

# Research capacity development

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## Summary

The Research on Open Educational Resources for Development (ROER4D) project was a four-year (2013–2017), large-scale networked project which set out to contribute a Global South research perspective on how open educational resources can help to improve access, enhance quality and reduce the cost of education in the Global South. The project engaged a total of 103 researchers in 18 sub-projects across 21 countries from South America, Sub-Saharan Africa and Asia, coordinated by Network Hub teams based at the University of Cape Town (UCT) and Wawasan Open University.

This chapter forms part of a project activity toolkit, which is comprised of five documents outlining activities associated with each of the UCT Network Hub pillars of project management activity: networking, evaluation, communications, research capacity development, and curation and dissemination. It is hoped that these chapters will be of practical use to other projects attempting to integrate any of these aspects in their operational strategies.

This chapter focuses on the research capacity development activities undertaken in the ROER4D project, which were seen as crucial in terms of addressing the project objectives of building an empirical knowledge base on the use and impact of open educational resources (OER) in the Global South, developing the research capacity of Global South OER researchers and building a network of Global South OER scholars. It outlines the rationale behind and implementation of four central aspects of the research capacity development process, namely: research question harmonisation, concept clarification, developmental editing and open research approaches (incorporating open data).

Key insights gained in conducting research capacity development activities amongst participating researchers have led the UCT Network Hub to recommend a research capacity development model which has a cohesive trajectory from conceptualisation to conducting research and, ultimately, publishing and profiling the findings of that work.

## Acronyms and abbreviations

IDRC	International Development Research Centre
OER	open educational resources
PI	Principal Investigator
ROER4D	Research on Open Educational Resources for Development

## Introduction

This chapter focuses on the research capacity development activities undertaken in the Research on Open Educational Resources for Development (ROER4D) project. Research capacity development was undertaken to provide sub-project researchers as well as the University of Cape Town (UCT) Network Hub with the research tools and analytical concepts required to produce a coherent body of empirical knowledge on open educational resources (OER) in the Global South. It was also a crucial mechanism in strengthening the conceptual clarity and cohesion required to undertake a meta-synthesis of sub-project research reports and the chapters which comprised the edited volume, *Adoption and Impact of OER in the Global South*.

Given the fact that the project engaged more than 100 researchers from diverse linguistic and academic backgrounds, the project funders (the Canadian International Development Research Centre [IDRC]) and the UCT Network Hub felt that a formal research capacity development initiative was necessary to ensure the highest possible research standards across the network. The aim was to improve research quality where necessary, enhance intra-network collaboration and bring some level of uniformity to the presentation of research findings in project outputs.

As the first project of its kind to explore OER activity across multiple continents in the Global South, the project felt a special obligation to set a high standard by collecting the most accurate and useful research data possible so that educators, students and policy-makers could learn from findings and utilise them as starting points for future OER research and implementation activity in the region.

The research capacity development endeavour was therefore seen as crucial in terms of addressing three of the key project objectives, namely: building an empirical knowledge base on the use and impact of OER focusing in education; developing the research capacity of OER researchers; and building a network of OER scholars.

The project employed the term “research capacity development” rather than the traditional “research capacity building” phrasing, as the latter implies a situation in which researchers with limited proficiency need to be upskilled or guided in order to participate in a research process. The ROER4D “development” approach operated on the assumption that all researchers, irrespective of their professional standing or ability, require some support in the development and packaging of their research for global distribution – particularly when English is a second or third language for the researchers involved. The additional imperative around conceptual cohesion for meta-synthesis purposes was also a factor in conceiving of this as a “development” process, in that cohesion was constructed collaboratively over time in mentorship and editorial interventions on the part of the Principal Investigator (PI), Deputy PI and the Publishing and Curation Manager.

The PI and Deputy PI, supported by the UCT Network Hub, therefore undertook in a multi-phased research capacity development effort with sub-project researchers focussed on:

1. Research question harmonisation
2. Concept clarification
3. Developmental editing
4. Open research practices (incorporating open data)

The open research aspect of the research capacity development process evolved in the course of project activity and was incorporated based on the belief that open practices are

an important aspect of researchers' professional development which can boost the quality and visibility of research outputs as well as extend the reach and (hopefully) impact of research. The latter imperative is directly related to building a network of OER scholars and promoting a Southern voice.

