diversity in methodological approaches, more qualitative, critical, participatory, and action-oriented designs predominate across the TEF hubs. In turn, the action-oriented and critical natures of the projects lend themselves to more participatory methods

Research methods

It is common in qualitative and participatory research for multiple methods to be used. This gives participants a range of different ways and tools to express themselves and the complexities of their lives (Langevang, 2007), and can generate intense detail and strengthen the rich rigour and credibility (Tracy, 2010). Another priority in co-creative approaches is to seek ways to ease the power disparities between researcher and participants ([Sprague et al., 2021](#); Siry et al., 2011).

TEF projects adopted a wide range of research methods to explore, understand, and act on their key issues of concern and negotiate power dynamics. The word cloud in Figure 4, generated from project proposals, gives a glimpse of the richness and variety.



Coping with Kigali Urban Growth Challenges



School food gardens as educational transformation agent



Voices from the margins

3.2.2 Diversity in responses to the call for co-creation

One way of accounting for the diversity in designs and methods is to see it as reflecting the diversity of contexts and participants – their interests, previous experience, and the cultural and research norms shaping their participation. In the initial call for proposals, eligible host institutions included universities, research institutes, NGOs, government departments, businesses, schools, community groups, social enterprises, and arts or cultural organisations. This shows that potential diversity was 'baked in' from the start of TEF, and as we saw in chapter two, there was a deliberate attempt to include diverse communities, geographical areas, and grass-root organisations that brought with them a wealth of experiences working with diverse marginalised communities. Considering the wider contexts of the range of institutions in the four very different country hub contexts, it is natural that responses to the call for co-created, cross-disciplinary research projects varied significantly.

Some proposals laid out a more traditional research approach, designed by academic researchers but including elements of collaboration, while others proposed more bottom-up approaches with participants as co-researchers, collaborating or co-labouring (Sumara & Luce Kapler, 1993) from the inception phase and throughout the project lifespan. A range of factors determined the approach and the extent to which knowledge democratisation was foregrounded. The range of approaches and diversity of teams' previous experience and expectations can be illustrated by project researchers' reflections on their TEF experience.

Some TEF teams had significant previous experience of participatory, transgressive, co-engaged research and saw themselves as established members of a community of practice. One team, drawing on their expertise, reflected on the challenge of carrying out this kind of work within a limited funding timeframe:

Social learning – especially in contexts that call for un-learning and then re-learning – takes time to do well, and a year is just enough to make a good start. (South African project)

Other teams reflected on the ongoing challenges and

continuous learning involved in co-creation even after years of experience, with one South African researcher reporting that "much of what we learn about facilitating these research processes happens on the go". However, for some teams, research as knowledge co-creation was an unfamiliar concept and through ongoing exposure with the wider TEF network, researchers built and consolidated their understanding of co-creation and reported positively on opportunities to learn more. One Somali researcher commented in response to the closing TEF conference presentations that "*some concepts/methodologies like knowledge co-creation are now getting clearer*".

Recognising this diversity is not to comment on the quality of the work done or the commitment to transformation, but rather is an open acknowledgment of the lived experience of the partners and researchers working on TEF projects. Just as many teams made space for multiple perspectives of participants, so too did the network need to be ready for multiple perspectives of research approaches (see chapter six for more on the different ways that the call for proposals was managed in recognition of the different contexts). In some settings, knowledge co-creation approaches were already widely in use and teams benefitted from sharing their experiences. In others, it was an unfamiliar concept and ideas of quality research were tied up with more positivist paradigms, leading to teams adopting more traditional research approaches. With the call coming from a Global North institution, there is also the possibility that knowledge co-creation could be perceived as another imposition from the Global North at a time when researchers were establishing their academic credentials in other forms of research.

However, in most cases, teams appreciated the opportunity to work in this flexible, emergent way and embraced co-creative approaches as a useful methodology for addressing their research questions. Teams have demonstrated a range of ways that this approach suited their needs, matched their priorities, and matched their roles, for example, allowing them to explore and build on their positions as activist-researchers or teacher-researchers.

One further aspect of this spectrum of co-creative approaches which became apparent was that there was dynamic movement along it during the project

life cycle. This was largely due to the nature of the support teams were given and were willing to receive from other projects, hubs, and the network (see chapter six for more). In particular, hub teams were ready to scaffold and support teams who were less familiar with these approaches but whose research questions and aims would benefit from more open, flexible, emergent participatory designs. [Meet the NEET](#) in Rwanda reflected:

...the more we engaged with the TEF 'philosophy' of knowledge co-creation and capacity mobilisation, the more we felt challenged and wanted to engage with other people involved. (See Project spotlight 4 for more on this.)

The space for this reflection, for thinking critically about co-creation and with accompanying flexibility and capacity mobilisation opportunities, proved to be essential for this kind of challenging transformative, transgressive work and had to be consistent across the different parts of the network. It is gratifying that, despite the many challenges, teams largely appreciated this approach, with one team noting that the network team "seemed focused on helping us through the various challenges we encountered, rather than trying to push us into pre-determined structures and priorities" (Citizen Sciences: GeoStories).

3.3 Embracing fluidity and response-ability

Often when research programmes are planned, there is a tendency to pre-determine or at least plan what methods and approaches might be best used. However, one of the insights gained in the TEF network is that there is often a need to embrace fluidity and, in line with decolonising principles, 'response-ability'. We see this as the ability and willingness to respond, as part of the researchers' response-ability to their participants and co-researchers and in recognition of multiple ways of knowing (see Springgay & Truman, 2017). As highlighted in the overview of TEF research methods earlier, there is no one size fits all. TEF teams have demonstrated the need to "work productively with difference, emergence, complexity; to pay attention to the ways in which the value of the project is being understood differently in different places" (Facer & Pahl, 2017, p. 239).

Several projects have highlighted the changes that they made in response to issues that arose. These could be relatively minor adaptations, common in qualitative research, like reducing the size of a focus group, adding another research site, or changing from a written to an oral activity. However, in other projects changes were more significant. In one Somali example, they originally planned individual interviews but these "made people feel boxed in and unable to express themselves fully". Participants then selected methods which resonated with them culturally and personally to express and share their ideas, such as dancing, poetry, personal reflection, and drama which "nurtured creativity, belonging, unity and understanding" ([The Eco-Schools Project](#)). As well as demonstrating fluidity, this also illustrates the team's developing understanding of different ways of making meaning and producing knowledge within the supportive TEF framework.



Model Eco-School in Somalia

3.4 Project spotlight 4 – Embracing fluidity and response-ability

[Meet the NEET: exploring the lived experiences of Rwandan girls and young women not in employment, education or training](#)

Our main challenge was how to bring about more meaningful engagement with our key participants, the NEET girls. This relates more to the design of our project, where it was mainly a research project and not an intervention of some sort. Thus, the more we engaged with the TESF 'philosophy' of knowledge co creation and capacity mobilisation, the more we felt challenged and wanted to engage with other people involved. True, we had co-created effectively as a team made up of technical experts from INGO and academia, but the meaningful involvement of youth was only partially attained. As a result, the fieldwork and data collection phase felt more like an 'extractive process', where the researchers limited themselves to going to the field and collecting data from research participants without involving them enough in the whole research cycle and without planning to go back to develop some possible follow-up activities to support their empowerment. Further still, the results of the self-assessment, conducted revealed that there was more we could do in mobilizing capacities of the young researchers we were working with.

In order to respond to these challenges, we spent more time with young researchers like moderators, the research assistant and intern on the team. This aimed to have them more involved in the project and also to gather their inputs on other activities, including data analysis, validation and dissemination of findings. On the side of participants, we added an activity of going back to the field to share preliminary findings with local leaders and the NEET girls in order to validate the findings and gather new insights and recommendations from them. For the NEET girls we also added a session of awareness raising facilitated by ... ambassadors. ... All the above created opportunities for more engagement than previously planned.

Several teams described activities that had been dropped for time reasons or added in as the project went along. For example, in [Dialogic Pedagogy for Gender Sensitization](#), the team set up additional sessions on menstruation and gender as a spectrum in response to students' requests and interests. Some of these additional activities produced powerful results, most likely because they were included *in response* to participants' actual needs and interests, rather than in anticipation of what these might be. In [Facing Caste](#), optional reading circle activities were offered to library educators and provided a safe space to explore unsettling, uncomfortable issues (see chapter five for more on this).

Finally, all this fluidity can sit uncomfortably within a fixed funding cycle (see more in chapter four: challenges) and projects reflected on the risky nature of this kind of work "*without any guarantees of impact*" ([Citizen Sciences: GeoStories](#)). One project in particular, the [Learning Seeds Network](#) in South Africa, highlighted not just the importance of reflecting and adjusting plans but of 'learning to fail' and 'daring to fail'. In their Zine, appropriately titled "*Showing up is a miracle in itself*" they shared the very challenging experience of recognising that their "*vision of working as an 'integrated' team that was equitable and disrupting harmful patterns of power*" had failed and in fact they needed to take time and break apart into smaller community teams to understand the "*dynamics of power and conflict*". In a research culture that rewards proven hypotheses, completed projects, results, and impact, this is an example of how TESF tried to make space for other outcomes of learning. The team reflected:

By daring to fail, we could learn our most important lesson of the journey: by recognising our failures to achieve what we had imagined we could do, we were starting to sow the seeds for new ways forward. ([Learning Seeds Network](#))

3.5 The contribution of arts-based approaches

There is something unique about the arts – the capacity to invoke meaning and meaning-making is one of the most complex and subtle forms of thinking. In contrast to other ways of perceiving reality, the arts help us to visualise reality and not just conceptualise or utilise it. (Session Chair and India Project PI, TESF Legacy Conference)

The quote above is an extract from the project-led synthesis of TESF projects using arts-based approaches, showing the teams' shared rationale for their use of these methods and their view of the important contribution they make.

Arts-based approaches were used with adults and children in projects across all four hubs. These approaches are used more broadly now in qualitative research in general, associated with gaining deeper insights into how people are affected by the issues around them ([Sprague et al., 2021](#)), recognising and honouring different ways of knowing, and exploring difficult or sensitive issues (Kara, 2015), and even offering sanctuary from the stresses and struggles of everyday life (Lenette, 2019). Rather than simply a way of augmenting other qualitative approaches, each specific art form offers a distinctive contribution (Boydell et al., 2012). However, the knowledge and learning generated through these practices is still underused and underestimated in many evidence-based arenas, e.g. evidence-based policy-making and pathways to impacts remain underexplored.

These approaches in TESF projects were aligned with our underpinning principles as they transgress the usual formal academic ways of generating and presenting ideas and of making meaning. Arts-based approaches lend themselves to knowledge co-creation as they explore, elevate, and bring to life people's lived experiences.

Several TESF projects linked their use of arts-based methods with the importance of decolonising methods, the use of Indigenous methods and recognising different ways of knowing. As pointed out by the India Hub, *"Different ways of knowing enables bridging gaps*

between head, heart, and the hand; between theory and practice; and between knowledge and action." Through the arts, and in particular, artistic practices and forms that resonated culturally with participants, project teams attempted to make these connections.

Deep understanding of and engagement in the specific context was shown by project teams as they developed or co-developed the methods to suit the context, participants, and aims. For example, to engage and centre children in one Somali project, methods that resonated culturally were collectively chosen, such as traditional dance, theatre, poetry, songs, and stories to *"honour indigenous teaching methods [and] revalue indigenous approaches"* ([Model Eco School in Somaliland](#)). However, consistent across contexts was the need to create a safe space for this kind of challenging work (see chapter five). Projects using theatre in India highlighted the value of the method that *"allows participants to speak of their vulnerabilities in a safe space, learn to self-reflect, empathise and question hierarchies of power"* (India hub report). In one Rwandan project, school children, in collaboration with artists, used songs, poems, and other features of Rwandan culture to express their opinions, *"without fear and restriction"* in their most familiar language, about different issues related to sustainable development ([Arts-based Approaches for Sustainable Development](#)).

At our TESF Legacy Conference, project teams from across the four hubs, who had been using arts-based approaches, came together to share ideas on the contribution of arts-based approaches to education and research. In their synthesis they looked beyond their individual projects to see connections and resonances. The Session Chair summarised their discussion:

The arts give us a much more enriched, more vivid and colourful representation of reality and a more profound comprehension of its form and structure. The arts are not confined to one specific and singular mode of accessing reality. ...The arts cultivate our imagination, and imagination performs a cognitive function of course, but it also enables us to try things out in the mind's eye without the consequences we might encounter if we had to act upon them in real life. In that sense it provides a safety net for experiment and in a manner of speaking a rehearsal for reality.

The box below presents other ideas that emerged as connections and patterns and across the teams' arts-based approaches.

- ...to explore and express...
- ...a backdoor to the inner self...
- ...to uncover deep realities...
- ...to access deep and inner stories...
- ...to regain a sense of self-worth and self-esteem...
- ...therapeutic, restorative, empowering...
- ...words cannot adequately capture the complexity...
- ...multiple forms of expression...
- ...courageous playfulness...
- ...learning to fail...
- ...we have a life's worth of patterns in our bodies...
- ...big words, small words...
- ...rehearsal for reality...
- ...meanings emerge as patterns connect...
- ...to awaken to a world in need of transformation ... forever incomplete...
- ...opening the space between analysis and action...
- ...proximity not objectivity...

Another key contribution of arts-based approaches is in research dissemination. Academic texts and reports are one limited way of sharing learning and knowledge, but it is possible to “re-write research with spoken music, image and story” as Heila reflected at the TESF Legacy Conference.

Re-writing research with spoken music, image and story

Once upon a time people thought that the best and only way to share research was as ‘academic text’, and that only this form would offer a valid representation of the world as constructed in and through research practice, and that when ‘disseminated’ it would have an impact on the world.

