



Going into Extra Time: Experiences of Knowledge Co-Creation in a Multi-stakeholder Research Partnership in Rwandan Eco-schools

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Abstract

This article uses co-creative reflexive dialogue to explore an experience of using knowledge co-creation as a research methodology in six Rwandan Eco-Schools. By exploring some of the expected and unexpected dynamics, challenges and opportunities, this research aims to contribute new insights into knowledge co-creation for Education for Sustainable Development (ESD). The article provides a rationale, as well as some principles and pitfalls of knowledge co-creation, before presenting an analysis of co-reflexive dialogue between the original research team members regarding their co-creative experience. The findings of the research reveal time to be the single biggest disrupting element in the knowledge co-creation experience. This was apparent from the very beginning and manifested in several different ways throughout the knowledge co-creation process. The relationship between the availability of time, motive for participation, and stakes of the different actors in the success or failure of the research, emerge as justice considerations within the findings ultimately calling for a commitment of all partners to the transformative aims of the research, even beyond the funder timeframe. The research concludes that there is a need for knowledge co-creation teams, project coordinators and research funders to consider, and be explicit about, the dynamics of time in the planning of future knowledge co-creation projects. The research also supports recent literature which calls for a more relational, imminent and contextual approach to ethics, and attends to 'availability of time' as an ethical consideration within knowledge co-creation research.

Keywords: *knowledge co-creation, Education for Sustainable Development, Rwanda, reflexive dialogue*

Introduction

Between November 2021 and April 2023, the Albertine Rift Conservation Society (ARCOS), national operators of the Eco-Schools programme in Rwanda, designed and implemented a research project as part of the GCRF funded Transforming Education for Sustainable

futures (TESF) network plus. Along with 67 other 'plus funded' project teams, the ARCOS TESF project team was asked to bring together diverse forms of knowledge in a co-creative research methodology in order to tackle locally identified challenges with the aim of effecting change in understanding and practice (Sprague et al., 2021).

The ARCOS TESF project entitled 'Eco-Schools as a tool for integrating sustainable development and climate action within the competency-based curriculum in Rwanda' involved a total of 240 people as 'knowledge co-creators' including ARCOS staff, government representatives from ministries and districts, UNESCO's Natcom, academics, and head teachers, environmental coordinators, students and parents from six rural primary and secondary schools in Bugesera and Rulindo districts of Rwanda. The aim of the project was to assess the current gaps and limiting factors preventing the achievement of Sustainable Development Goals (SDGs) 4 and 13, co-create appropriate Education for Sustainable Development (ESD) solutions to overcome these, and examine the potential impacts of these solutions on schools and their surrounding communities in improving education quality, climate action and sustainable livelihoods. More information about this project and impacts can be found elsewhere (Copsey et al., 2024).

By exploring some of the expected and unexpected dynamics, challenges and opportunities encountered by the team during the ARCOS TESF project, this research aims to contribute new insights for future endeavours in knowledge co-creation for ESD. The article provides a rationale, some principles and pitfalls of knowledge co-creation, before presenting the findings of co-reflexive dialogues held between the original ARCOS TESF project team members. Acknowledging the impossibility of separating ourselves from the interconnected or 'entangled' realities and interactions which were experienced (and created) during our research, Karen Barad's concept of 'agential cuts' (2007) is used to help us make distinctions, and allow discussion and analysis between the different subjects, entities and phenomena involved.

The findings of the research reveal time to be the single biggest disrupting element in the knowledge co-creation experience. This was apparent from the very beginning and manifested in several different ways throughout the knowledge co-creation process. The relationship between the availability of time, motive for participation, and stakes of the different actors in the success or failure of the research, emerged as justice considerations which ultimately demanded a commitment of all partners to the transformative aims of the research, even beyond the funder timeframe. The research concludes that there is a need for knowledge co-creation teams and research funders to consider, and be explicit about, the dynamics of time in the planning of future knowledge co-creation projects. The research also supports recent literature which calls for a more relational, imminent and contextual approach to ethics, and attends to 'availability of time' as an ethical consideration within knowledge co-creation research.

Literature review

Knowledge co-creation as a research methodology is increasingly seen in the specifications of funders (Asare et al., 2022; Grieve & Mitchell, 2020; Paylor & McKevitt, 2019), who value its potential to bridge the research-to-practice gap by increasing inclusion and meeting the needs of those affected by the project (Metz et al., 2019), as a means to ensure the relevance of the research (Asare et al., 2022) or with regard to improved impact when involving institutional representatives with direct links to policy and practice (Fransman & Newman, 2019).