## Research question harmonisation

Initial ROER4D research capacity development efforts were focused on ensuring that the project learned as much as possible from other OER research projects (including the many that have been carried out in the Global North), particularly as relates to the survey and interview questions employed to obtain data. As many of the sub-project strategies included plans for similar data-collecion activities, the UCT Network Hub wanted to ensure that insights from previous projects were leveraged while ensuring that the ROER4D research agenda remained meaningful in Southern contexts.

To do this, members of the UCT Network Hub led by the project PI embarked on a research question harmonisation (QH) process with the goal of:

- Enhancing the research capacity of ROER4D researchers.
- Harmonising research questions as far as possible across sub-projects and with those of other OER studies.
- Improving the quality and comparability of the data generated in ROER4D sub-projects.
- Providing a model of best practice for other projects engaged in research for development.

The question harmonisation process consisted of a series of 12 activities aimed at gradually achieving these goals.

### Step 1: Identify relevant OER surveys

The PI consulted nine major OER surveys<sup>1</sup> identified by Leigh-Ann Perryman as being worthy of exploration (such as those from the United Nations Educational, Scientific and Cultural Organization; Commonwealth of Learning; JISC; Open Education Quality Initiative and OER Asia). The ROER4D Project Manager transferred the questions from these surveys to an integrated Google spreadsheet<sup>2</sup> for comparison and analysis. To complement these, the ROER4D Research Capacity Development Officer (a member of the UCT Network Hub) also consulted a number of other smaller surveys dealing with particular elements concerning OER – such as, awareness of OER, attitude towards OER, etc. – that were available through the OER Knowledge Cloud.<sup>3</sup> The questions from these surveys were then harvested and added to a master list<sup>4</sup> of survey questions for further deliberation at a project workshop.

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1 <https://artofoer.wordpress.com/2013/06/19/somewhere-something-incredible-is-waiting-to-be-known-nine-surveys-for-oer-research/>

2 <https://docs.google.com/spreadsheets/d/1BLvqy2UUNne0HZACian8yBDb7O3rQiLiJCKAnuUB2FI/edit#gid=2>

3 <https://oerknowledgecloud.org/>

4 <https://docs.google.com/document/d/1lcCGaQQ7YjmGp9-Y3riJQF2BJWds8EtwGwwQUeU7Ep8/edit>

## **Step 2: Categorise questions according to themes, highlighting those most relevant to Global South**

The PI and Research Capacity Development Officer subsequently organised the questions according to categories such as awareness, access, creation, reuse and impact. This revealed the kind of coverage the surveys provided for each theme. Draft definitions of these concepts were developed and shared with ROER4D sub-project researchers, who critiqued and commented on the ideas proffered in the “ROER4D Research Concepts” document.<sup>5</sup> Similar questions were then grouped and assessed according to their relevance for the overall ROER4D research ambitions in the Global South.

## **Step 3: Explicate the deeper research purpose and hypothesis of each question**

The PI and Research Capacity Development Officer then examined the deeper research purposes of the questions, as well as their underlying assumptions and hypotheses. For example, while a survey question may ask for some basic demographic data such as in which language an educator teaches in, the deeper research question behind that would be: Is there a relationship between educators’ linguistic contexts and their use or creation of OER? The UCT Network Hub’s assumption was that language contexts are likely to influence educators’ adoption and use of OER – primarily because so many OER materials are in English. A hypothesis posed was: Educators in the Global South feel unable to use OER, or have to translate them into their locally relevant languages before they can be used for teaching.

## **Step 4: Identify gaps in the question list and develop new ones**

With all of the survey questions sorted and categorised, the team was able to identify gaps in the question list and start developing new ones from scratch to suit the project’s needs. This meant that, while the UCT Network Hub generally sought alignment with other OER surveys, it also felt free to break new ground when required to do so.

## **Step 5: Amend questions after critical discussions**

The PI and Research Capacity Development Officer debated the merits of each question against other similar questions and against ROER4D’s own research requirements. Through this deliberative process, the team was able to gauge the potential of each question and decide which of these would have the greatest utility for sub-project surveys and interviews.