But then we thought that such texts, while bearing witness in important ways, don't give real clues to the artistry involved in our research, often leaving us with ‘dehydrated voices’, and at worst commodified knowledge that fails to reach those we are doing our research with.

So what we did was to create oral and visual literatures in and of our work, rooted in time and place and with the people, rivers, land and cityscapes, gardens, trees and communities who are speaking with us. We were not wanting to ‘give voice’ because we found that people had voice. We were not wanting to ‘develop agency’ because we found that people had agency. What we wanted to do was find and articulate forms of expression, voicing, and meaning making that could amplify voice and agency in the seeded, relational movements for transforming education for sustainable futures that we were co-creating in our projects, communities, cities, gardens, kitchens, classrooms, hubs and countries, crafting richly textured stories of this work that reflects its originating ethos.

(Heila Lotz-Sisitka's Tiny Text reflection, TESF Legacy Conference, April 2023)



An Indian project PI commented during the online TESF Legacy Conference:

The arts have emerged as a powerful lens to look at transformation. To this I would add the need to look more critically at the arts and its processes. Arts can be a double-edged sword.

As with all methods, context is everything. Arts-based methods or participatory methods are not in themselves intrinsically good or powerful but rather it is the social relations involved and the relationship between epistemology and methodology which will determine if a particular method can enable insight into a specific research question (Ansell et al., 2012).

3.6 Methods for engaging with children and young people

When adults fall back, there are children to take the lead. Children's responses to caste in the Facing Caste project have provided ample and humbling evidence that children are ready to think and talk about caste with curiosity and an open mind – if and when adults around them are ready to. ([Facing Caste](#))

The quote from the [Facing Caste](#) project illustrates the valuable contribution that children can make to transformative research. A priority for several TESF projects was to foreground children's voices, perceptions, and experiences, and research *with*, rather than *on or about* children in their work. This not only redresses the paradox of the "invisible" or "missing" child in research (see Brown, 2022 and Darbyshire et al., 2005) but also aligns with decolonising approaches which challenge the dominance of adult voices and make space for children and young people's perspectives. At a national TESF workshop in South Africa, a young activist-researcher called for "*nothing about us without us*" echoing the call within the disability field to tackle issues of mis- and under-representation (see Ormston et al., 2014).

'Children' are not a homogenous group and though there may be some considerations for doing research with children because of their age, vulnerability, and status (see Thomas & O'Kane, 1998), there is no universal child-friendly approach to researching with children.

For example, researchers should not expect creative methods to be a panacea, as, just as with adults, this can be anxiety provoking or even disempowering if expectations are not managed, safe spaces are not created, and children feel exposed or embarrassed (Mason, 2017).

There is evidence, however, that participatory approaches have much to offer in quality ethical research with children and that to encourage children's active participation and fuller contributions research activities need to be enjoyable and engaging (Crivello et al., 2013). Flexibility and multiple methods are important as children require different ways and tools to express themselves (Benwell, 2009; Darbyshire et al., 2005; Langevang, 2007). Further, to ease the power disparities between adult researchers and young participants activities that support a shift in ownership and place the young people in positions of 'experts' and co-producers of knowledge can produce powerful results (Langevang, 2007; Porter et al., 2010).

Projects across all four TESF hubs perceived children as groups who had been historically marginalised and as a result saw their inclusion in knowledge co-creation processes as a feature of a decolonising approach which challenged and deconstructed dominant adult voices, especially in areas of schooling where children can be seen as the invisible majority in research. These projects sought to "*elevate voices of young people*" ([Arts-based Approaches for Sustainable Development](#)) and make room for children to "*[sit] side by side with influential members of society and government, making decisions about their school and educational futures freely and confidently*" ([Model Eco School in Somaliland](#)). Rather than via extractive or didactic methods with children, projects teams saw that "*learning was also experienced through conversations*" ([Agriculture, Arts and Livelihoods](#)).

Several projects explored areas of dissonance between the intended curriculum in formal schooling and children's everyday lived realities. Through art, poetry, and dialogue, teams explored how children can contribute to a "*richer and more nuanced understanding*" of fundamental ideas of citizenship ([Hum Hindustani](#)), of caste ([Facing Caste](#)) or of sustainability itself ([Voices from the Margins](#)). See examples below.

For example, an exercise exploring rights, injustice, and freedom highlighted children's understanding of injustice and discrimination and desire to act and protest.

The project demonstrated that the understanding and insight gained by listening to children "can lead us to re-examine structures of education and work towards processes that enable equity and social justice" (India Hub report).

In a writing exercise on the idea of fraternity, the following poem (translated from Hindi) emerged through a dialogic process with children in Govandi in the [Hum Hindustani](#) project:

My People

*Those friends who are with me in difficult times
Are those my people?*

*Those neighbours who fight on small things
Are those my people?*

*Those people in my family who gave money for
my sister's wedding
Are those my people?*

*That grandmother who is always suspicious of
me
Are those my people?*

*Those people at Kitaab Mahal library who give me
a chance to try everything
Are those my people?*

*Those people who walk into Taj Hotel
Are those my people?*

*Those teachers who listen to me and counsel me
Are those my people?*

*Those policemen who take money from the rich
and falsely accuse the poor
Are those my people?*

*Those people in the Powai chawl who on April 14
celebrate Ambedkar Jayanti with me
Are those my people?*

*Those people who tear down mosques
Are those my people?*

For example, Adivasi children's drawings of forests and villages showed them flowing into each other. They did not depict them as separate entities but "as forming their habitat together" in a complex interdependent, reciprocal relationship (Voices from the Margins). The children demonstrated a "strong ethic of respect and care for all forms of life, including the smallest creatures" (India Hub report). This stands in sharp contrast to the depiction in school textbooks which position the government as the main conservator and protector of forests and forest communities as exploiters:

It is a pity that even protected forests are not safe because people living in the neighbourhood encroach upon them and destroy them. (Grade 8 science textbook, p. 82) (Kawalkar et al., 2023) [Voices from the Margins](#)

The spaces where the research and learning activities took place were particularly important when working with children and young people. Project teams recognised the effect that formal learning spaces can have on the interactions with and participation of children, especially in cases where there was already a harmful disconnect between their lived experiences and the prescribed formal learning.

India's [Education, Margins and City](#) project set up learning centres in the *basti* (informal settlement) for their work with children, noting the limitation of ethnographic work in schools:

The school gives us access to the children. But the cost at which this access comes is that the child leaves a part of herself behind when she wears the cloak of a student. ([Education, Margins and City](#))

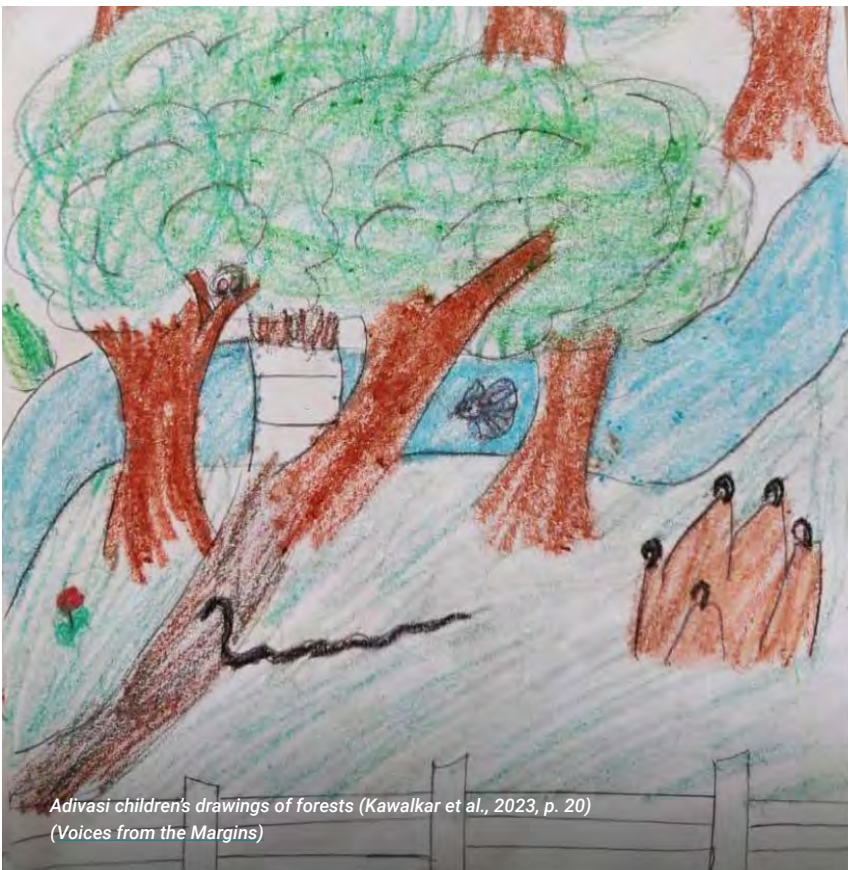
Similarly, in the Somaliland project [Girls' Sport for Development](#), the girls' and women's sports club provided a safe space for young women who were internally displaced – not only to help improve their physical health and boost their self-esteem by providing opportunities to develop new skills and make new friends but also to talk freely and importantly to ask questions about gender stereotypes and discrimination in a safe, supportive environment.

3.7 Conclusion

Summary of key learnings

Knowledge co-creation can and should involve diverse research designs and methods to match the aims of the project, the context, and the specific challenges and inequalities being faced. For TESH teams, qualitative, critical, participatory and action-oriented approaches predominated.

Three areas that stood out across TESH projects were: the importance of factoring in flexibility, responsiveness, and response ability to knowledge co-creation approaches; the valuable contribution of arts-based approaches for capturing affective aspects of lived experience; and the importance of actively seeking the participation of children and young people.



Adivasi children's drawings of forests (Kawalkar et al., 2023, p. 20)
(Voices from the Margins)





Breaking through the Inter-Generational Cycle of Educational Inequalities

Chapter 4

CHALLENGES AND OPPORTUNITIES IN CO-ENGAGED RESEARCH

4.1 Chapter summary

This chapter elaborates on the research methods, practices and processes to explore the challenges and opportunities presented to TESF teams in carrying out co-engaged research. We start by identifying the main challenges which teams faced, how they overcame or mitigated them and what they learned in the process. Although challenges varied across contexts and project types, key overlapping broad themes around access, resources, time and capacities stood out across all four hubs. Interwoven in these sections are the opportunities identified as they can often arise out of challenges. We include a particular focus on the capacity mobilisation and scaffolding required to carry out challenging transdisciplinary, transformative research. The themes in this chapter overlap and interweave with the issues raised in chapter five: ethics in knowledge co-creation.

4.2 Challenges and interwoven opportunities

The honesty of the challenges is so powerful and important to acknowledge, particularly the 'response-ability' and the emotional strain aspects.

The above is a comment from a project researcher in response to an early presentation and call for feedback on the content of this sourcebook. In addition to their learning and impact, project teams were keen to share the challenges they had faced, to learn from others' experiences and to ensure that the learning from these collective experiences is shared more widely. Rather than the messiness, 'mistakes', struggles and redirections being tidied away in order to present a clean, polished account of knowledge creation processes, the challenges, how they were mitigated and the new opportunities that arose out of them are fundamental to

“...seeking out diversity is an essential part of transformative research ...”

the learning that has emerged across the TESF network.

The challenges of undertaking participatory, co-creative research in diverse partnerships is well documented; “if it feels too easy, you probably aren't doing it right” is the title of the chapter on negotiating expectations and accountabilities in the *Connected Communities Programme* which involved community-university collaborations (Facer & Enright, 2016).

As we have seen earlier, seeking out diversity is an essential part of transformative research but diverse partnerships bring with them different interests, expectations, priorities and ways of working which can present significant challenges ([Sprague et al., 2021](#)). Further, the demands of transgressive, decolonising research means that researchers, working with challenging power dynamics and different ways of knowing and doing must learn to become “comfortably uncomfortable with tensions” (Kulundu et al., 2020); all of this contributes to the emotional strain of undertaking co-engaged research (Cook, 2012). These factors all point to the importance of strong relationships, trust and mutual respect and developing these takes significant time (Coburn & Penuel, 2016, Tseng et al., 2017) – a challenge common to all projects but of a particularly high stakes nature here.

In the TESH network, there were some patterns in practical and administrative challenges in each context; for example, several Rwandan projects reported delays caused by processes of obtaining research permits whereas in South Africa, delays in receiving funds and challenges of access to financial support were more common. In contrast, for Somali teams, the most common challenges faced were linked to new largely untrodden paths that teams were pursuing, for example, lack of secondary data or literature about the matter of concern, lack of awareness around key concepts, e.g. 'Eco-Schools' and 'police-community partnerships' and a lack of familiarity with formal research processes. A further challenge cited across contexts but a particular issue for Somali teams was ethics approval procedures (see chapter five for more on this thorny issue).

However, several themes emerged across hubs in terms of the common challenges teams faced. The ones most relevant to this methodologically focused sourcebook pertain to the conditions required or desired to effectively and ethically carry out processes underpinned by knowledge co-creation principles. The ethical implications of these will be explored in more detail in chapter five.

4.2.1 Access: making contact and making meaning

First of all, as established earlier, several TESH projects teams worked with marginalised groups and for some these were physically hard to reach which placed added time, resource and emotional demands on research teams. In Rwanda, there were examples of "poor roads and hilly terrains" ([School Gardens: School Feeding](#)) which limited the frequency of monitoring visits to rural schools. In Puntland, Somalia, in order to conduct interviews with nomadic pastoralists, the researcher had to travel unanticipated long distances to be able to locate and reach participants who "often moved from their previous places of residence" ([Nomadic Pastoralists and the Path to Sustainability](#)). In one final example, the [Uncanny Lore](#) team, committed to exploring transgressive social learning and surface practices of lore as law in three San communities in southern Africa, reflected on the demands of doing research differently and attempting to break new ground with communities who had been 'researched' exhaustively in the past. They highlight that within the challenges, there were opportunities "wrapped up".