Knowledge co-creation as a research approach has emerged from participatory research traditions (Metz et al., 2019) to respond to evolving challenges in the field of ESD. In the last decade new understanding of the multi-causal and multi-dimensional nature of 'wicked' sustainability problems (Lotz-Sisitka et al., 2015; Peters & Wals, 2016; Westin et al., 2013), which involve a range of stakeholders and defy simple policy or behavioural solutions (Lang et al., 2012; O'Donoghue, 2015; Sterling, 2010; Wals, 2010), raised questions as to the legitimacy of an educational process founded on achievement of pre-determined sustainability outcomes (Parker, 2010; Sterling, 2010). Drawing on emancipatory theories of Paolo Freire (1970), complexity and critical theory (Bhaskar, 2009) and systems thinking (Sterling, 2003), ESD researchers began to seek new relational, dialogical and transformative methodologies that value local and indigenous knowledge alongside academic expertise (Sprague et al., 2020; Tikly et al., 2020; Wals, 2019). Seen as an opportunity to transcend dominant understandings and practices of participatory social research and "bring questions of empowerment, ethics and social justice to the fore" (Paylor & McKevitt, 2019, p. 4), knowledge co-creation is also viewed as a means for researchers to delink from dominant Eurocentric knowledge-making traditions which perpetuate colonial and neo-liberal dominance and epistemic injustices (McIntosh & Wilder, 2023; Mitchell et al., 2020; Sprague et al., 2021; Tikly, 2020).

The TESF methodological approach of 'knowledge co-creation' communicated to teams within the call for proposals and TESF background papers, does not prescribe a particular method but instead encouraged autonomy and diversity in the choice of research methods and approaches to inquiry and analysis within the teams' own interpretations of knowledge co-creation (Mitchell et al., 2020; Sprague et al., 2020). This relational view reflects a post-humanist paradigm (Barad, 2007; Braidotti, 2013) which rejects anthropocentric binary divisions including the division between ontology, epistemology and ethics and emphasises the entanglements and responsibilities inherent within 'intra-actions' (Barad, 2007). The three underpinning principles of 'transdisciplinarity', 'transformation', and 'transgression' used by TESF draw on work such as Wals' ecologies of learning (2019) which describe an interdisciplinary approach whereby different groups in society form a learning system in which they can 'learn from and with one another' (Mitchell et al., 2020) to address a common sustainability challenge. Also closely referenced is the international T-learning (Transformative, Transgressive Learning) research programme which challenges the status

quo, while also enabling emergence of alternative praxis and change (Kulundu-Bolus, 2020; Lotz-Sisitka & Ramsarup, 2019; Tikly et al., 2020). With the intention to bring about real-life change, the approach taken by TESF also relates to the concept of 'Just Transitions' which, as outlined by Swilling (2020), describes the incremental changes which emerge from the "vast multiplicity of struggles" (p. 7) towards a transformed world envisaged by the SDGs and founded on greater environmental sustainability and social justice (Tikly et al., 2020).

However, challenges exist. Some ESD researchers have raised questions over the 'hidden-tyranny' in participative and co-creative processes where research is facilitated towards an outcome predetermined by dominant funders (Lotz-Sisitka & O'Donoghue, 2007). Metz et al. (2019) highlighted a lack of evidence of transformation through knowledge co-creation which leaves its claims of engendering close collaborative working between knowledge producers, policy makers, practitioners and publics, as sounding "somewhat optimistic if not naïve" (p. 331). Sprague et al. (2021) noted that the transdisciplinary nature of knowledge co-creation and involvement of many different perspectives, experiences and interests in the research can lead to misconstrued purposes and power imbalances, while different ideas as to what research is, and who a researcher can be, can impact the validity, reliability and trustworthiness of the evidence produced. Grieve and Mitchell (2020) warned that in any participatory process, local power relationships and informal hierarchies can arise according to perspectives, responsibilities and interests of a particular group.

Knowledge co-creation is also not immune from criticisms made within a growing body of literature on transboundary research practices (Asare et al., 2020; Carbonnier & Kontinen, 2014; Grieve & Mitchell 2020; Ishengoma, 2016; Nwako et al., 2023). For example, Asare et al. (2020) pointed out that in specifying multi-disciplinary, multi-stakeholder research methods, northern funders continue to dominate the development of research agendas, and the means through which research is conducted. This ultimately limits the capacity of southern academics to develop independent research programmes based on their own perspectives and priorities. Pre-determination of a research methodology also assumes intellectual leadership of projects in the north, which can position southern researchers as data collectors or junior partners (Grieve & Mitchell, 2020; Nwako et al., 2023).

In response to these critiques, there is growing emphasis on a relational and more contextualised ethical approach to replace fixed ethical guidelines in co-creative forms of research (e.g. McMahon & Milligan, 2023; Tikly & Bond, 2013). Several authors point to the key role of an ongoing process of reflexivity in helping to navigate these new ethical approaches and avoid becoming 'pulled back' into colonial legacies and unequal power relationships (McIntosh & Wilder 2023; McMahon & Milligan, 2023; Siry et al., 2011; Sprague et al., 2021; Tikly et al., 2020). To capture the "dynamic and relational nature of ethics, which exists in the space between people, contexts, and stories" (p. 84), McMahon and Milligan (2023) propose a values-based ethical framework which holds reflexive practice as one of five overlapping values, enacted through co-constructive dialogue.