## **Step 6: Share questions with sub-project researchers**

The Research Capacity Development Officer connected with sub-project researchers and mentors on a bi-monthly basis through a virtual conferencing platform to collectively deliberate the various questions that had been prioritised. In those sessions, the rationale

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<sup>5</sup> <https://docs.google.com/document/d/1lz1kVC4CYLFJBtZNm2o5ziFJKW96SjtNjhWHfTKKkbl/edit#heading=h.zhspc9qgx3z>

and value of each question were shared and feedback was sought from the participants. These conversations were typically spirited and robust. Many of the assumptions about the questions held by the PI and Research Capacity Development Officer were challenged by the researchers, who frequently pointed out better ways to ask questions. Their contribution played an important role in ensuring that the questions remained broad enough to cater to their diverse linguistic, cultural, educational and socio-economic contexts.

### **Step 7: Edit questions in light of sub-project researchers' feedback**

Following the consultative question review sessions, the Research Capacity Development Officer processed feedback and edited the list of questions, sharing them in the working Google Doc<sup>6</sup> so that researchers could continue suggesting further edits.

### **Step 8: Provide access to each step of the process while seeking feedback to improve it**

While the PI and Research Capacity Development Officer were responsible for many formative activities (such as identifying the initial pool of questions to draw from), they tried to share their work and processes with the broader ROER4D researcher network as far as possible, typically through various Google Doc iterations. This approach allowed for greater transparency, engendering a high degree of trust in the process. In addition, in order to continually improve this experimental process, the Research Capacity Development Officer sought feedback from researchers every couple of weeks, making adjustments where necessary.

### **Step 9: Pilot the resulting survey within ROER4D researcher network**

After completing a series of question harmonisation webinars, the PI and Research Capacity Development Officer conducted a pilot survey which included all of the questions agreed upon by the broader network. Sub-project researchers as well as a number of OER stakeholders (such as the OER Research Hub) were then asked to complete the survey and provide feedback. A total of 45 of 58 invited OER experts filled out the survey and gave feedback on their experiences with regard to question formulation, scope and length. Based on this, a webinar was hosted for the ROER4D researcher network on the pilot feedback received (wherein more feedback was solicited); another session was also held on the analytical results of the pilot, facilitating further refinement of the draft survey.

### **Step 10: Invite sub-project researchers to share their draft research questions with the group**

Five ROER4D sub-projects gave webinar presentations on the research questions they were planning to use in their surveys. In some cases it was clear that there had been little engagement with or understanding of the question harmonisation process, while others embraced the methodology and included numerous questions from the pilot survey into their own instruments. A breakthrough was, however, achieved in the capacity

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6 <https://docs.google.com/document/d/1lcCGaQQ7YjmGp9-Y3riJQF2BJWds8EtwGwwQUeU7Ep8/edit>

development process as different sub-projects were now taking the lead in conducting their own discussions in the webinars rather than relying on the UCT Network Hub to lead the way. This led to increased attempts on the part of the Hub to create opportunities for the sub-projects to present their work and to provide training on aspects of the research process in which they had self-identified expertise.

### **Step 11: Broaden the scope of webinar topics and presenters**

The scope of research capacity development webinar topics was broadened in early 2015, ahead of the second group workshop in order to keep apace with sub-project progress. The following research capacity development webinars took place at this point:

- The Communications Advisor led two sessions on the project communications strategy and how to operate effectively at a conference.
- The PI led two sessions brainstorming activities for the second group workshop and deliberating impact.
- One of the sub-projects gave a presentation on qualitative data analysis.

### **Step 12: Assess the successes and failures of the question harmonisation process as researchers move from planning to the data-gathering phase**

Once all of the question harmonisation and research capacity development webinars were completed, the UCT Network Hub was able to assess the value of this phase of the process before moving on to developmental editing process. This was done with the support of the ROER4D Evaluation Advisor who interviewed sub-project researchers in order to get a sense of their perspective on the question harmonisation process and capacity development process as a whole.

Through extensive collaboration, deliberation and testing, the UCT Network Hub and the sub-project research network developed a set of OER research questions that were:

- well-harmonised with other large OER surveys;
- sensitive to and adapted for the Global South context; and
- successful at obtaining useful data on academics' creation and use of OER.