4.3 Project spotlight 5 – access challenges wrapped up with opportunities

[Uncanny Lore](#)

The very nature of conducting this kind of research in the field was enormously challenging: we were away from home for weeks at a time, living in incredibly rough situations – camping with no running water or basic amenities; there were freezing nights with too few blankets, snakes, and various other adventures, which had to be contended with before and while the work itself happened.

However, the opportunities were often wrapped up in the challenges themselves: the facts of our living conditions meant that we relied on community members for various things – such as guidance in collecting the correct firewood – which meant that an ease could develop between us; there was an exchange of information and resources that was not based only on our 'research', but on the daily practice of life. We were, through these challenges, deeply embedded in these communities – especially where we stayed for longer periods.

Just as importantly, and to a far greater degree, our living conditions meant that we as researchers were forced to rely on each other for both physical, professional, and emotional well-being; and though this was undoubtedly difficult at times, it also drew us closer, forcing us to confront our differences and our implicit assumptions. It also meant that there was constant dialogue between us, and the direction and focus of our research could adjust in response to issues that arose.

In addition to these physical access challenges, there were also challenges of accessing and sharing information and resources. Teams reported on issues related to both the medium and method of communication, for example having to consider issues of print literacy when sharing draft reports, transcripts or preliminary findings with participants for consultation.

Language was also a key issue here. Considering that knowledge is generated, accessed and interpreted through language it is not surprising that project teams in all four TESF contexts reported on the different ways that the use of language(s) in their diverse research partnerships helped and hindered knowledge co-creation processes.

Most teams reported that they used different languages for different purposes and interactions. For example, most Rwandan teams used English for core team meetings and reporting but Kinyarwanda, and occasionally French, for the majority of work with participants and non-academic co-researchers. In contexts where there was a shared national language, teams highlighted the value of using this (rather than English) to build trust and relationships, break down communication barriers and *“shift the culture of participation from polite and procedural to authentic and engaged”* ([First We Eat!](#)). The ease of communication in a familiar, shared language meant that some teams reported *“a genuine sense of relationships developing beyond merely a professional research project, and there were moments of friendship and caring between researchers and community”* ([Uncanny Lore](#)). Creating these conditions seemed to be an enabler for knowledge co-creation.



“the use of African languages was seen as an important tool for decolonising research processes ...”

In other related examples, the use of African languages was seen as an important tool for decolonising research processes, not only by validating participants' language and knowledge which could boost their confidence and increase motivation, but also in recognition of *“the reality that African languages were a subject of epistemicides”* ([Collective Community-level Economic Solutions for Sustainable Livelihoods for Young People and their Households in Makhanda](#)). In another example, the use of Somali language combined with local methodologies had a powerful effect in the [Model Eco-School in Somaliland](#) project:

From inception to implementation, the language used throughout the project was Somali to successfully co-create the course with the minority workers. The use of Indigenous knowledge and methodologies has enabled the project to contribute to decolonizing education and research. During the course of the project, it quickly became evident that local academic research in general is limited, and non-existent for Eco-School research. This project through its use of language and emphasis on Indigenous methods will leave a valuable legacy that everyone in Somaliland can understand and implement. The project has endeavoured to spread awareness of its objectives utilising resonating traditional methods such as dance and poetry to promote unity and collaboration in the native tongue. Lifting language barriers allowed different stakeholders to participate and contribute their ideas without language limitations.

Overall, these multi-lingual teams demonstrate a “taken-for-granted” flexibility to working across languages, translating and interpreting as necessary to meet

the needs of different groups. Code-switching was incredibly common; official interpreters were rarely used and the role of interpreter fell to whoever was able and willing in the group which had its advantages and disadvantages. In some cases, deliberate efforts were made to ensure that translation was done to “engage in collective meaning-making” rather than to accommodate facilitators ([Citizen Sciences: GeoStories](#)). However, there was also recognition of the additional demands of working across languages. “All this back and forth created challenges in terms of time constraints, resources, effective communication and definitely meanings lost in translation” ([Meet the NEET](#)).

For many projects, English was the default language for any academic work. This did not present a challenge for teams who were proficient and could access the resources they needed in English, however, the lack of academic resources in other accessible languages presented challenges to teams who wanted to engage with the wider literature in their area.



Model Eco-School, sharing indigenous knowledge on shrubs and trees

“Using Very Big Words created confusion about our purpose and made many people feel small and of no value.”

Limited translations of texts into Hindi and a limited time frame meant that engagement with theory and analysis of data was less of a collective process than we wished for it to be. ([Interrogating What Reproduces a Teacher](#))

Several teams reported that presentation materials such as PowerPoints about the research were often designed in English and then had to be translated on the spot for the audience present. In most cases, and partly due to the reporting requirements of the grant, final academic reports and other outputs were produced in English. In some cases, teams acknowledged that this did not meet their objectives of equitable, ethical partnership working. For example, [Community Education for Urban Life Skills](#) conceded: “This has been both an opportunity and challenge because some the documents produced in English will be accessed by our partners at the community level.” One exception to the academic default of English was in the Somali Hub where project teams were invited to submit their End of Project reports in Somali and where necessary the hub team would be responsible for translating them to meet network requirements.

For other teams the issues of language went beyond national and local to issues of dialects, slang, jargon and the inaccessibility of academic English. Especially in South Africa, the use of non-mother-tongue language and in particular English and academic English was seen as a form of violence:

We experienced just how much language matters, and how using big academic words in our planning sessions, TESF hub meets, project summary documents etc - is a form of Violence. Using Very

Big Words created confusion about our purpose and made many people feel small and of no value. ([Learning Seeds Network](#))

In another project, since they noted that a lot of climate action information was *“inaccessible due to jargon, big words, lack of storytelling, lack of linkages to lived experiences”*, the team ensured that their own website had *“zero jargon”* ([Reframing Climate Messaging for Mobilising Youth in Cape Town](#)).

When describing efforts to support Indian teacher-researchers to develop their research knowledge and skills, one project highlighted both challenges of accessibility issues for resources but also of the power and knowledge hierarchies wrapped up the English language:

...language itself is not merely a tongue to be mastered, but has a whole cultural universe folded into it that is structured by social power and knowledge hierarchies, thereby making it inaccessible and exclusive in many complex ways. Thus, despite the small yet earnest attempts, for reasons far beyond a lack of knowledge of the English language, access to the world of research and discourses in education continue to be denied to the teacher-researchers. ([Interrogating What Reproduces a Teacher](#))

Recognising that language will always be a barrier, the South African community-based research project [Water Mapping](#) highlighted that activism and the relationships and care built around organising and mobilising action around a shared struggle *“comes with a language of its own”*. One of the project co-investigators noted:

...understanding someone's pain when they talk about their issues and being able to relate to that no matter what language its being said in is absolutely amazing. ([Water Mapping](#))

One area that deserves further attention is the opportunities gained by working across languages and of bringing concepts and knowledges that cannot be easily translated into English into mainstream education and sustainability discourses. Several

teams acknowledged the challenge of negotiating meaning across languages but celebrated the valuable contribution that Indigenous concepts in Indigenous languages can make.

...the descriptive isiZulu language was made more front and central, which meant that people learned more about the origins of words and concepts. This was beneficial and interesting to English speakers whose language is not so descriptive and created a new appreciation for the understanding of concepts from an AmaZulu perspective. ([Healing is in the Pot \(Okuphilisayo Kusembizeni\)](#))

Using languages that participants were familiar with and comfortable in increased participation and also left us with some concepts that were not easily translatable that we will need to grapple with when writing papers. ([Makhanda Ngoku!](#))

The only challenge that the team faced was lack of Kinyarwanda words for some technical terminologies. However, this supposed challenge was an opportunity to learn from the local communities on how some of those terminologies are locally described. This promoted knowledge co-creation and ownership of the training materials and smooth knowledge exchange. ([Education for Climate Hazard Resilience](#))

The fundamental role of languages in knowledge co-creation remains an under-examined area and the experiences and reflections of TESF teams here marks a useful starting point for further in-depth work.

4.3.1 ‘Resources’ – who contributes what, when, how and at what cost?

The complexities and power dynamics in diverse partnerships means that different team members and participants have different access to resources which enable and constrain participation at every stage. We do not make claims that every project had collaboration “bedded-in” at every step of their journey³. However, several teams highlighted the benefits accrued by ensuring participation and ownership by participants from as early as possible.

3 For more on what this might look like see, for example, *A guide for transboundary research partnerships* (Stöckli et al., 2012).



Theatre and Art in Education for young women



Healing is in the Pot (Okuphilisayo Kusembizeni)

A small number of projects managed to involve partners, participants/co-researchers from the proposal writing stage. For the Somali Hub, this was partly facilitated by their distinctive commissioning process where project teams were invited and supported to submit proposals (see chapter six). For example, in [Self-financing of Basic Education for Minority Workers](#), it was through early discussion with minority workers that the design of a proposed literacy and numeracy course was extended to include skills to use mobile money.

In the design phase, the project team (including co-production participants, as they are part of the project team) discussed the project plans and made any changes they needed. In this phase more skilled minority workers were invited to participate. During this phase, the content of the basic literacy and numeracy course content [was] discussed, and the minority workers requested that they would also be taught how to use mobile money.

However, for many teams this was not feasible nor ethical. Some teams reflected that it was not fair or realistic to expect community members who, in many projects, were often the most marginalised, to undertake unpaid planning work for a project that was not guaranteed to go ahead. One Somali project highlighted this as a limitation of the study. Participants had not been engaged from the earliest proposal and planning stages for ethical reasons: *"The participants were not engaged from the start and this was aimed at not raising their interests in case the project did not go through"* ([Green Garowe](#)).

For many projects working with new communities or groups, participants and co-researchers were approached once the funding was secured albeit with flexible planning and design periods incorporated into the accepted proposal. For projects drawing on action research approaches this was central to their aims as action plans and interventions were co-developed. Projects also reported on *"brainstorming sessions"* and *"info-gathering engagement circles"* to get participants involved. For other projects, early collaboration helped to start building relationships, rapport and collective ownership of project plans and activities. For example in [Theatre and Art in Education for Young Women](#), in the *Concept seeding workshop* participants agreed on the norms for their workshop space:

“getting participants on board and fostering a sense of ownership in projects that they had not initiated presented a challenge for several teams.”

- Maintain confidentiality;
- Take the initiative to step-up or step-back (you have the right to pass on a particular activity);
- Speak in the language that you are most comfortable in;
- Speak for yourself; and
- Listen to understand.

Another area where projects found early engagement with co-researchers helpful was in vetting, refining and validating tools and activities. For example, inviting community leaders to review survey tools in [Education for Climate Hazard Resilience](#) or being open to valuable input and feedback from local community volunteers working as field associates who would, *"frame interview questions differently, suggest additional questions, and share their interpretations"* ([Voices from the Margins](#)).

However, getting participants on board and fostering a sense of ownership in projects that they had not initiated presented a challenge for several teams. The draft South Africa Hub reported:

...project participants initially felt left out with the principal investigators (PIs) appearing as if they were owning the projects. Participants were finding it difficult to fully participate and contribute some ideas for the projects because they felt like they did not initiate the project idea and they regarded themselves as 'guests' in the process of doing the project.

Resource issues continued in later stages of the project cycle where the nature of collaborative work means more people being involved in more activities but not all taking part on the same terms, for example, salaried academic researchers and community volunteers. This was an issue within project teams and was exacerbated at times by “ponderous and slow” financial systems in the large institutions responsible for releasing funding, causing delays that not only created friction in relationships but also “formed a huge barrier to meeting deadlines”. The issue of resources was particularly stark in some of the resource-poor environments TESF teams were working in, where resources are everything. A Somali project PI reflected on the experience of doing research with nomadic pastoralists.

Their lives are taken up with rearing livestock and searching for water and pasture, and doing research with you may not be their priority. This needs a lot of patience and hard work. ([Nomadic Pastoralists and the Path to Sustainability](#))

Similar to the planning and design stages, limited time and resources meant that often the demands of

ongoing collaboration made it difficult for teams to sustain co-creation approaches in analysis, evaluation and other concluding stages of the project. For example, researchers working on [Mapping Educational Innovations for Social and Ecological Justice](#) regretted that, despite their commitment to a feminist research ethos and to diffusing power in their research processes, “due to a range of pragmatic factors, [field assistants] could not participate in the analysis and reflection to the extent one would have hoped.”

However, a few projects highlighted the ways they had prioritised collaboration in analysis processes, linking it to their commitment to authenticity and validity. They also expressed that this was necessarily an iterative process requiring them to adapt and act in response to what emerged and their own reflections on co-creation processes. The first example below, [Meet the NEET](#), demonstrates how the core research team worked collaboratively, with support and also how they re-engaged with participants as part of the analysis process. In the second example, [Universities as Sustainable Communities](#), we see the multiple, complex tasks and tools used to ensure student co-researchers were actively engaged in analysis stages.