However, some warn that short timescales and tight deadlines in knowledge co-creation can challenge the space for reflexivity (Siry et al., 2011; Sprague et al., 202). While Ishengoma (2016) bemoans the limited duration of projects within north-south research collaborations, the issue of time as a limiting factor in knowledge co-creation appears infrequently (though nonetheless significantly) within the literature reviewed. In research which explored the UK's Global Challenges Research Fund (GCRF) funding criteria from the perspectives of African partners, Grieve and Mitchell (2020) discussed the very short timescales involved, and mismatch between the timeframes of academics and Non-Governmental Organisations (NGOs). They also raised the issue of short deadlines as key problems in the early stages of the project design which is often linked to navigation of highly bureaucratic processes within partner institutions. Carbonnier and Kontinen (2014) further noted that time-bound research funding with pressure to wrap up and publish papers may lead to disseminating outcomes while results from field research have not yet been consolidated or properly analysed.

In the knowledge co-creation methodological guide produced for TESF, Sprague et al. (2020) warned that “the nature of the methods, activities, interactions in co-creating are very likely to require more time, energy and resource than other forms of inquiry” (p. 5). However, still relatively novel as a research methodology for ESD, there is limited literature which explores the extra demands of knowledge co-creation in detail to help teams plan for unexpected pitfalls and barriers to successful outcomes. Inspired by Tikly et al.'s (2020) description of “spiralling reflexivity” (p. 32) as the process of reaching transgressive change in which the status quo is disrupted through knowledge co-creation processes, this research project aims to engage with the three interlinked elements of time, reflexivity and transformation through a co-reflexive process between the ARCOS TESF research team. In doing so, this research project aims to learn from and share some of the challenges encountered during our knowledge co-creation process and co-create alternative future measures more conducive to environmental and epistemic justice (Fricker, 2009; Milligan et al., 2021).

Description of ARCOS TESF project and co-creative methodological approach

The ARCOS TESF knowledge co-creation project was designed to support the aims of an existing collaboration to strengthen and support the implementation of the competence-based curriculum (CBC) and SDGs 4 (Quality Education) and 13 (Climate Action) through the design and implementation of ESD solutions. With the concerted objective of understanding and adopting knowledge co-creation as a research methodology, the ARCOS TESF project was established initially by a small research team of five, including ARCOS staff, an academic from the University of Rwanda and a UK based ESD researcher. Once the TESF research grant was approved, this team was widened to include a total of 18 ‘core’

members including government representatives from ministries and districts, the Rwandan Education Board (REB), UNESCO’s Natcom (CRNU), academics from the University of Rwanda, and head teachers, environmental coordinators students and parents from six rural primary and secondary schools in Bugesera and Rulindo districts of Rwanda. During early meetings of this team, the guiding principles of transdisciplinarity, transformation and transgressive research were explored and the Rwandan concept of *Umuganda*, which describes the coming together of people in common purpose, was proposed and agreed upon as a shared understanding between team members. The project sites were selected based on intervention areas of ARCOS within the Eco-School programme. They include four established Eco-Schools and two new schools in Bugesera (mixed rural and urban) and Rulindo (rural) districts. Pupils, parents and surrounding community members were invited to participate as ‘school/community-based’ members of the co-creative team, bringing the total number of individuals to a count of 312 by the end of the TEF project timeframe (April 2023). Table 1 below shows the ARCOS TEF project co-creation steps.

Table 1: *ARCOS TEF project knowledge co-creation steps (Copsey et al., 2024)*

Phase One: Survey	A questionnaire with multiple-choice questions with open qualitative questions was crafted together by the research team and translated into Kinyarwanda by the teachers. The survey was carried out with 24 students grouped into 4 focus group discussions of 6 students each, staff members (head teacher and 12 teachers) and 3 parents in each of the six schools.
Phase Two: Co-engaged enquiry	A workshop was organised in each district, bringing together district education duty bearers (District Director of Education, District Education Officers, Sector Education inspectors) and partners (Civil Society Organisation and other NGOs working in education sector). Open and honest discussion leading to the identification of one outstanding challenge per school was facilitated by the ARCOS team. Challenges identified were recorded through stories, diary notes, audio recordings, written-work, drawings, photographs, and digital artefacts.
Phase Three: Depth-deliberation and micro project testing	Workshops were organised at each school to present and discuss key limiting factors impeding the achievement of SDG4 and 13 and deliberate on key ESD solutions proposed and rank them per priority given the resources available as well as feasibility in terms of time and responsibility of each among the team. Under the guiding research principle of <i>Umuganda</i> , students, staff members, family, friends and neighbours were involved in the co-development of an action plan for the implementation of identified priority micro projects at each school.
Phase Four: Data cleaning and analysis	Prior to data collection, questions were treated and uploaded using the Kobo-collect App. Analysis was performed by teachers and learners with regular support from ARCOS’ team. The key challenges were ranked based on level of severity in both areas of quality education (SDG 4), and climate actions (SDG 13). One challenge was participatory choices for action. The choices were determined by their importance and perceived capacity for action. Presentations of findings are prepared by the school-based research team (in form of photos, videos, or any other materials). Some statistical analyses were computed in Excel.