The question harmonisation process, which is elaborated and documented in the "ROER4D Question Harmonisation Process and Products" document,<sup>7</sup> enabled honing and harmonisation of core concepts, creating a better understanding of the terms used across the project. It also created a strong sense of community amongst the researchers who participated in the process, a valuable outcome given that many had expressed that they felt alone as OER researchers in their contexts. This directly addressed ROER4D's third objective, which was to build a network of OER scholars. It also increased the research capacity of many of the scholars that participated, which was the broader objective of the question harmonisation effort.

Research capacitation was, however, uneven for a variety of reasons. Some researchers were unable to attend webinars due to time conflicts; some seemed disinterested in the

<sup>7</sup> <https://docs.google.com/document/d/1WuSfBXcUeZdzgfgXXlen69d68eizZ52ue63BZkYloes/edit>

process; a few did not quite understand the point of the exercise (despite attending sessions); and some did not avail themselves of support structures outside the webinars (mentors, etc.) to shore up the knowledge or concepts to which they were exposed. In addition to this, there were technology challenges with the Adobe Connect software and some of the members' broadband connections being slow or intermittent. This often turned vibrant conversations into awkward and frustrating interactions. The question harmonisation process also took longer than anticipated, which put pressure on the broader project. There was not complete buy-in to the process by certain sub-project researchers, meaning that harmonised questions were not always integrated into their research instruments, thereby reducing the impact that the process had on ROER4D's broader meta-synthesis ambitions.

The elements of the process that worked were: having regular sessions, as the consistency of the process was crucial for creating the opportunities necessary to develop research capacity and build a sense of community amongst participants; inviting researchers to share their own work, as this allowed members to get valuable feedback and to feel "heard" by their peers; and working collaboratively and "openly" (within the project), as the transparency of the process created greater credibility and accountability, enhancing members' buy-in.

The elements of the process that did not work were: using a "voluntary" model, as this resulted in uneven attendance and interest; and initiating the process after other key issues had already been decided upon, as this meant that certain expectations appeared to be "added on" after the programme had already started rather than being incorporated from the beginning.

## Concept clarification

In the course of the question harmonisation process it became clear that the UCT Network Hub and sub-project researchers often had different understandings of a number of OER-related concepts, such as "OER use" or "OER adoption". This was understandable, given that project members came from diverse linguistic and academic backgrounds influenced by different educational discourses, and that the OER community itself is still determining how to use certain terminology in this emergent field. For the sake of the project, it was however important that there be a shared understanding of certain key concepts, at least in so far as these concepts were deployed in our analyses and outputs. With this end in mind, a collaborative "ROER4D Research Concepts"<sup>8</sup> document was established to facilitate discussion on how various OER terms would be used across the project. While the UCT Network Hub ultimately determined the final status of each term and definition for the meta-synthesis, these decisions were all informed by the contributions of sub-project researchers.

The PI set out initial draft definitions for each concept, discussing the history, provenance and different ways that a particular concept is understood in the literature. She suggested ways that the project could understand and deploy these terms, then opened the document to discussion and debate. Through this process, a number of researchers provided feedback, calling for different approaches or seeking to refine

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8 <https://docs.google.com/document/d/1lz1kVC4CYLFJBtZNm2o5ziFJKW96SjtNjhWHfTKKkbl/edit#heading=h.zhspc9qgx3z>

particular definitions. This process took place over the course of many months during the project.

Much later, when the UCT Network Hub started working with sub-project researchers to evolve research reports into the chapters that would later comprise the project's edited volume, the consultative process around conceptual clarification was closed so as to work with a stable and final set of defined concepts throughout all research outputs. This was necessary in order for the project to consistently apply concepts across the various outputs; it did, however, mean re-engagement with researchers on how certain concepts had initially been used in some sub-projects.

For a research project such as ROER4D which engaged in an emergent field of inquiry with academics from across the world, the concept clarification process was not only a valuable way to enhance researchers' rigour regarding the terminology they used, but to also ensure that the project outputs were consistent for readers. It was also a critical factor in ensuring the level of cohesion across sub-project outputs necessary to undertake a meta-synthesis of sub-project findings.