Climate action in context: a Somali extracurricular course

After the transcription process was completed, the research team started the process of data analysis. This happened as a collective process involving the whole team, through two analysis workshops. The first data analysis workshop focused on cleaning up the qualitative dataset, by proofreading the English translations of all interviews, adding a summary table on each of them, anonymising the content and formatting. After data cleaning, the second workshop focused on the coding process, the team discussed and agreed on the set of codes and developed the analysis framework to be used. Data analysis therefore followed the thematic analysis approach with some codes and themes developed inductively or coming up from the data, and others deductively or priorly created. The next level of analysis and write up was thereafter done by the principal investigators. Upon reflection the research team agreed to visit the research site and share the preliminary findings with local leaders and also hold sharing sessions with the NEET girls/young women. ([Meet the NEET](#))

Various analysis procedures were employed at different stages of the project. For example, to analyse the transcripts from the workshop discussions and individual interviews, we applied a combination of reflexive thematic analysis alongside the capability approach as a conceptual map. This process was collective and iterative. As project investigators we reviewed the transcripts first, then presented our analysis to the student co-researchers for their input at workshops. We then edited what we presented to them during the workshops, based on their feedback, questions, and suggestions. If co-editing was not possible during the workshops, we consolidated transcripts that captured responses to the internal research questions and sent the first drafts to the whole group to ask for contribution or edits after the workshop. All drafting of responses to the various research questions was done on a shared Google doc that was open for editing to everyone on the team. For the digital stories and participatory video, we were able to facilitate joint reflections and group discussions on the themes, narratives, key arguments by watching these together and then having discussions thereafter. These discussions were also recorded and transcribed, and we began the reflexive thematic analysis procedure working

“The most common challenge identified across projects was related to time.”

across all transcripts (43 in total) in December 2022 using StormBoard. ([Universities as Sustainable Communities](#))

Issues of resources and unequal terms of engagement extended beyond project teams and into network wide activities. Project funding ended and reporting was concluded in January 2023, but hub and University of Bristol staff were still working on synthesis, reporting, writing, dissemination and capacity mobilisation activities to sustain the network. Invitations to teams to participate in these activities were seen by some as valuable opportunities but for others, though keen to be involved, the lack of accompanying funds was problematic. One team reflected:

It feels there is a hidden assumption/blind spot in TESF's ongoing invitations for collaboration that TESF family members are in stable employment, as the invitation for ongoing involvement (preparation & attendance of conferences, writing of papers etc) is not accompanied by financial contribution to make ongoing engagement sustainable.

This reflects the wider challenges of unpaid labour and precarity in academia (see for example, Bozzon et al., 2018).

4.3.2 “The time it takes to...”

The most common challenge identified across projects was related to time. Time is an incredibly common issue to arise in any project – not only research projects – but it is particularly important in knowledge co-creation processes as it links strongly to the demands of the method rather than just the logistics of fitting in multiple activities into an allotted duration. The box below illustrates some of the factors that teams identified:

“The time it takes to...”

- Nurture long-term relationships
- Do justice to community discussions
- Bring about meaningful engagement
- Resolve disagreements
- Deepen discussions
- Translate
- Develop mechanisms
- Address emerging issues
- Extend learning into the classroom

Time pressures that are exacerbated by other delays and disruptions can then have compounding negative effect on teams attempting to work responsively and collaboratively. Many projects highlighted that this is linked to building and sustaining relationships and the trust that is often a core part of meaningful co-creation which is essential for managing conflicts when they arise. In addition, the challenging circumstances of some participants, for example struggling with poverty or violence, and the competing priorities or work, family and other duties meant that sustaining meaningful involvement for sustained periods of time was very

difficult. The principles and practices laid out in this sourcebook so far should have painted a picture of the demands of knowledge co-creation work and the quotes from projects' reports clearly illustrate the challenges related to this kind of work within the constraints of fixed project funding.

We had challenges transcending beliefs and attachments to traditional research approaches to participatory forms of research. We therefore took a slower-paced and more developmental approach to our work. Additionally, managing the widely collaborative nature of the project, and aligning multiple agendas, partner interests and pace of work was challenging. ([Collective Community-level Economic Solutions for Sustainable Livelihoods for Young People and their Households in Makhanda](#))

Adoption of the co-creation approach was not easy within this short period. It is a process and requires regular follow up and robust communication with associated budget. ([Eco-Schools for Sustainable Development and Climate Action](#))

Many of the challenges [we faced] are common features of engaged research processes where relationships, trust and responsiveness are more important than pre-planned frameworks. Our



School gardens: school feeding

commitment to reflexivity and responsiveness often required a change of plans ... which at times became

an exceptional burden to some of the research team members' workloads. The practical implementation of the project took approximately five times the anticipated working hours. ([First We Eat!](#))

These comments are aligned with recommendations from other fields of educational partnerships work, for example research-practice-partnerships for school improvement (mainly in the UK and USA) which are seen as long-term collaborations. In this field, three years is generally regarded as the minimum length of a partnership as in-depth knowledge is accumulated over time and this kind of collaboration, one that can withstand challenges and shifting social and political landscapes, takes time and effort to develop (Coburn & Penuel, 2016; Farrell et al., 2021; Lowden et al., 2022; Tseng et al., 2017).

4.3.3 Capacity mobilisation and scaffolding

[Transforming Education for Sustainable Futures] requires creating, or opening up, spaces for dialogue, deliberation, experimentation, decision-making, developing relationships, and collaborative inquiry, action and learning. (Mitchell et al., 2020)

The quote above highlights one element of TESH's approach to mobilising capacities, directly linked to our high-level ethical approach where the legacy of TESH is a network of researchers who can carry out transformative, non-extractive research (this asset-based view of capacities is looked at further in chapter six). As we have seen throughout this sourcebook so far, opening up these spaces presents multiple complex methodological challenges – knowledge co-creation approaches are demanding, in terms of time, resource, energy and emotions. Working responsively and across boundaries of disciplines, communities, partners, cultures, languages or generations requires distinct knowledge, attitudes and skills which are often not part of formal researcher training. In other fields of partnerships work this has been referred to as “*joint work at the boundaries*” (see Penuel et al., 2015), recognising the different cultures, norms, beliefs and goals that

exist in diverse collaborations, especially with non-traditional researchers, and the barriers that might exist in bridging the gap. In the sections below, we highlight some of the ways that TESH teams have demonstrated what can be done within teams to mobilise capacities and develop new knowledge and skills for this boundary work, however, it is apparent that these efforts were also supported by TESH's wider ethical, equitable partnership model (see chapter six for more on this).

Considering the diversity of partners and participants involved in TESH projects (see chapter two), and the wide range of methods used (see chapter three), several TESH teams saw the need for early capacity mobilisation activities to support those new to research processes. Teams did this in a variety of ways but also highlighted the importance of this support being ongoing and not just a one-off workshop.

For example, this involved:

- Training workshops for high school learners, teachers, teen mothers and artists to equip them with knowledge and skills about participatory action research and art-based approaches ([Arts-based Approaches for Sustainable Development](#)).
- Skills-building workshops to develop community-based research knowledge; multi-stakeholder Change Labs to co-create a guiding framework for intervention; Mobile Journalism (MoJo) training to produce short videos to capture the ongoing fieldwork ([Collective Community-level Economic Solutions for Sustainable Livelihoods for Young People and their Households in Makhanda](#)).
- Workshops and supportive peer groups focusing on qualitative inquiry, reflective writing, research ethics and analysing and coding data ([Interrogating What Reproduces a Teacher](#)).

As well as planned capacity mobilisation activities, several teams reported on their own professional development through their on-the-job experience; for example, a PI developing her conceptual understanding of childhood, children's voices, citizenship and the arts in education practice ([Hum Hindustani](#)) and the different project partners sharing knowledge and expertise across areas of project management, evaluation and research in [Education for Climate Hazard Resilience](#). Several teams

“ ‘How can I be a researcher?’ they asked, ‘I didn’t even finish school?’ ”

across hubs highlighted valuable opportunities to learn how to use new software and digital platforms.

In addition to specific research methods, some projects and participants needed support to explore and express their lived experiences and see their stories as important and valid, while in others, it was the researchers who needed support to learn to listen, engage with and understand the lived experiences of those very different from themselves. South African hub members reflected on what “grounding research in lived experience” looked like for one group of young “*shy but not unmotivated*” researchers investigating experiences of life in the margins of the so-called “first economy” and the time and space required:

‘How can I be a researcher?’ they asked, ‘I didn’t even finish school?’

Your story is what matters, do you have a story of you? the struggles, the joy, the hopes? They all had stories. Some will break your heart, some astounded me with the hope and resilience that kept them afloat. (Research Associate, South Africa Hub team)

In another example, The India Hub lead explained how early career researchers’ journeys on the [Dialogic Pedagogy for Gender Sensitization](#) project were supported and scaffolded to both be able to support participants and to reflect on their own values and practices:

[The project] scaffolded some researchers’ journeys through the project ... to design strategies of involving the participants in an action research project on building gender consciousness interfacing academic reading and feminist/ queer scholarship with participant students’ lived

experiences using these as a springboard to develop the confidence to raise/find voice and self-reflect - enabling and appreciating multiple perspectives from diverse gender lens. (India Hub lead)

The reflective excerpt below from [Meet the NEET](#) illustrates the way that their capacity mobilisation was dependent on the fluid, responsive approaches outlined in chapter three. Embracing the wider TEF ethos and recognising the valuable contribution of young participants as co-researchers, the team adapted plans by adding in support and additional activities to involve young researchers in the later stages of the project:

...the results of the Self-Assessment conducted revealed that there was more we could do in mobilising capacities of the young researchers we were working with. ... [we] aimed to have them more involved in the project and also to gather their inputs on other activities, including data analysis, validation and dissemination of findings. On the side of participants, we added an activity of going back to the field to share preliminary findings with local leaders and the NEET girls in order to validate the findings and gather new insights and recommendations from them. For the NEET girls we also added a session of awareness raising facilitated by the NiNyampinga ambassadors. ...These ambassadors used relevant messages that speak to the life experiences of NEET girls in order to motivate them. All the above created opportunities for more engagement than previously planned.

From this example, we can also infer that the [Meet the NEET](#) team, through the processes of reflection, learning and adapting, also developed their own capacities in knowledge co-creation practices and processes.

As TEF team members participated in activities and engaged with ideas beyond those typical in their own Community of Practice, their roles and identities shifted and with these shifts came the opportunities to develop new boundary practices (Penuel et al., 2015) including: understanding and reflecting on their own position and those they are working with/alongside; finding ways to make differences visible and finding ways to work across them; managing conflict and tensions when they arise; patience, perseverance, being mindful, sharing and caring.

As we have seen in the sections above, opportunities and challenges are often interwoven. The challenges of working with non-traditional or inexperienced co-researchers were countered by the exciting opportunities that arose for capacity mobilisation. The time and energy demands of identifying new partners and building and sustaining partnerships and networks across boundaries was also seen as a chance to prepare “fertile ground for future collaborations” ([Education for Climate Hazard Resilience](#)).

However, bringing diverse groups together, even with willing, committed, reflexive participants does not “**automatically build connection**”. One South African team highlighted the power of learning *to fail* and *from failure* in their project investigating – *How can our communities use courageous ways of learning together to overcome inequalities and to collectively create just futures?* Below is an extract from their final report:

What failure taught us was this:

We cannot assume that working in ‘integrated’ teams across our communities will ‘automatically build connection’. We had assumed that bringing our communities with very different lived experiences of socio-economic and racial privilege to work or learn together could break divides and build bridges, which is why we had to learn to fail.

‘Integration’ can do more harm than good: our work was reinforcing the inequalities that we were trying to dismantle, including old patterns of money, power, victimhood, ownership and white privilege within and across our communities. This showed up in how the project was started, the role of ‘academia’, how budgets were developed and run, where knowledge, power, voice and money ‘sat’; who was ‘invited’ in and who felt ownership etc.

The work begins within each of us, not beyond us: Our tendency to look outwards for help, or to offer help, was covering up the work that we needed to do in our own backyards. We needed to turn the gaze towards our own communities and selves, before being able to collaborate on a more equitable, just, open playing field.

[Learning Seeds Network](#)

4.4 Conclusion

Summary of key learnings

The knowledge and learning gained from the work of the 67 TESF project teams means we are confident in strongly advocating more space for co-creative approaches to research and knowledge production in order to tackle the complex or “wicked” problems of unequal and unsustainable development. However, we are also not romanticising these approaches. A knowledge co-creative approach is new in many contexts, and even where it is familiar, it is not to be undertaken lightly. Movement towards knowledge co-creation and democratisation of research processes require time, practical support and resources as well as less tangible breaking down of traditional boundaries and hierarchies. This in particular requires capacity mobilisation and scaffolding to support researcher to develop boundary



First We Eat!

Chapter 5

ETHICS IN KNOWLEDGE CO-CREATION

5.1 Chapter summary

This chapter picks up some of the methodological threads in previous sections to look at the ethical implications in more detail. We start by situating TESH in the wider literature dealing with ethical principles and practices across contexts. Then, drawing on examples from TESH projects and reflections from TESH hub members, we unpack what ethical research means and contrast institutions' procedural ethics with the ongoing ethics in practice and ethics of care that are required when researching complex, challenging, visceral problems with often vulnerable people. We offer two key areas of insight from TESH's work: the importance of deep consideration and implementation of *ethics in practice, in context* and the need to create and hold safe spaces to enable ethical, democratic inquiry to take place.

5.2 Ethics: navigating principles and practices across contexts

I have over three years of experience with data collection but this was the first project that I felt like I matter. (Research Assistant, [Meet the NEET](#))

This [research design] necessitates a sense of reflexivity within us as researchers, to be aware of our positionality while conducting the research, face our assumptions and biases, be ethical in our practice with the community, and understand the subtleties of oppression in the process. ([Looking Inward, Looking Forward](#))

The quotes from the projects above highlight that ethics is about ongoing practices, values, care and reflexivity for researchers and participants. Although TESH's principles and work are informed by the ethical guidance set out by our funders (UKRI-ESRC, 2020) and other UK

“... the network attempted to avoid the imposition of western ethics practices and protocols onto other cultural contexts.”

research associations (e.g. British Educational Research Association [BERA], 2018) we have also been guided by critical scholarship examining the disparities between ethical practices rooted in the academy in the Global North and the realities of conducting research in low income, postcolonial settings ([Sprague et al., 2021](#)). The ethical considerations and practices in knowledge co-creation extend far beyond procedural ethics and institutional protocols and should not be “*reduced to the act of filling in a form*” (Bradley, 2015, p. 160). Every day, contextually meaningful, relational ethics in practice encompassing the values and beliefs by which individuals and communities operate are fundamental; ethics in this sense are situated and dialogic (Tikly & Bond, 2013).