Methodology for our co-reflexive enquiry

For this article, other researchers' experiences of reflexivity (Palaganas et al., 2017, Roulston et al., 2003) were used to guide similar reflexive processes with the five members of the original ARCOS TEF co-creation team. While the literature reviewed above outlines the rationale, benefits, principles and potential pitfalls of knowledge co-creation, the co-creative reflexive discussions between team members intentionally focussed on impressions and experiences from our own knowledge co-creation process to avoid pre-empting the research findings. The interviews were designed as a relational process whereby the data was co-constructed through dialogue (Roulston et al., 2003) and therefore at the 'far end of the spectrum' of informal interviewing (Burgess, 1986). During these conversations, the research team members reflected on our knowledge co-creation experience and its effect on those involved (Palaganas et al., 2017).

In line with knowledge co-creation, the research design was finalised during a planning meeting with members of the original research team, who opted for a focus group format for ARCOS staff members and the UK based team member (x4) and a one-on-one interview organised separately with a research team member based in the University of Rwanda and the UK-based team member. Guiding questions for these conversations included:

1. Are there any thoughts or memories of the knowledge co-creation project which stand out?
2. Did we encounter any barriers to successful knowledge co-creation during the project?
3. What could we do next to enhance the co-creative aspects of our research work?

The relational approach of this co-creative research methodology attends to a post-humanist research paradigm and ethico-onto-epistemology (Barad, 2007) which rejects dualistic distinctions between knowledge, reality, and ethics and emphasises the entanglements and responsibilities inherent in our 'intra-actions' (Haraway, 1991), including the 'entangled accountability' (Barratt-Hacking & Taylor, 2020) of research positionality (Milligan, 2016). The analysis was carried out as a series of 'agential cuts' (Barad, 2007) which do not disentangle but attempt to temporarily stabilise our experiences to allow us to describe and analyse the phenomena encountered. This was done simultaneously during co-creative dialogue (Sheridan et al., 2020) and individually using inductive open coding to identify themes (Kennedy-Lewis, 2014).

Findings and discussion

From the early stages of the project, our team have been enthusiastic about the principles of knowledge co-creation and the opportunity to include school-based beneficiaries as 'co-creators' and the resultant new relationships and sense of 'ownership'. In fact, the open nature of the research and the decision not to limit or exclude any partners who wished to

participate meant that the research project became much larger and far more generative than had originally been imagined. The interest and enthusiasm for the project among these co-creators also had time implications and raised ethical and justice questions in terms of the timescale, what was feasible, and who is included or excluded from participating.

What we can say now is that the parents were very happy to participate, it was their first time to participate in this kind of research.

ARCOS team member

We realised that these results are far beyond what we thought. There are a lot of results from this project. If we get a chance to extend, we hope also that we will be able to do it.

ARCOS team leader

However, while fully supportive of the rationale and benefits of undertaking a co-creative research project, the team was unprepared for the significant extra demand that the operation of this form of research would entail. The involvement of so many people introduced several complexities above those experienced in other forms of research. The major theme arising from the analysis which linked all themes was time. The different dynamics and availability of time encountered during the reflexive discussions also raised some justice questions when failure to find time, give time or match timetables resulted in exclusion of certain voices at particular points of the research process.

Time was, is still, the main barrier to the success of the co-creation research.

ARCOS team leader

Also the time needed to engage everyone because co-creating solutions requires to bring everyone on board and to ensure they are fully engaged.

UK-based team member

Sometimes people delay to arrive to the field. This can also minimise the people you will be discussing with. Or miss some of them.

University of Rwanda team member

In the following sections some of the relational and contextual time dynamics encountered by the team are analysed as 'agential cuts' (Barad, 2007), in order to examine their implications both on the research process itself, and as ethical considerations for future knowledge co-creation endeavours.