## Developmental editing

In the course of project activity, the UCT Network Hub developed an ambition to produce a peer-reviewed, edited volume comprised of chapters from each of the sub-projects. The idea was that these chapters would be based on sub-project research reports, but it soon became clear that a level of developmental editing was required in order to distill reports into chapters. This was largely due to the fact that the research reports were extensive in length (due to the fact that they summarised the entire research process in detail) and were widely variable in terms of their overall approach. There was also an important consideration in terms of the fact that certain sub-project researchers had ambitions to publish aspects of their research in multiple outputs other than the project edited volume. In this sense, the chapters were conceived as presenting a "slice" of the research process, which was formulated and presented in accordance with the approach taken in presenting the other sub-project research findings.

Researchers were therefore engaged in an editorial development process (not originally stipulated in sub-grant agreements), in order to refine and consolidate findings in conjunction with the UCT Network Hub. Considering the amount of work that researchers had already put into their research processes and report writing, most were keen to take advantage of an opportunity to publish their work in an edited volume – and to take advantage of the expertise offered to them on the part of the UCT Network Hub in refining their work for this purpose.

In a context where research outputs were expected to reflect a "Southern voice" while still conforming to mainstream (Western, English-language speaking) norms and conventions of how research is "packaged" and presented, the UCT Network Hub felt that it was valuable to engage in a process referred to as "developmental editing", which aims to improve the content and structure of a manuscript, in order to assist researchers from diverse linguistic and academic backgrounds in presenting their work to a global audience.

The ROER4D developmental editing process entailed significant time investment on the part of the UCT Network Hub and researchers in refining the argument construction, conceptual cohesion and presentation of findings. This process, which went beyond the mechanics of punctuation, grammar and spelling, had two main components:

language editing to address overall cogency and readability (a process undertaken by the Publishing and Curation Manager), and conceptual/theoretical guidance to address salience of findings and adherence to scholarly norms and conventions in the context of open education research (a process undertaken by the PI and Deputy PI).

The developmental editing process has been described as one in which an editor (or editors) takes a “helicopter” view of a piece of writing in order to provide the author with a specific sense of what’s working, what’s not, and, in some cases, come up with solutions to address shortcomings.<sup>9</sup> This idea of an “all-seeing”, guiding eye (or set of eyes) was of particular relevance in the ROER4D context, where widely disparate research initiatives, writing styles and levels of proficiency with writing in English needed to be presented as single collection of research outputs for global consumption. It was also a factor in terms of supporting authors in helping them remain true to their assertions as they navigated their way through complex research contexts and multitudes of data.

The developmental editing process required multiple rounds of editing, critiquing, clarifying, and refining. The hope was that, through successive iterations of the research report and then the chapter in a collaborative manner, researchers would benefit and learn from the personal engagement with the UCT Network Hub editors, gradually integrating new analytical and writing capacities into their skills through the process.

In all cases, the Hub’s desire was to shape the outputs into chapters that were conceptually clear, backed by solid research evidence, logically argued, written in clear academic English, situated within the broader OER literature, free of advocacy bias, attentive to limitations in the data, and realistic regarding the conclusions drawn from the research.

While the developmental editing process was time-intensive for everyone involved, it helped the UCT Network Hub achieve its desire to secure high quality, publishable research outputs, particularly as relates to the chapters which appeared in the ROER4D edited volume. It also helped a number of the researchers develop and refine their initial research reports into other publishable outputs such as journal articles and monographs. As one researcher noted, “the process, [carried out] with respect and patience, made sure that we had a coherence between the research questions and conceptual framework, the methodology and the discussion and its findings”.

In the UCT Network Hub’s estimation, the quality of sub-project research, combined with the imperative around establishing an empirical baseline of OER from the Global South, demanded that reports be evolved into chapters which could be peer reviewed and published in a book, thus adding an unforeseen (though largely positive) demand on researchers’ time. As one researcher stated, “It would have been better if the development and production of this book was conceived as an output at the start of the project, rather than later. As a result a lot of this work was sprung upon participants towards the end of the project and at very short notice.”

While the developmental editing process had clear benefits in terms of functioning as a quality assurance mechanism, most researchers stated that the process took too long. For some, the process lasted almost a year. This was a function of both the time available to the UCT Network Hub members driving the process, their high expectations regarding publication quality, the peer-review process, and the busy schedules of the researchers themselves. With 17 sub-project research reports to shape up into publishable chapters

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9 <http://www.blurb.com/blog/why-we-all-need-a-developmental-editor/>

(of which 13 were included in the book) the developmental editing process entailed a significant time investment.