Since all TESH projects involved partnerships with academic institutions, either locally or in connection with the University of Bristol as the funder institution, each team had to navigate both procedural ethics e.g. seeking ethical approval from a committee, and local, situated ethics in practice. As much as possible, the network attempted to avoid the imposition of western ethics practices and protocols onto other cultural contexts (Robinson-Pant & Singal, 2013).

Several scholars have drawn attention to the gap between institutional ethics requirements and a broader view of what constitutes ethical research (e.g. Abebe & Bessell, 2014; Araali, 2011; Crow et al., 2006). They demonstrate the importance of questioning the notion that “ethical research equal[s] research that had been ethically approved” (Bradley, 2015, p. 160). Universities’ procedural ethics often seem to focus narrowly on the data collection stage of the research, linked to an epistemological perspective where “human participants are understood as sources of data” (Pickering & Kara, 2017, p. 300). This narrow, instrumental view of research participants leaves little consideration for the ethics of TESF’s diverse partnerships and seems quite removed from a view of participants as active co-researchers.

An example of an aspect of procedural ethics that is often cited as problematic in research in the global South is that of informed consent. It has been identified as a middle-class and western concept, and the processes of gaining written informed consent can hinder important relationship and trust-building (Crow et al., 2006), e.g. in some African contexts, “a signature is proof of the exchange of objects among people who do not trust each other” (Araali, 2011, p. 47). In a further example, anonymisation seems to be the default “straightforward ethical good” (Pickering and Kara, 2017, p. 301) but there are competing goods and keeping people anonymous can exclude or erase marginalised groups, taking away their ownership while researchers get to keep their names.

Literature looking at ethics beyond institutional protocols encourage consideration of: *ethics in practice* which can be seen as the “day-to-day ethical issues that arise in the doing of research” (Guillemin & Gillam, 2004, p. 264); *local ethos* which encompasses the values and beliefs (formal and informal) by which a community lives and operates (Abebe & Bessell, 2014, p. 130); *situated ethics* which emphasises the specific local context (and immunity to universalisation) (Simons & Usher, 2012; Tikly & Bond, 2013) and *ethics of engagement* which pays attention to the ethical representation of ideas beyond data collection (Pickering & Kara, 2017). In other literature, five core ethical values were identified for international research: transparency and honesty; respect and care; conscious freedom; experiential and tacit awareness; and reflexive practice (McMahon & Milligan, 2023). Many of these ideas resound with the

practices and challenges shared by TESF teams in the previous chapters, for example, the ethical implications of expecting participants to be involved in co-design before funding has been secured. The following sections will identify some of the distinctive ethical concepts and practices that have emerged through the network.

5.3 Ethics in context: ethics in practice

The TESF teams have shared valuable learning about the different ways that contextually meaningful ethical practices can be conceived and operationalised. Discussions across South African teams at a National TESF workshop saw ideas of ethical research as being tightly tied up with those of Ubuntu. In final reporting, three of the South African projects related their approaches to the spirit or ideals of Ubuntu ([Universities as Sustainable Communities](#); [First We Eat!](#); [Makhanda Ngoku!](#)) focusing on relations between individuals, fellowship and humanity (Hoffmann & Metz, 2017). For example, in [First We Eat!](#), framing the work in concepts of togetherness and Ubuntu and embracing processes of *Ukufundisana* (related to teaching each other, and teaching and learning together) was important to building relationships between Early Childhood Development (ECD) practitioners and the main research team, especially when facing challenges of food insecurity:

The process of ‘Ukufundisana’ allowed for the opportunity to be able to express the feelings developed between ECD Practitioners and the 1stWeEat! team, to develop attachments, to cope with the stress and anxiety of the food insecurity issues in Makhanda, and to connect meaningfully in addressing the challenges related to creating a safe and healthy environment for children to grow, learn and thrive. ([First We Eat!](#))

These perspectives can help extend ethical considerations beyond a focus on individual responsibilities and vulnerabilities to a more collective, communal approach. In a similar way, listening to the voices of Adivasi students in [Voices from the Margins](#) expands our ethical commitments beyond humans, encouraging an ethics of care for all forms of life – arguably a much needed commitment in this time of climate crisis:

“ ... researchers reported that it was important to create and hold safe spaces for interaction among different stakeholders.”

[The children] seem to have an ecocentric approach towards the environment and an ethic of respect and care for different forms of life. ... While talking about stakeholders of the forests, they attributed equal importance to every species (like caterpillars and even leeches) and included non-living elements (like they were concerned about 'chikhal' or mud and the lifeforms in it, in the case of no rain due to deforestation). They saw the commons as essential for everyone involved and argued that these must be shared amongst all the stakeholders.

Other teams reflected on the ways that they had to mitigate the imposition of “Eurocentric”, “rigid” institutional processes such as written consent. For example:

When we started interacting with the community in the field, we realised that most people were sceptical about signing (or putting their thumbprint) on any paperwork. Invoking written consent was effectively going to break the bond that we had gradually built with them over time. ([Voices from the Margins](#))

Projects in both India and Somalia/Somaliland adapted their processes to allow for oral consent. The Somali Hub, whose projects had to be approved by the University of Bristol's ethics committee, see this as one of their achievements:

Addressing the challenges of socially conservative and colonially inspired frameworks and values that maintain injustice and exclusion and introduce a more inclusive and empowering framework.

This was most evident during the ethics process, which initially utilised a very Eurocentric and rigid structure. This was later changed to adapt to the Somali context, for example, by allowing oral consent, as many research participants are illiterate. (Somali Hub Report)

Working in the fluid responsive ways outlined in chapter three, which are necessary for genuinely co-creative work, required teams, hubs and the network as a whole to challenge some of the institutional protocols that present barriers to emergent research processes in diverse contexts.

5.4 Creating and holding safe spaces

Across the TESH projects in all the countries, researchers reported that it was important to create and hold safe spaces for interaction among different stakeholders. This seems to be a very important process for enabling knowledge co-creation in ethical, democratic ways. As looked at in previous chapters, teams recognised the intensity and emotional strain of carrying out knowledge co-creation. The issues being addressed meant that unsettling, upsetting and tense situations arose so there was a need to create and hold safe spaces, with safe, inclusive language, e.g. avoiding exclusionary jargon which can be seen as a form of violence (see chapter four: access: making contact and making meaning), not only so that people felt they could share openly but also so that they trusted that their contribution would be handled with care. The Rwanda Hub team observed “to get out of their comfort zone, project team members need to feel secure in a caring, nonjudgmental environment” (Rwanda Hub report).

In one example in India, the team created reading circles with library educators in their [Facing Caste](#) project. The reading and discussion activities unearthed feelings of guilt and shame around caste and privilege, but the reading circles were regarded as safe spaces to share these difficult emotions. One library educator reflected:

The reading circle has stayed with me as an exercise in collective acknowledgement– of privilege, of unease, and most of all, the gaps in our vision that make our lives cohere so smoothly around caste lines without ever naming it. Yashica's book was a

powerful, incredibly generous sharing of journalistic rigour, as much as her lived experience; and to have read, listened and reflected on it collectively is making it possible for me to sit with my own unease for longer. Caste and especially the cultural weight its privilege imbues, is something I'm starting to observe in word and deed and casual conversation around me, within me, beyond. It is deeply uncomfortable, but it is also what it is ... I am unsettled enough to recognise that sharing my story will hopefully unsettle more of us to do better. ([Facing Caste](#) – Norohna & Choksi, 2023)

In another example, a teenage mother in Rwanda reflected on her experience of sharing her life trajectory with researchers from the Meet the NEET team:

They listened to my story – humiliating as it may have been! At some point, I felt I was telling it to people I already knew. I felt they judged me less but listened more. (Participant in [Meet the NEET](#) workshop)

Both examples highlight the need for safe spaces and an ethics of care. The time and space to reflect on and process negative emotions of guilt and shame into more productive feelings of critical empathy – which has transformative potential – were also highlighted in another Indian project [Breaking through the Inter-Generational Cycle of Educational Inequalities](#).

The India Hub report explains how young student researchers shared their struggles with their teachers and “expressed overwhelming guilt about researching the marginalized, about ‘exploiting’ them by taking their time, and encroaching their privacy”. Creating safe spaces for difficult conversations and feelings, involving “confrontation, reflection, and visceral knowing” (India Hub report) supported students to develop critical empathy. However, these examples also highlight the distinctive skills and capacities required by researchers to support and carry out this challenging work (see capacity mobilisation and scaffolding section in chapter four).

Different projects approached the creation and holding of safe spaces in different ways. There seemed to be something quite special happening across projects and hubs where new spaces were created that enabled learning and possible transformation to happen. Often, this was not in formal classrooms or traditional learning spaces. One project suggested that “the most valuable

learning tends to happen in the most informal spaces” ([Learning Seeds Network](#)). At times these were social spaces, and at other times, the natural environment created spaces for co-creation. For example, in Rwanda, a forest was a space where school, community and leaders came together to experience tree planting and make new meaning out of this process ([One Child, One tree](#)), while in South Africa, Somalia/Somaliland, Rwanda and India, school gardens created new spaces for children, teachers and communities to meet and co-create knowledge(s) on food systems and food production. The TESF partners reflected on many other spaces that served as safe spaces for knowledge co-creation, for example, a Somali girls' sports club as a safe space where girls were able to talk freely and importantly to ask questions in a safe, supportive and caring environment ([Girls' Sport for Development](#)); an out-of-school community learning centre in the *basti* (informal settlement) ([Education, Margins and City project](#)); and a mobile learning hub for community outreach and to understand more deeply the context and diversity of the needs and aspirations of informal traders ([Education and Sustainable Livelihoods for Informal Traders](#)).

Traditional and Indigenous concepts were drawn upon in the creation of safe spaces for knowledge co-creation and knowledge sharing. In addition to the adaptations made to methods to resonate with local cultural practices (see chapter three). The concept of *Ukukhunga* was shared in a TESF South Africa national meeting by the [Makhanda Ngoku!](#) team and it resonated with several of the other teams there, in particular, the members of the project [Reframing Climate Messaging for Mobilising Youth in Cape Town](#). They adopted this concept to “guide and inform our thinking in our attempts to create an emergent space with our participants”. They explained their emerging understanding of the concept and why it helped them:

Ukukhunga ... means to hold space, to intentionally hold space for others, self, emotions, and whatever work or process needed to happen. To hold space to guide others without personal agendas but rather for what the space needed. ([Reframing Climate Messaging for Mobilising Youth in Cape Town](#))

The broader implication of this example is that the South African Hub team was able to create and hold space for the diverse TESF teams to share and learn together.

In another example, in Rwanda, knowledge on climate resilience capacities was shared in community meetings known as *inteko z'abaturage*. The team reached more than 2,000 stakeholders through this familiar forum for sharing, discussion and resolving issues ([Education for Climate Hazard Resilience](#)).

One final area that needs further attention is that of that of ownership of these spaces and whether it works best when there is a sense of shared ownership. After an occurrence of co-researchers feeling unsafe in the research and learning space, one project drew up 'Practices for creating safer, more inclusive dialogue spaces':

Practices for creating safer, more inclusive dialogue spaces

- ~ Committing time to meet (regularly)
- ~ Choosing the space(s), topics, and facilitators together, with awareness of identities, dynamics, peoples' needs, and sense of 'belonging' in the space(s) being created
- ~ Meeting outdoors in nature and drawing from nature's wisdom as a teacher and healer
- ~ Re-claiming public spaces to meet (to improve access to existing learning spaces)
- ~ Grounding and honoring to begin
- ~ Setting agreements together (see ideas for setting agreements below)
- ~ Bringing creativity into each learning moment (cooking, clay, writing games ...) so that learning happens through our heads, hearts, and hands
- ~ Slowing down and creating time to listen, to share, to experience, to heal and feel alive together
- ~ Closing with honouring

Developed together out of a tough conversation about feeling unsafe during dialogue

You can read the [Learning Seeds Network](#) team's [Zine here](#).

"The need to nurture safe spaces and hold them, emerged as an essential feature for a meaningful process, but more importantly, as a condition to prevent harm" (Draft South Africa Hub report)

5.5 Conclusion

Summary of key learnings

The sensitive and unsettling issues being explored across the TESH network makes it more important than ever that teams' commitment to a situated ethics of care is put into practice. Creating safe spaces and ensuring safe language are essential to meet these ethical requirements. Researchers need support in these approaches, and institutions need to be open to negotiating rigid protocols that are often designed for a different purpose.



School principals as conduits for sustainable livelihoods



Chapter 6

EQUITABLE PARTNERSHIPS FOR COLLABORATIVE ACTION AND LEARNING: ENABLING (AND HINDERING) CONDITIONS IN THE NETWORK

6.1 Chapter summary

This chapter outlines the efforts that the TESH network has made to redress some of the historical imbalances in South-North research. Where previous chapters have drawn extensively on project teams' experiences and learning, this chapter focuses on the dynamics and challenges involved in equitable partnership working at a network level. We look at three key areas to reflect on the enabling conditions for ethical partnerships: foregrounding local agendas and agency; taking a distributed, asset-based view of capacities; and opening spaces for collaboration minimally distorted by power relations.