Time for engagement of partners at the project inception

A common criticism of North-South research partnerships is the prioritisation of donor interests at the point of setting the research agenda (Asare et al., 2022; Grieve & Mitchell, 2020; Ishengoma, 2016) leading to research which fails to meet local contexts and challenges. In view of the strong ethical need identified within the literature, a wide range of stakeholders was assembled to form the 'core co-creation team' at the project inception during two

workshops held in Kigali on 7 November and 8 December 2021. All team members, in reflective discussion, agreed that time was the major factor in our knowledge co-creation experience even at this early point of the research. This was predicted by Sprague et al. (2020) in their methodological paper produced for TEF: ‘Developing the relationships, trust and interactions that can make a co-created project thrive may be significantly more intense than participants expect’ (p. 5). At the inception of the knowledge co-creation project, finding the time when all partners were available (including across time zones) was a challenge. The early point at which knowledge co-creation begins was also noted as a time issue during the project inception, requiring more engagement and discussion between the project team members before the research agenda could even be set. However, further in the process, it was found that engagement and organisation of co-creators in the research process was made easier due to their involvement in the methodological design.

From my side, time was the main constraint, because we started putting together a research team from the University of Rwanda and from ARCOS [...] even trying to find a time appropriate for you, who are not locally based.

ARCOS team leader

In knowledge co-creation you need to involve everybody not just in the research but in the generation of the research questions and the design of the methodology if it’s properly co-creative. But all of these things take an awful lot longer then, it means you start your engagement and having to bring everybody together at a much earlier stage.

UK-based team member

If people have participated in creating the methodology it is easy to implement, so on my side I didn’t see it as a problem, but it was supportive.

ARCOS team member

Sprague et al. (2020) also noted that unexpected demands of time and resources may especially affect teams new to co-creation “who have past experiences in quick-turnaround projects” (p. 5). As one co-creator mentioned, the challenge of bringing together the knowledge co-creation team was made more difficult by the fact that this was not only our first knowledge co-creation project, but also ARCOS’ first research project undertaken in the field of education.

It was not easy to balance, to give enough time, and find always the time when everyone is available, it required management because it is a special project because this was the very first one in the education environment, so we needed to pay very much attention to it.

ARCOS team leader

Time for institutional processes of partner organisations

Grieve and Mitchell (2020) raised the problem of short deadlines in the early stages of the project design which often gets taken up with the navigation of highly bureaucratic processes (e.g. research and travel permits) within partner institutions. This can therefore become a significant barrier for full participation in the identification of local priorities and an impediment to building an equitably engaged multi-stakeholder team. In particular, the intention to involve a wide group of stakeholders with different roles and interests as knowledge co-creators for our project also meant adapting to a variety of different organisational timescales. In some cases, this had a significant impact on the project timeline. Some examples shared by the team included the processes involved in engaging partners at the very top level of government as well as gathering the formal documentation in order to obtain the research permit.

We had to engage the Rwanda Education Board, so we needed to make them understand the project objectives and also for them to tell us how they wanted us to orientate the project. And this is also part of the co-creation process because Rwanda Education Board is a custodian for all research that will be implemented in education system, so they have to be on board, and when they were ready, when they understood research objectives, they gave us the go ahead and we started.

ARCOS team leader

[A delay] was caused by conditions of the institution which gives the research permit, they were requesting us many documents and affiliation to one government institution conducting research, as it was too late these documents could not be found easily. ARCOS tried its best but these conditions were not helpful to find what they were requesting easily.

University of Rwanda team member

Whilst involving high-level institutional representatives in knowledge co-creation was seen as very beneficial to its long-term success, our experiences confirm that there is a need within the planning of knowledge co-creation to consider the potential time implications as well as the possible formal and informal power imbalances associated with these partnerships.

Time dynamics for the core co-creation team

Sprague et al. (2020) noted that “the money and time each partner can allocate to the collaboration may impact on interpersonal relationships, the nature of the partnership and the kind of outcomes that will be pursued” (p. 8). The availability of time and management of timetables of individuals within the core co-creation team emerged as a major theme during the analysis. In particular, the difficulty of juggling the extra time and energy needed for co-creation amongst other day-to-day pressures was highlighted. One team member helpfully made a distinction between the different time constraints which affected the engagement of different actors in the process, both the core co-creation team based in Kigali and the

rural school/community-based co-creators. This distinction was explored more fully during our reflective discussions, and different ideas were put forward by team members. For the Kigali-based research team the issue of competing priorities and workloads was highlighted:

In many organisations your workload is there, just because you have funding for another project doesn't mean the other projects can move aside. So it's being able to juggle it alongside all of the other things that are happening. And maybe the more people that you involve, the more chance that there is of there being different commitments and more priorities.

UK-based team member

Maybe taking on my part and your part, we are always busy doing a lot of things, so finding enough time to concentrate on those activities was not easy for all of us.

ARCOS team leader

While understanding that research team members needed to fit in their responsibilities for the TEF project alongside busy timetables and workloads of their own, the problems arose at the points when time available for the TEF project coincided with other work projects; this experience echoes Ishengoma's (2016) observation that "the synchronisation of effort between various project donors and actors is virtually non-existent" (p. 150). Here some interpersonal reflection and dialogue required personal accountability for the times when other commitments or deadlines prevented necessary action on the project.

So of course we recognise that the time that we have available, for those schools even yourself, you could not have the same time when we needed.

ARCOS team leader

Even though a year is only a small time to run a project like this, a lot can happen in a year can't it, in terms of projects coming in, and workloads changing, and jobs coming up, and so when you're working in a research team, it's difficult to keep everybody on track all the time. And you find that there are some people who will be ready to work, and other people who are taken up elsewhere, so I think that can be a challenge. Certainly, on my side that was the challenge I found.

UK-based team member

These example exchanges highlight the ethical importance of the commitment made by all research team members to finding and setting aside the necessary time for a project, even when hold-ups occur and communication lines fall silent. These findings support Sprague et al.'s (2021) view that timelines should be mutually agreed and communicated on a regular basis. Our experience further raises 'availability of time' as an important ethical consideration for co-creation teams, especially when timelines are pushed out and tasks become urgent.

Motivation and motives of the core co-creation team

Various motives of individual co-creators were raised as a factor which influenced each actor's availability of time. This again supports Sprague et al.'s (2021) suggestion that teams embarking on knowledge co-creation should explore the different motivations of the partners involved and associated implications for how each person approaches the project. There was a suggestion here that a lack of commitment would not only risk slowing down the progress of the knowledge co-creation but could also lead to an imbalance in the research team left to do the work, with risks of returning to epistemic injustice as workloads become inequitable, or some views are excluded.

You can have ten people working on one project, but ending up with work by only three people, that's the experience I have.

University of Rwanda team member

It becomes a self-selecting process because in the end you have a team of people who remain committed, and the others drop out. But then I guess there is the problem of ensuring that the team is still representative of all of the other groups that you wanted to have there.

UK-based team member

However, other members of the team felt that lack of commitment or energy within the core co-creation team was not an issue during the ARCOS TEF project. Particularly here the support of the TEF hub team was mentioned in maintaining motivation.

Our team was very good, because we had some people from the university who are familiar with research and the ideas were very constructive. So we didn't encounter any problem with the team engagement.

ARCOS team member

We discussed a lot with them [the TEF Hub Team] the challenges that were met, and they were really supportive and they encouraged ourselves to do everything we can to meet the requirements.

ARCOS team leader

High stakes and time dynamics for school-based co-creators

Time pressures related to competing priorities, workloads and motives were also seen as an issue for the school/community-based co-creators, manifesting in different ways.

They are busy maybe finding something which can help them with their life. So maybe if you plan to go there maybe during working time, it is not easy to find them. So that's what I discuss with them 'Why are you late? Why sometimes you do not come?' Those are some ideas I come up with from them.

University of Rwanda team member

Other research team members felt that the school/community-based co-creators were fully on board with the project, having understood its aims and potential for impacting the quality of their children's education, meaning they were willing to prioritise the project over other important pressures such as work or farming. The important nature of these demands meant that the core co-creation team valued the participation from these school/community-based co-creators even more.

They get the reason for their research, so they had to know that they were thinking about their children's future welfare, they know that the students are going to study well if they address some problems that they have identified. So it was not a problem to engage them.

ARCOS team member

I think they were really committed mostly because they have the things that they do along the day, the whole day, even the weekend, but whenever they were called for their interviews they were coming, sacrificing the times that they were going to be in the farms or their other activities, so they had understood the main goal of the research, their contributions towards the main goal of the research. They sacrificed themselves to be there and attend the interviews when they were asked to come, so they were really committed, and they knew that their participation is key to the purpose of the research and also the quality of the education as well.

ARCOS team member

A potential imbalance appears here within the core and school/community-based co-creation teams both in terms of the consequences of their time prioritisation decisions, and the purpose of their involvement. In both cases the stakes are higher for the school/community-based co-creators who are balancing their own incomes or livelihoods with their children's education. McMahon and Milligan's (2023) warning that power differentials can cause people to feel obliged to participate in research highlights the ethical need to take into consideration the amount of time requested from co-creators, and particularly to try to understand their different time demands and how the project may impact on other areas of their life. The need to consider these time/motive/stakes questions in the roles and engagement of different co-creators was discussed and possible solutions were proposed including a daily payment (above expenses and transport costs) as well as timing of the research visits to engage parents outside of the working day.

Because some people in the village they work daily, if we assured them "when you come you will be given maybe something replacing your day of working". I think that could be better because they could be more interested to come, saying that "I don't need to go to the farm".

University of Rwanda team member

Time to be transformative

The intersecting dynamics of time, motivation and stakes within the research process ultimately relates to the imperative for research to be transformative. The aim to produce knowledge which is relevant and solutions which are implementable was clear in the objectives of TEF (Grieve & Mitchell, 2020). Perspectives from our research team resonated with An-Na'im (2006, quoted in Grieve & Mitchell, 2020, p. 520) regarding the unacceptability "for an African scholar to devote her or his whole attention to detached academic analysis without attempting to respond to the urgent needs". An important point raised in the literature and reinforced during our reflective discussion is that significant pressure to produce transformative results was acutely felt by both core and school/community-based co-creators. While, as we have seen, rural co-creators were willing to sacrifice work relied on by their families in the promise of a better education for their children, the Kigali-based co-creators were also highly aware of the need to drive a transformative agenda through the research.