6.2 Introduction

The TESH network provides valuable opportunities for understanding the kinds of principles, structures and processes which can enable equitable partnerships for collaborative action and learning in the context of an international research programme. Historically, there has been a tendency for South-North research partnerships to be marked by inequitable power relations, with Northern actors controlling budgets and research agendas (Asare et al, 2022; Bradley, 2017; Grieve & Mitchell, 2020; Ishengoma, 2016; Rethinking Research Collaborative, 2018) and often taking a deficit view of Southern-based actors' capacities (Axelby et al, 2022; Koch, 2020; Walker & Martinez-Vargas, 2020). Alongside

these well-documented asymmetries, multi-stakeholder partnerships are often marked by occupational hierarchies, with researchers' agendas and timeframes taking precedence over those of other stakeholder groups (e.g. Grieve & Mitchell 2020; Rethinking Research Collaborative, 2018). In an effort to redress these historical imbalances, TESH explicitly sought to embed principles for equitable relations, as laid out in the background paper *Mobilising capacities for Transforming Education for Sustainable Futures: opening spaces for collaborative action and learning* (Mitchell et al. 2020):

- Foregrounding local agendas and agency
- Taking a distributed, asset-based view of capacities
- Opening spaces for collaboration minimally distorted by power relations

Evidence from the TESH network, including from the hub synthesis reports (insert citations based on published versions), 67 funded research projects and related MEL activities, provides a distinct opportunity for understanding whether and how these aspirations were realised at different scales within the network and in different national contexts and settings. This chapter draws on this evidence to consider how power asymmetries between actors were negotiated, challenged or reproduced, through the course of network activities, and enabling conditions for ethical partnership working.

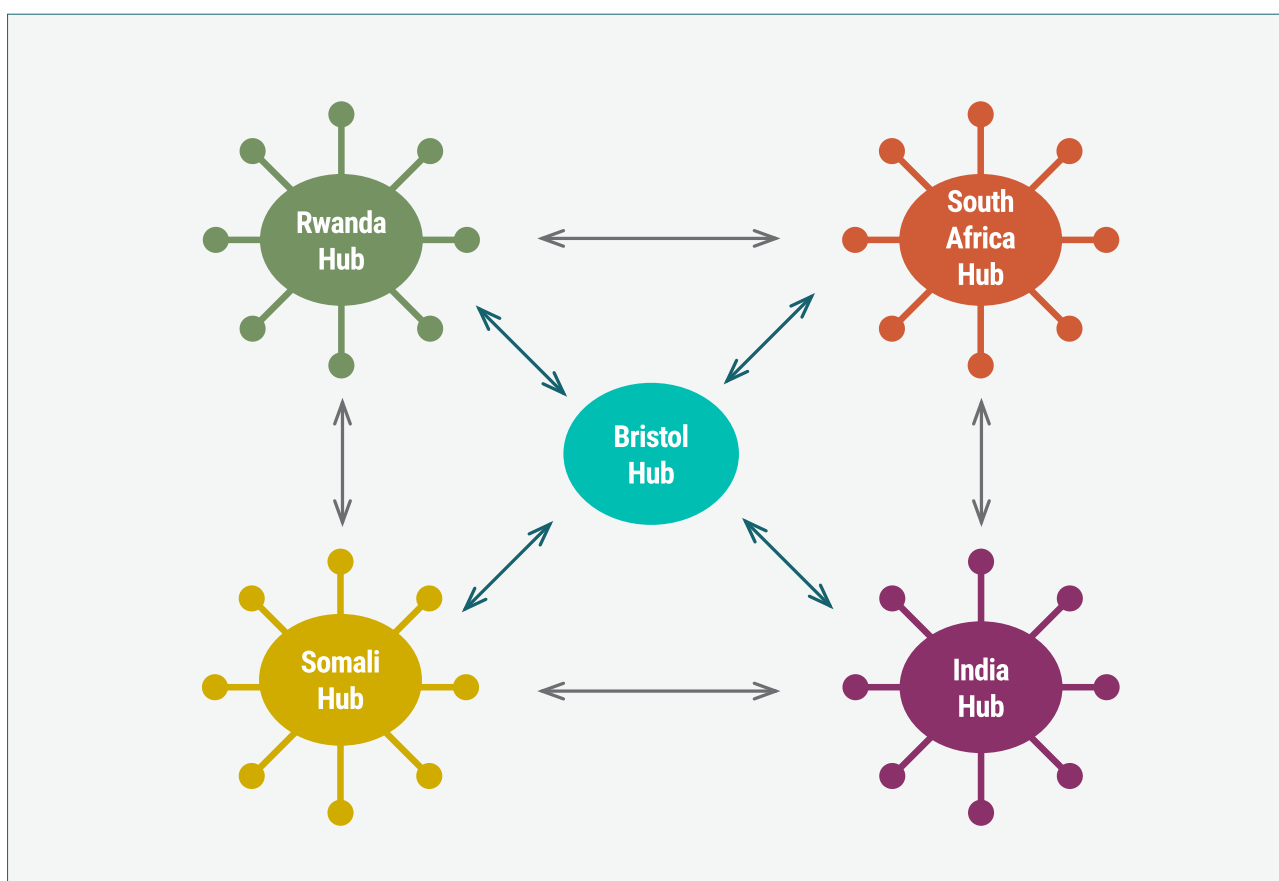
6.3 Foregrounding local agendas and agency

At the network level, the principle of foregrounding local agendas and agency can be seen in the organisation of the network itself, the processes of inviting and commissioning projects and in the flexible structures which were established to support ongoing MEL in line with projects' own ambitions.

The 'hub and spokes' network structure

The network was established to support locally led, action-oriented research for education in India, Rwanda, Somalia, Somaliland and South Africa (Tikly et al., 2020). Rather than a linear, hierarchical model of leadership, we adopted a "hub and spokes" structure (see Figure 8) as a means of distributing leadership and decision-making within the network.

Figure 8. Hub and spokes leadership model of the TESF network



The hub and spokes leadership model enabled flexibility and adaptation at the national level while maintaining the necessary coherence for coordinated action within the network. This was highlighted as a necessary condition for supporting – rather than overriding – local agendas and agency in the context of an international project such as this.

The TESF [structure] ... has enabled all of the things that the synthesis is highlighting. ... Certainly, in our [hub], it's been unbelievable how much more we could do because of the supportive framework of funding, the flexibility to speak to neglected, submersed, denigrated [issues] and to be held and supported in that ... I think that needs to be represented as much as the work of the individual

projects. ...[The] funding structure and the network structure is a big part of that. (Hub member, Legacy Conference)

This flexibility is illustrated in the sections below.

Inviting proposals for TESF projects

Following the TESF's launch event in January 2020, a series of engagement events were held online and in-person in each of the hub countries. Participants included national and regional-level policy actors, practitioners from schools and other educational institutions, representatives from NGOs and civil society organisations, and university-based researchers. In each case, participants were invited to share priorities for TESF-funded work, and the evidence collected through these consultations fed into hub- and network-level decisions around the *Call for proposals*.

While three of the four hubs opted for an open *Call for proposals*, due to political sensitivities in one context, it was decided to take an invitational approach. In Somalia/Somaliland, specific public, private and civil society organisations were invited to develop proposals for the TESF programme, with a particular focus on those representing historically marginalised groups. One-to-one support in local languages was provided to facilitate this process. Across the other hub countries, more generic support was offered for those with limited prior experience of research and grant applications.

At the network level, rather than adopting a one-size-fits all approach to the *Call for proposals*, ethical partnership working required flexibility to meet contextual demands. At the hub level, working with historically disadvantaged groups required differentiated support, which in Somali contexts often involved the collaborative development of proposals between project teams and hub staff.

Evaluating and selecting proposals

As part of the commissioning process, members of the network's leadership and advisory team evaluated each submitted proposal according to a standardised template and scoring system across all contexts. These evaluations incorporated considerations of methodology (e.g. "How appropriate are the proposed

methods for addressing the research questions?") and impact (e.g. "What is the potential of the research for facilitating transformative change to one or more areas of education policy or practice beyond the project's end date?" and "How will the research benefit historically disadvantaged/marginalised groups?"). Each proposal received a minimum of two evaluation reports from the panel of international reviewers. These evaluations informed, but did not determine, the results of the commissioning process, as in each case, final decisions were made at the hub level to ensure that the selection of funded projects properly reflected local agendas and priorities.

Firstly, before the call for research projects, we had to ask ourselves who would benefit from this collaboration and to what extent. It is not uncommon in the context of Somalia/Somaliland for researchers from the global North to come to Somaliland for their fieldwork before returning to their institutions to complete their academic research, whether as part of their PhD work, or a bigger research project involving the national universities. ... [Often] these collaborations are not sustainable, and often research programmes end after the funding dries up, highlighting a lack of sustainability. Due to the Somali Hub's unique political situation, the hub had to think innovatively in order to ensure the democratisation of knowledge and the ethics of engagement. (Draft hub report, Somalia/Somaliland)

Values-centred MEL: putting project teams' ambitions first

Another means of foregrounding local agendas was through establishing an approach to MEL which could provide sufficient direction and coherence across the network, while being flexible enough to support progress towards the situated aspirations of 67 project teams in different contexts around the world (Brockwell & Gasgoyne, 2023; Mitchell et al., 2020). We developed a values-centred MEL approach based on the view that both the desired *outcomes* of a project and the evaluation of progress towards these, are necessarily subjective and situated and best determined by those directly involved in the activities.

As a first step, the network leadership team collaboratively developed an overarching indicator framework based on TESF's formal objectives relating to network capacity development, knowledge production and the influence of network activities on policy and practice. A bare-bones framework was developed, indicating five domains which TESF sought to impact: *People and relationships*, *Capacities*, *Knowledge*, *Outputs and sharing*, and *Outcomes and legacies*. Accepted projects were invited to use this skeletal framework to develop their own "ambition statements", which captured what they wanted to achieve through their work, in relation to as many of the domains they found relevant.

Figure 9. Exemplar of ambition statements

Ambition statements: exemplars

TESI|SF
The Education Sector Foundation
for Sustainable Futures

To support the development of your own "ambition statements", we have developed the following examples. These ambition statements relate to a **hypothetical** project in rural schools, which brings together academic researchers and schoolteachers to learn about the roles of traditional ecological knowledge in adaptation to climate change. These are intended for illustrative purposes only – there is no requirement to have three ambition statements for each of the five key areas.

- 1. People and Relationships**
 - 1.1. Reach out to three new schools and invite them to join the project
 - 1.2. Build a stronger working relationship with the Local Education Officer by inviting her to join some of our team meetings
 - 1.3. Learn more about each other's perspectives and priorities by visiting each other's places of work (schoolteachers going to the university, academic researchers going into schools) and arranging meals and social gatherings together

Developing/strengthening different kinds of relationships is an explicit project aim
- 2. Capacities**
 - 2.1. Mobilise capacities of schoolteachers to conduct their own research by training them in interview techniques
 - 2.2. Strengthen academic researchers' understanding of traditional ecological knowledge by hiring a local elder to lead two bush walks
 - 2.3. Mobilise capacities within the project team to develop an article for a journal

Project seeks to mobilise and strengthen capacities within the project team
- 3. Knowledge**
 - 3.1. Understand the roles played by traditional ecological knowledge in helping people adapt to climate change
 - 3.2. Find out how climate change adaptation is taught in schools now
 - 3.3. Learn about the enablers and barriers for bringing community elders into schools to talk about traditional ecological knowledge

Based on the RQs
- 4. Outputs and Sharing**
 - 4.1. Share research findings with the local community through two village meetings and an interview on local radio
 - 4.2. Develop findings from the study into a peer-reviewed journal article and a series of short blog posts aimed at the international education research community
 - 4.3. Share findings with primary school teachers and children by making colourful posters with the key messages from the research

Outputs for different audiences, local, national, international
- 5. Outcomes and Legacies**
 - 5.1. Teachers and pupils have a better understanding of indigenous ecological knowledge and how it relates to climate change
 - 5.2. Community elders understand what is already being taught in schools about climate change adaptation
 - 5.3. Community elders and schoolteachers work more closely together to help pupils and their families adapt to climate change

The values-centred MEL approach was identified as a means of enabling project teams to pursue their own agendas, in contrast to compliance-based MEL log-frames which are more familiar in the sector.

The MEL framework helped us revise our research process at different stages. The spirit of reflexivity embedded in the MEL approach helped the research team keep the feedback loop vital and revisit the ambition statements that have been posed for knowledge, capacities, and people and relationships. (Education, Margins and City)

6.4 A distributed, asset-based view of capacities

Transforming education for sustainable futures involves drawing on knowledge, skills and relationships which are widely distributed across different communities with many shared concerns as well as distinctive priorities, accountability and incentive systems (Facer & Pahl, 2017). It requires bringing together diverse stakeholder groups across traditional boundaries – occupational, sectoral, hierarchical and geographical. The 67 multi-stakeholder partnerships funded through TESH involved a wide range of actors from different settings, with 50 project team members affiliated to NGOs or civil society organisations, 45 to universities, 12 to schools or colleges, four to government organisations at different levels, and others from business and the arts. Ethical working through such cross-sectoral partnerships required recognising the complementarity of knowledge and skills, and mobilising these in service of shared agendas.

At the **network level**, we sought to provide access to optional and structured opportunities for knowledge exchange and collaboration within and across the network. Much of this work drew on a community of practice model, fostering relationships between funded projects and the wider network, providing spaces and structures for mutual support (intellectual, emotional, practical, etc.) and a cross-national forum for sharing knowledge and experiences. To achieve this, project teams were invited to join one or more community of practices based on shared concerns identified through the inductive analysis of their initial proposals: Sustainable cities and communities; Sustainable

livelihoods; Climate action; and Decolonising research.