If you identify a gap, you should be able to address at least something. It is not just doing research for doing research... For example, they [the Rwandan Education Board] said 'if the curriculum is depressed and you find that it has a gap, are you ready to fund the development of a new curriculum?'

ARCOS team leader

That extra time demand we have to think about very carefully in terms of what are they putting in and then what are they potentially getting out of it.

UK-based research team member

Although desirable, the transformative nature of knowledge co-creation becomes an added time consideration for planning of knowledge co-creation projects. There is an ethical and justice element here in the need for the research results to reflect the contributions of its co-creators. In particular, the investments made by the parents and pupils into the co-creative projects require ongoing recognition and support to ensure they yield results. In the ARCOS TEF project this has driven a long-term commitment to sustaining the level of time invested in the research well beyond the lifespan of the project funding.

Even the parents have participated in the implementation. They always come to school and they check how, for example the kitchen gardens look like, how the trees are being maintained.

ARCOS team member

They are also going to continue in the next quarter, they are going to continue implementing, recording and it is going to be a very long process. So they are still in touch with our team, they have not completely detached from the research, they are still part of the team.

ARCOS team leader

Meeting timescales of funders

Carbonnier and Kontinen (2014) noted that time-bound research funding with pressure to wrap up and publish papers may lead to disseminating outcomes when results from field research have not yet been consolidated or properly analysed. The multiple time demands and dynamics discussed in the analysis above resulted in several delays within the research process and ultimately meant that the project results did not start to become visible until one month after the TESF funding period finished.

The other challenge was related to the short period of the project in general, a period of one year for a research project which is action based. Because our project was mostly action oriented research because we wanted to co-create the solutions and then start implement the solutions, so we had to create the baseline, and monitor it progress by progress. So by the time the project was about to end it was when we had at least concluded the data analysis and engaging the schools and starting with a baseline on the status of schools... the teachers are now happy, the students and parents they are happy also, because the production is being seen now, but they weren't being seen at the time of closing the project.

ARCOS team leader

The resulting failure to produce results and publications by the end of the TESF project ultimately limited our ability to speak when the rest of the TESF research community was listening. Members of our team were frustrated and disappointed, and this highlights a potential link between funder time-scales and hermeneutical justice (Fricker, 2009). Along with the knowledge co-creation team, this also implicates research funders, and project coordinators specifying interdisciplinary research or knowledge co-creation as a research methodology.

The added time demands of language

Finally, a significant discussion was held about the necessity to carry out this co-creative research project in the English language which created a complex and time-consuming translation process back-and-forth between languages. As described by one team member below, the language and translation issue became a significant barrier to the smooth running of the research, entailing several delays and even resulting in some qualitative data not being included in the initial analysis and presentation of results. The exclusion of these perspectives due to our inability to understand also appears to engage issues of hermeneutical epistemic injustice (Fricker, 2009) and the continued coloniality of western research partnerships.

Looking at the quantity it took for us to translate. From the beginning we had an English version questionnaire, then the teachers they started the translating, of course then we had the session to train, to bring the tools we need to analyse the quantitative data, to design the questionnaires, and then the questionnaires, the first version was in English, then the

teachers have volunteered to translate it into Kinyarwanda, and then we have reached a session where we have translated the questionnaire. So then during the data collection we asked the questions in Kinyarwanda, and then we got answers in Kinyarwanda, but for coding, trying to get the meaning in English we had to translate it from Kinyarwanda to English and then do the coding and then together getting the data that we can analyse.

ARCOS team member

Ethical and justice considerations

The ‘agential cuts’ presented in the analysis above reinforce the view of ethics as not a set of predefined rules or principles but emerging within the entangled intra-actions, relationships and experiences of our knowledge co-creation process (Barad, 2007; McMahon & Milligan, 2023). The analysis revealed that the extra time demands of knowledge co-creation as a primary issue not only derailed the research process and timeline, but also raised several unexpected ethical and justice considerations for the team during the research process. These have been summarised in Table 2 for further deliberation and are described in more detail in the conclusions below.