In addition to community of practice meetings, support was offered in the form of a Mojo film-making programme (the outcomes of which can be seen [here](#)), generic research training for early career researchers and Office Hours with senior academics. Across all these activities aimed at mobilising and strengthening capacities within the network was the principle of *optionality*. There was no requirement for projects to engage in these activities.

Working with the University of Bristol team was gratifying – to collaborate with a global North partner who prioritised enabling transgressive research, rather than regulating it was a new experience for us, and one we greatly valued. Each person in the Bristol team seemed focused on helping us through the various challenges we encountered, rather trying to push us into pre-determined structures and priorities. ([Citizen Sciences: GeoStories](#))

At the **hub level**, additional support was provided in line with national and local contexts. This included tailored support on academic writing and ethical multi-stakeholder research partnerships (South Africa) and residential retreats for experience sharing between projects and collaborative analysis (Rwanda). The Somali Hub appointed regional leads who were respected figures in their communities with knowledge of local languages and cultures. These individuals played a crucial role not only in supporting projects but also in mediating between project participants and others in the network which was a particularly important function for historically marginalised groups.

Regional leads were ... appointed to ensure that [project teams] could speak openly to their regional leaders, who understood the local context and could speak in the local dialect. The regional leaders, who worked as research associates for the hub, would then feed the information to the hub. ... This allowed the hub to create safe spaces for the [different] communities by ensuring that a native from that community would empower those projects and ensure that their voices were accurately translated ... [Within the wider network,] the regional leads [were often called on to represent] the most marginalized

communities, who at times did not feel comfortable talking to others from outside their communities, e.g. the nomadic pastoralists and/or the Bravanese communities. (Draft hub report, Somalia/Somaliland)

Participation in TESH activities strengthened capacities across the network, with evidence from every country and stakeholder group (Brockwell & Gasgoyne, 2023). This was not limited to those directly involved in research projects, and one prominent area of institutional learning related to universities' administrative and financial processes for international partnerships.

[It] has been important to [develop] procedures around financial reporting and record keeping [which take] into account the very different contexts we are working in. For example, in the UK we would expect receipts for virtually every item of expenditure. In some of the [hub] countries this wouldn't be possible, for various reasons. So it has been important to ... come up with alternative solutions which are possible and practical in the context but also meet funder requirements. (Finance officer, UK)

This is just one example of the kinds of mutual capacity strengthening which occurred through the network, in line with the initial stated ambitions of the Global Challenges Research Fund (GCRF).

6.5 Spaces minimally distorted by power relations

From the outset, TESH explicitly sought to open spaces for equitable partnerships. An early background paper (Chege et al., 2020, pp. 1-2) posed a series of questions to support reflection and inform decision-making and action in the network:

How equitable is the division of labour and benefits within the network? Are we disrupting historical patterns which position Southern-based actors as data collectors for studies theorised or designed in the North? ... Is intellectual leadership distributed across the network? Is our work grounded in perspectives, thinking and scholarship from the countries we're working with? ... Does the scheduling

of meetings, events and other activities favour, or hinder, the participation of certain groups over others (e.g. in terms of time zones, workplace norms, religious or family commitments)? ... Does our approach to research and capacity development emphasise mutuality of learning within the network? How are we challenging global knowledge hierarchies which value the work of academics over practitioners and other stakeholder groups? Do our dissemination and publication strategies challenge these inequalities, for example in terms of (first) authorship, and the accessibility of outputs?

Sensitive to these historical inequities in research partnerships, significant progress was made in many of the areas above, as demonstrated through the evidence considered in chapter five and elsewhere in this volume. However, as we came to learn, power asymmetries cannot be wished away nor wholly overcome in the context of a Northern-funded international research programme such as TESH. In this final section we give particular attention to these enduring power imbalances.

Northern institutions and hard rules of engagement

While 'soft' accommodations were made with respect to norms in different national contexts (e.g. avoiding international meetings on a Friday, the Somali weekend), in several ways Northern institutions established 'hard', non-negotiable rules of engagement, as will illustrate in this section with reference to *funding* and *data security*.

In terms of funding, UK law required that the University of Bristol undertake due diligence on each partner, but it appears that the same degree of scrutiny and accountability did not apply to the funder. A major ethical challenge arose through the course of our work when, in 2021, the funder reneged on a portion of its financial commitments to TESH as part of wider-reaching cuts to the UK Government's Overseas Development Aid (ODA) (Nwako et al. 2023). Cuts to the GCRF were beyond the purview of the TESH leadership team which could not have anticipated such an unprecedented action on the part of the funder. Fortunately, following a collective appeal by the team, the University of Bristol opted to draw on its own internal resources to partially mitigate these cuts – otherwise the work of the 67 projects reported in this volume could

not have gone ahead. However, in putting this decision in the hands of university vice chancellors, the funder bypassed the conventions of academic accountability; the university might well have decided *not* to intervene in this case, as was the fate for many other GCRF projects (Fazackerley, 2021; Nwako et al., 2023).

In terms of data security, a recurrent challenge for TESH was finding mutually accessible collaborative software and platforms which could equally serve people in Hargeisa, Butare and rural Karnataka, while maintaining compliance with Northern partners' regulations. Although TESH hubs and projects were physically located in Africa and Asia, the University of Bristol was bound by its interpretation of data security rules with respect to the European Union's General Data Protection Regulation (GDPR), which placed hard limits on the kinds of software and platforms we were permitted to use as a network. In terms of file sharing, one of the most widely used and internationally accessible platforms was deemed non-compliant with GDPR, and we were required to use a more secure alternative which was frequently inaccessible for Southern partners. In another case, there were lengthy delays to sharing software for MEL due to GDPR-related concerns. These are few examples of the ways in which Northern institutions established non-negotiable rules of engagement within which network members operated.

Invitations and obligations: Who's asking?

Another way in which power imbalances surfaced in the network was through invitations to engage which could sometimes be interpreted as obligations, depending on who was inviting whom. Although formal capacity mobilisation and strengthening activities within the network were always elective, it became clear through the MEL process that invitations to participate in network events were sometimes received as requests, even when emails stressed their voluntary nature.

People perceived it as work to be done. (India Hub)

I think so too. If an email comes from Bristol, they might think '[If we demonstrate willingness then] I might be the first to get more funding.' (South Africa Hub)

These comments suggest that project teams may sometimes have acted against their own interests from a desire to please Northern partners, a sign of enduring power relations. These dynamics could also manifest within project teams, with more senior members "nominating" colleagues to participate in an optional activity.

If we have stressed in this section the *challenges* of overcoming power relations in an international project such as this, it is because these issues arose despite explicit efforts to establish ethical and equitable partnerships across the network. That the TESH leadership team was able to detect these obdurate challenges is a result of the values-centred MEL strategy which was put in place to better understand progress towards our shared objectives (Brockwell, 2023; Mitchell et al., 2020).

While our collective efforts to try and make the research process more democratic did challenge some of the hierarchical ways in which knowledge is produced, we would also strongly caution against fetishising or celebrating our attempts. ([Interrogating What Reproduces a Teacher](#))

Making power asymmetries visible, and documenting them as we have done here, is one step towards addressing them.

6.6 Conclusion

In its scale and ambitions, TESH provides a distinct opportunity for more understanding about the processes and conditions for equitable partnerships in the context of internationally collaborative knowledge production in education. This chapter is an early attempt to share learnings from this work, with the hope (and confidence) that further lessons will be drawn from this groundbreaking initiative in the years ahead.



Chapter 7

REALISING THE TRANSFORMATIVE POTENTIAL OF KNOWLEDGE CO-CREATION: A CALL TO ACTION

7.1 Chapter summary

In this short concluding chapter we bring together some of the key learnings from previous chapters in the form of a call to action targeted at policy makers, practitioners, policy actors, community activists and others who are interested in realising transformative education for sustainable futures.

7.2 Summary of key learnings

In chapter one we argued that **there is an urgent need to transform education in line with the needs and interests of groups that have been historically disadvantaged through processes of unsustainable development.** We have argued in chapter two however, that transforming education for more sustainable futures is a complex problem that needs to be approached from the perspectives, interests and lived experiences of those directly experiencing and facing those challenges. It requires drawing not only on knowledge from the academic disciplines but from Indigenous and local knowledge held in communities as well as professional knowledge and practical know-how held by practitioners, policymakers and other relevant stakeholders. Bringing together these different forms of expertise requires transgressing traditional top-down, university-led approaches to research, which often involve knowledge hierarchies that overlook and undervalue Indigenous, local, professional and practical knowledge.

We went on to argue that **knowledge co-creation is increasingly recognised as a methodological approach that has the potential to generate understanding of and relevant solutions to the challenges posed by**

climate change, social inequalities and unsustainable development. It can do so in ways that speak to policy and practice but are rooted in local realities and lived experiences, critically drawing on interdisciplinary knowledge as well as Indigenous and local knowledge systems.

In particular, knowledge co-creation has the **potential to ground research in the lived experiences of those facing the challenges of inequalities and unsustainable development and adopting research methods that elevate and bring these experiences to life.** Claims to quality and credibility of research depend upon it being based on the voices, beliefs and perspectives of those who have lived experience of these complex realities. This also supports efforts towards epistemic and social justice. The TESF teams demonstrated that qualitative and arts-based approaches lend themselves to knowledge co-creation as they give participants a range of different ways and tools to express themselves and the complexities of their lives, that can generate intense detail and nuances, and offer ways to ease the power disparities between researcher and participants.

Based on our experiences in TESF, however, it is important to recognise that a knowledge co-creative approach is new in many contexts, and even where it is familiar, it is not to be undertaken lightly. In chapter four we reviewed evidence from across the TESF network that the movement towards knowledge co-creation and democratisation of research processes requires on-going practical support and resources as well as breaking down traditional boundaries and hierarchies.

In chapter four we argued the need to **build in openness to adaptation and fluidity** from the start of the research

process. When research programmes are planned, there is a tendency to pre-determine the methods and approaches. Knowledge co-creation involves participants as co-researchers, who shape and re-shape projects in responsive, reflexive approaches. The relationship and trust building required for this takes time and resources.

In chapter five we argued that **ethical considerations and practices in knowledge co-creation extend far beyond procedural ethics and institutional protocols**. Every day, contextually meaningful, relational ethics in practice encompassing the values and beliefs by which individuals and communities operate are fundamental. The sensitive and unsettling issues being explored also require a particular ethics of care and critical empathy. It is essential to create safe spaces and ensure safe language to meet these ethical requirements. Researchers need support in these approaches, and institutions need to be open to negotiating rigid protocols that are often designed for a different purpose.

In chapter six we argued that **historically, there has been a tendency for South-North research partnerships to be marked by inequitable power relations**. The traditional, colonial model of research is one in which Northern partners have often been in an advantageous position to frame research questions in relation to Northern agendas, epistemologies and development frames and to dominate research collaborations through superior access to research funding, publishing and other opportunities. Southern partners have often adopted secondary roles, as collectors of data rather than as equal partners in the research process. Traditional North-South partnership approaches can also limit the possibilities for South-South and South-North learning.

Traditional approaches to capacity development have also **taken a deficit view of Southern capacities**. **Capacities are often understood narrowly as the ability to understand and apply existing, established research methods**. This limits opportunities for methodological development based on the lived experiences, contexts and epistemologies of the Global South, reproducing power imbalances and impoverishing the research process as a whole. Moving beyond Northern approaches creates the potential for adopting new

approaches and developing mutual capacities, based on the lived experiences, contexts and epistemologies of the Global South.

Further, traditional processes of evaluation often assess success against pre-determined criteria linked to Northern development frames and priorities. Conducting research that is co-created with communities requires research teams to continuously monitor and adapt to complex and changing realities. By prioritising pre-defined project outcomes, traditional approaches to evaluation (including the use of log frames) limit opportunities for ongoing reflection and learning about the research process and thus opportunities to adapt to new, often unforeseen challenges.

7.3 A call to action

For researchers:

- Seek opportunities and non-traditional partners to undertake co-creative research that challenges existing framing of dominant education and sustainability discourses that are oriented towards action that directly benefits those affected by inequalities and sustainability challenges.
- Be prepared to embrace transdisciplinary and transgressive research in university research.
- Embrace equitable partnership working, capacity mobilisation and MEL processes, through foregrounding local agendas and agency and opening spaces for collaboration which are minimally distorted by power relations.
- Support research teams with the knowledge, understanding, time and resources that will enable them to benefit from these approaches.

For educators and teachers:

- Be prepared to get involved in knowledge co-creation as practitioners and as teacher-researchers as part of continuing professional development.
- Seek out opportunities to develop and share your expertise across boundaries and with new and diverse stakeholders in the community.

For policy actors:

- Critically reflect on the evidence base informing policies.
- Give more attention and support to knowledge and learning generated or co-created with those facing the challenges the policies aim to tackle.

For engaged activists:

- Explore ways of extending the social learning in your community and activism to co-develop the arguments needed for public advocacy and activism.

For research leaders:

- Take a pluralistic approach, recognising multiple knowledges and ways of framing ideas and give co-engaged research the time and resources it needs.

For research funders:

- Reform the way that funding calls are designed and implemented to redress Northern biases in the processes and outcomes of research.

For universities:

- Establish policies that are consistent with principles of transformative partnership working between researchers in the Global North and South.

Appendix 1: TESF projects: short titles, full titles and web links

SHORT TITLE	PROJECT NAME (FULL)	WEB LINK
INDIA		
Breaking through the inter-generational cycle of educational inequalities	Breaking through the inter-generational cycle of educational inequalities: First generation learners, stigmatised occupational groups and sustainable futures	Breaking through the intergenerational cycle of educational inequalities TESF India (iihs.co.in)
Teachers negotiating professional agency	Teachers negotiating professional agency: A study of a teacher education programme	Teachers Negotiating Professional Agency: A Study of a Teacher Education Programme TESF India (iihs.co.in)
Summer school on sustainable cities	Summer school on sustainable cities	https://tesfindia.iihs.co.in/summer-school-on-carbon/
Educational ecosystem of architecture in India	Educational ecosystem of architecture in India	https://tesfindia.iihs.co.in/educational-ecosystem-of-architecture-in-india-a-review/
Nilgiris field learning centre	Nilgiris field learning centre: Learning & analysis for local Adivasis empowerment	https://tesfindia.iihs.co.in/nilgiris-field-learning-centre-learning-analysis-for-local-advansi-empowerment/
Higher education for sustainable urbanisation	Higher education for sustainable urbanisation: Perspectives from cities of India's North East	https://tesfindia.iihs.co.in/higher-education-for-sustainable-urbanization-perspectives-from-cities-of-indias-north-east/
Counter imaginaries	Counter imaginaries: Towards a new cartography of agency	https://tesfindia.iihs.co.in/counter-imaginaries-towards-a-new-cartography-of-agency/
Hum Hindustani	HUM HINDUSTANI: The Indian child citizen in school and the world	'Hum Hindustani': The Indian child citizen in school and the world - TESF INDIA (iihs.co.in)
Theatre and art in education for young women	Theatre and art in education for young women with a focus on theatre of the oppressed techniques and embodied therapeutic practices	Theatre and art in education for young women with a focus on theatre of the oppressed techniques and embodied therapeutic practices - TESF INDIA (iihs.co.in)
Development of water classrooms	Development of water classrooms for middle school students	Development of water classrooms for middle school students - TESF INDIA (iihs.co.in)

Facing caste	Facing caste: Engaging with the privileged	Facing Caste: Engaging with the Privileged - TESF INDIA (iihs.co.in)
Exploring education's role in sustainable urbanisation	Exploring education's role in sustainable urbanisation through PUKAR's Youth Fellowship Program	Exploring Education's Role in Sustainable Urbanisation through PUKAR's Youth Fellowship Program
Learning, livelihoods and possibilities of socially just pedagogy	Learning, livelihoods and possibilities of socially just pedagogy	Learning, livelihoods and possibilities of socially just pedagogy TESF India (iihs.co.in)
Voices from the margins	Voices from the margins: Exploring possibilities of connecting formal education to the funds of knowledge owned by Adivasi communities in the Kesla Block of Madhya Pradesh	Voices from the margins TESF India (iihs.co.in)
'There is a bee in my balcony'	'There is a bee in my balcony': A guide to growing food anywhere you live using illustrated narratives of diverse urban farms	'There is a bee in my balcony': A guide to growing food anywhere you live using illustrated narratives of diverse urban farms - TESF INDIA (iihs.co.in)
Dialogic pedagogy for gender sensitisation	Understanding the usefulness of dialogic pedagogy for gender sensitisation among pre-service teachers	Benefits and Challenges of Using Dialogue-based Pedagogy For The Gender Education of Pre-Service Teachers - TESF INDIA (iihs.co.in)
Mapping educational innovations for social and ecological justice	Mapping educational innovations for social and ecological justice	Mapping educational innovations for social and ecological justice - TESF INDIA (iihs.co.in)
Transgender and non-binary persons' access to HE inscience	Transgender and non-binary persons' access to higher education in science in India	No space for some: Transgender and non-binary persons' access to higher education in science in India - TESF INDIA (iihs.co.in)
Looking inward, looking forward	Looking inward, looking forward: Articulating alternatives to the education system for Adivasis, by Adivasis	Looking inward, looking forward: Articulating alternatives to the education system for Adivasis, by Adivasis - TESF INDIA (iihs.co.in)
Interrogating what reproduces a teacher	Interrogating what reproduces a teacher	Interrogating what reproduces a teacher - TESF INDIA (iihs.co.in)
Redefining sustainable development with the Bharia	Redefining sustainable development: Co-creation of knowledge with the Bharia	Redefining sustainable development TESF India (iihs.co.in)
Education, margins and city	Education, margins and city: Examining the linkages through an ethnographic exploration	Education, Margins and City TESF India (iihs.co.in)
Developing a model of holistic environmental education for Eco-Schools in Tamil Nadu	Developing a model of holistic environmental education including teacher training for Eco-Schools in Tamil Nadu	Developing a Model of Holistic Environmental Education TESF India (iihs.co.in)

RWANDA

Education for climate hazard resilience	Education for building climate hazard resilience in Rwanda	https://tesf.network/project/education-for-building-climate-hazard-resilience-in-rwanda/
Meet the NEET	Meet the NEET: Exploring the lived experiences of Rwandan girls and young women not in employment, education or training	https://tesf.network/project/meet-the-neet-exploring-the-lived-experiences-of-rwandan-girls-and-young-women-not-in-employment-education-or-training/
Improving access to services of Deaf Blind Persons	Improving access to socio-economic services of Deaf Blind Persons in Rwanda	https://tesf.network/project/improving-access-to-socio-economic-services-of-deaf-blind-persons-in-rwanda/
Coping with Kigali urban growth challenges	Coping with Kigali urban growth challenges: Educating communities for building livelihood resilience and wellbeing	https://tesf.network/project/coping-with-kigali-urban-growth-challenges-educating-communities-for-building-livelihood-resilience-and-wellbeing/
School gardens: School feeding	Promotion of school gardens through Junior Farmer Field Learning Schools approach to improve school feeding in twelve years basic education schools in rural areas of Rwanda	https://tesf.network/project/promotion-of-school-gardens-through-junior-farmer-field-learning-schools-approach-to-improve-school-feeding-in-twelve-years-basic-education-schools-in-rural-areas-of-rwanda/
Eco-Schools for sustainable development and climate action	Eco-Schools as a tool for integrating sustainable development and climate action within the Competency-Based Curriculum in Rwanda	https://tesf.network/project/eco-schools-as-a-tool-for-integrating-sustainable-development-and-climate-action-within-the-competency-based-curriculum-in-rwanda/
Arts-based approaches for sustainable development	Using arts-based approaches to dialogue issues of sustainable development in Rwandan high schools	https://tesf.network/project/using-arts-based-approaches-to-dialogue-issues-of-sustainable-development-in-rwandan-high-schools/
Community digital literacy	Community digital literacy project	https://tesf.network/project/community-digital-literacy-project/
Education for climate action	Research on ability of education to contribute to climate action in Rwanda	https://tesf.network/project/research-on-ability-of-education-to-contribute-to-climate-action-in-rwanda/
One child, one tree	The 'one child, one tree' project: Creating children forests to promote social harmony and tackle climate change	https://tesf.network/project/the-one-child-one-tree-project-creating-children-forests-to-promote-social-harmony-and-tackle-climate-change/
Skills development for youth employability	Skills development for work readiness and youth employability in five targeted districts of Rwanda (SDYE)	https://tesf.network/project/skills-development-for-work-readiness-and-youth-employability-in-five-targeted-districts-of-rwanda/

Community education for urban life skills	Involving the community in education for urban life skills for sustainable livelihood in a resource-deprived context in Kigali	https://tesf.network/project/involving-the-community-in-education-for-urban-life-skills-for-sustainable-livelihood-in-a-resource-deprived-context-in-kigali/
Empowerment of women for GBV prevention	Empowerment of women for Gender Based Violence (GBV) prevention: A case study of Musanze and Cyuve Sectors in Musanze District	https://tesf.network/project/empowerment-of-women-for-gender-based-violence-gbv-prevention-a-case-study-of-musanze-and-cyuve-sectors-in-musanze-district/
Teaching critical thinking about health skills	Teaching critical thinking about health skills to out of school youth using the adapted informed health choices digital learning in Rwanda: A local capacity building project for sustainable cities and communities	https://tesf.network/project/teaching-critical-thinking-about-health-skills-to-out-of-school-youth-using-the-adapted-informed-health-choices-digital-learning-in-rwanda-a-local-capacity-building-project-for-sustainable-cities-and/
SOMALIA/SOMALILAND		
Self-financing of basic education for minority workers	Self-financing of basic education for minority workers	https://tesf.network/project/self-financing-of-basic-education-for-minority-workers/
The meaning of sustainable development in Somaliland	The meaning of sustainable development in Somaliland	https://tesf.network/project/the-meaning-of-sustainable-development-in-somaliland/
Education and sustainable livelihoods for informal traders	Education and sustainable livelihoods for informal traders	https://tesf.network/project/education-and-sustainable-livelihoods-for-informal-traders/
Model Eco-School in Somaliland	Model Eco-School in Somaliland	https://tesf.network/project/model-eco-school-in-somaliland/
From aid to sustainability in education	From aid to sustainability in education	https://tesf.network/project/from-aid-to-sustainability-in-education/
Leadership towards a sustainable circular economy in Somalia	Hormuud: Leadership towards a sustainable circular economy in Somalia	https://tesf.network/project/hormuud-leadership-towards-a-sustainable-circular-economy-in-somalia/
Climate action in context: A Somali extracurricular course	Climate action in context: Learning from the creation of a Somali language extracurricular course	https://tesf.network/project/climate-action-in-context-learning-from-the-creation-of-a-somali-language-extracurricular-course/
ESD CPD for teachers	ESD CPD for teachers	https://tesf.network/project/education-for-sustainable-development-continuing-professional-development-for-teachers/
Promoting employer understanding of the capabilities of deaf people	Promoting employer understanding of the capabilities of deaf people	https://tesf.network/project/promoting-employer-understanding-of-the-capabilities-of-deaf-people/

Green Garowe	Green Garowe	https://tesf.network/project/green-garowe/
Police-community partnership for sustainable development	Police-community partnership for sustainable development	No web summary
Promoting Bravanese minority engagement with formal and informal education	Promoting Bravanese minority engagement with formal and informal education	https://tesf.network/project/promoting-bravanese-minority-engagement-with-formal-and-informal-education/
Girls' sport for development	Girls' sport for development	https://tesf.network/project/girls-sport-for-development/
Sustainable TVET	Sustainable TVET	https://tesf.network/project/sustainable-technical-and-vocational-education-and-training/
Nomadic pastoralists and the path to sustainability	Nomadic pastoralists and the path to sustainability: The case of livestock enclosures in Somalia	https://tesf.network/project/nomadic-pastoralists-and-the-path-to-sustainability-the-case-of-livestock-enclosures-in-somalia/
SOUTH AFRICA		
Universities as sustainable communities	Universities as sustainable communities	Universities as sustainable communities - TEFSE
Healing is in the pot (Okuphilisayo Kusembizeni)	Healing is in the pot (Okuphilisayo Kusembizeni)	Sustainable nutrition for climate action: enablers and barriers to shifting to more sustainable food choices - TEFSE
First we eat!	First we eat! Mobilising ECD centres to develop agency for growing, eating and sharing healthy food	First we eat! Mobilising early childhood development centres to develop agency for growing, eating and sharing healthy food - TEFSE
Uncanny lore	Uncanny lore: Transgressive learning in the legal sovereignty of Indigenous legal practitioners for sustainability and climate action	Uncanny Lore: transgressive learning in the legal sovereignty of Indigenous legal practitioners for sustainability and climate action - TEFSE
Collective community-level economic solutions for sustainable livelihoods for young people and their households in Makhanda	Developing a framework for collective community-level economic solutions that result in sustainable livelihoods for young people and their households in Makhanda	Developing a framework for collective community-level economic solutions that result in sustainable livelihoods for young people and their households in Makhanda - TEFSE
Reframing climate messaging for mobilising youth in Cape Town	Reframing climate messaging for mobilising youth in Cape Town	Reframing climate messaging for mobilising youth in Cape Town - TEFSE

Learning seeds network	(Re)imagining greater Muizenberg: Nurturing seeds of transgressive learning	https://tesf.network/project/reimagining-greater-muizenberg-nurturing-seeds-of-transgressive-learning/ https://amava.org/projects/nurturing-seeds-of-transgressive-learning/
School principals as conduits for sustainable livelihoods	School principals as conduits for sustainable livelihoods in agricultural communities in rural South Africa	School principals as conduits for sustainable livelihoods in agricultural communities in rural South Africa - TESF
Agriculture, arts and livelihoods	Agriculture, arts and livelihoods: investigating integrated school learning approaches for improved educational and livelihood outcomes	Agriculture, arts and livelihoods: investigating integrated school learning approaches for improved educational and livelihood outcomes - TESF
Water mapping	Water mapping as community-based activist research and education for the water commons	Water mapping as community-based activist research and education for the water commons - TESF
School food gardens as educational transformation agent	The utilisation of school food gardens as educational transformation agent to achieve community-wide sustainable livelihoods	The utilisation of school food gardens as educational transformation agent to achieve community-wide sustainable livelihoods - TESF
Makhanda ngoku!	Makhanda Ngoku!	Makhanda Ngoku! - TESF
Citizen sciences: Generating geostories as epistemic maps	Citizen sciences: GeoStories	Citizen sciences: generating GeoStories as epistemic maps - TESF
Tipping the social learning scale	Tipping the social learning scale in favour of sustainable land justice for women who are land dispossessed and those from mining towns	Tipping the social learning scale in favour of sustainable land justice for women who are land dispossessed and those from mining towns - TESF

Appendix 2: TESF calls to action

The TESF network published and shared six *Calls to Action* at the TESF Legacy Event in July 2023.



[Knowledge co-creation for transforming education for sustainable futures - TESF](#)



[Ethical partnerships for collaborative action and learning - TESF](#)



[Tackling Intersecting Inequalities - TESF](#)



[Education for Sustainable Cities and Communities - TESF](#)



[Education for Sustainable Livelihoods - TESF](#)



[Climate and Environmental Justice Education - TESF](#)



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