Table 2: Framework describing ethical dynamics of ‘extra time’ in knowledge co-creation

Knowledge co-creation step	Extra time demand of knowledge co-creation	Ethical/justice consideration
Project inception Agenda setting and methodological design	Extra time to find and engage those with a potential interest even in remote areas	Ethical commitment to open the research to include all who wish to participate
	Finding an appropriate time when everyone is available to come together for the co-creation	Ethical approach to timetabling to ensure certain actors in the co-creation team are not prioritised or disadvantaged more than others
	Extra time needed to organise the different processes and permissions from the wide range of organisations involved	Need for mutual respect of organisational processes to avoid creating conflict
	Extra time required for agreeing the research agenda, development of research questions and co-design of the methodological framework	The early starting point can have an impact on what is achievable in a normal research timeframe and demands an ethical approach to setting expectations and timelines

Knowledge co-creation step	Extra time demand of knowledge co-creation	Ethical/justice consideration
Knowledge co-creation action-research steps	Extra time demands of managing the co-creative process may conflict with existing workloads and competing priorities at work (core co-creation team).	Ethical consideration for professional co-creation team members to commit equally to the outcomes of the project despite different motives
	Extra time demand of co-creation conflicted with work or other necessary tasks (school/community-based co-creation team)	Ethical commitment to ensure sacrifices made by school/community co-creators are recognised by all team members, compensated fairly, and are rewarded by positive transformational results
	Generative nature of research can expand project results beyond project lifespans	Ethical commitment to continued commitment to knowledge co-creation beyond funded project lifespan
Final reporting and wrap up	Extra time to translate between languages	Consideration of epistemic justice implications of language and costs/time demands of translation
	Mismatch of funder and project timeframes can rush project wrap-up before the results are seen	Ethical imperative for funders to consider timelines when specifying knowledge co-creation methodologies

Conclusion

The relationship between the availability of time, motive for participation and stakes of the different ‘stakeholders’ in the success or failure of the research raises the imperative for all members of the co-creative team to consider and be transparent about our motives and stakes in the co-creation process. Are we engaged because of professional interest or personal interest, for example? What do we personally have to gain or lose in the success or failure of the co-creative endeavour? And what are we potentially sacrificing in the process? Beyond questions of power, the question of stakes could be a serious issue for fairness and justice within the knowledge co-creation process, necessitating an ethical commitment from all co-creators to find enough time to include all who wish to be engaged, and to ensure that the project achieves the positive and transformative outcomes it promised.

In addition, questions of fairness and justice need to be considered in relation to expectations and demands on time by those undertaking the co-creation as part of paid work and those who are not being paid (either for the research directly or for whom the research is not part of a paid job). There are potential power dynamics to be aware of here, especially when the research purpose is something as important to the unpaid members as their children’s education. Metz, Boaz and Roberts (2019) stress the importance of understanding and addressing how best to involve different stakeholders in a co-creation process, asking “Do

all stakeholders need to be engaged in the same way for the same purpose?” (p. 335). While this project has found the involvement of a wide group of stakeholders valuable throughout the knowledge co-creation process, it has also identified the ethical need to be aware of adding undue pressures to already busy lives and consider how much time is fair to ask of which co-creators and how this time can be organised and rewarded in a fair way.

Finally, the short project timescales, deadlines and quick turn-around reporting often involved in Northern-funded research project participation can result in epistemic injustice when co-creative projects grow larger than the life cycle of the project funding, and ‘final’ reports are required before the results are seen. In attempting to shed some light on the reality of ‘challenge-led disciplinary and interdisciplinary research’ (GCRF [Global Challenges Research Fund], 2023) using knowledge co-creation, this reflexive research has identified the issue of funding timeframes as an anomaly within the GCRF funding model and subsequently the TEF project design. If engaging multiple partners in co-creative research entails a mutual commitment by project instigators and the whole co-creative team to negotiating the multiple dynamics of time, motive and stakes and bring the project to a successful and transformative outcome, it also falls on funders to accept and understand that specifying this form of research entails an extra time demand. This research therefore recommends that ‘extra time’ and its ethical implications is overtly considered in project design and planning by funders specifying knowledge co-creation in future.

Ultimately the ‘agential-cuts’ presented in this research have provided examples of the types of imminent and contextual ethical questions which emerge for researchers working in such close intra-action with others, especially concerning the complex high-stakes scenarios such as those encountered in ESD. Future endeavours in knowledge co-creation can therefore be benefitted by new relational, imminent and contextual ethics frameworks (e.g. McMahon & Milligan, 2023), which can be continuously attended to through processes of reflexivity and dialogue. Our findings further justify the ‘availability of time’ to be included as an ethical consideration within the planning and processes of future knowledge co-creation research.

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Percentage contribution

Areas of contribution	Author	% Contribution per area, per author (each area = 100%)
Conception or design of the paper, theory or key argument	Copsey	50%
	Kubwimana	20%
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Data collection	Copsey	20 %
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Analysis and interpretation	Copsey	50%
	Kubwimana	20%
	Nshimiyimana	10%
	Ishimwe	10%
	Bwiza	10%
Drafting the paper	Copsey	80%
	Kubwimana	5%
	Nshimiyimana	5%
	Ishimwe	5%
	Bwiza	5%
Critical review of paper	Copsey	50%
	Kubwimana	35%
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