In sum, the researchers agreed that they would like to engage in similar developmental editing processes in the future, though in a modified and less temporally extensive manner. As one researcher said, “The editing and feedback process was a lengthy, yet a methodical, collaborative and a helpful process.” In this sense, it was viewed by the UCT Network Hub as important and worthwhile in terms of research capacity development – particularly in terms of leveraging the investment made in the preceding question harmonisation and concept clarification processes.

## Open research approaches

In addition to the research capacity development activities discussed above, the UCT Network Hub sought to encourage and enable project researchers to conduct their research “in the open”. Within this context, the UCT Network Hub experimented with mechanisms for sharing research outputs as openly as possible as early as possible, rather than waiting to share a final product at the end of the research process. This was deemed an important aspect of the research capacity development agenda, in that open research practice is an important emerging area of proficiency for participation in global scholarly communication. It is also increasingly recognised as a useful mechanism for boosting rigour in research processes, as researchers need to ensure that work shared can stand up to public scrutiny.

Given the fact that the focus of the ROER4D project was on an area of open academic practice (i.e. OER), and that sub-project researchers were typically advocates and activists convinced of the various benefits of sharing their work, the UCT Network Hub did not have a difficult time in having to “sell” the idea of open research to its researcher network. There were, however, certain challenges in terms of implementing an open research agenda, particularly because this was amplified in the course of project activity rather than explicitly planned for from the outset.

The ROER4D open research approach was focussed on both internal and external sharing. The internal sharing of research instruments (surveys, questionnaires and consent forms) amongst sub-projects was encouraged in the question harmonisation process as a means of stimulating collaborative conversation and skills-sharing. The UCT Network Hub also took an explicitly (internal) open approach in terms of its project management strategy, making project meeting minutes, strategy documents and other useful resources openly available to the researcher network via shared online platforms with low barriers to entry in terms of skills or bandwidth requirements.

The external, public sharing of ROER4D outputs was largely mediated by the developmental editing approach. The overarching ambition to effectively profile the work of Global South OER researchers and to grow the network of OER scholars in developing countries meant that content release was tempered by the realisation that, in many cases, some level of editorial intervention was required before making content openly available online – particularly when researchers were working in a second or third home language.

In practical terms, this meant distinguishing between full public openness and a more partial form of strategic openness (such as sharing research artefacts between project members for the sake of feedback in a “safe” space). While the UCT Network Hub pushed for as much research to be made as open as possible, there were

numerous situations in which it was preferable for it to be closed (for ethical, privacy and confidentiality reasons, for instance) or only shared amongst project members (to test ideas without facing full public scrutiny). The default desire for openness did, however, prompt researchers to engage in frank discussions about the decisions they were making regarding the openness of their work. For many, this was the first time they would have done so during the research process, as such discussions usually only came once a final output was available.

The desire for a more open research process was not simply to fulfill an ethical commitment to openness, but to leverage the quality-enhancing properties of open exposure. That is, when researchers knew that they would be expected to share most parts of their research process openly, they treated those elements with greater rigour. Researchers felt more pressure to ensure that every aspect of their work process was of the highest quality, given the increased exposure they faced. This was an optional activity for researchers, and some did not avail themselves of the opportunity to share their work throughout the entire research process, but those who did felt that there was a benefit experienced in terms of ethical alignment, quality enhancement, curation and visibility of their research.

The ROER4D open data initiative was developed in line with the project's open research ambitions and the imperative to produce a wide range of openly available resources that could be accessed, reused and redistributed by an audience of researchers, educators, policy-makers, and anybody else with an interest in open education. The project curation and dissemination team undertook data management planning and publication of open datasets in consultation with and on behalf of sub-project researchers, most of whom were unfamiliar with the conventions associated with open data practice and had severe limitations in terms of the time required to prepare microdata for public release.

Given the fact that project sub-agreements stipulated that no data could be transferred without a first level of primary de-identification in which any names or other immediately obvious identifiers were present, researchers who wished to participate in the open data initiative were required to undertake this first level of de-identification before transferring their data to the curation and dissemination team. This first, relatively simple, step served as a means to draw researchers into the process of preparing data for publication – and drew their attention to a number of inconsistencies and, in some cases, even errors in their data.

Once data was transferred, the curation and dissemination team worked with researchers to demonstrate the steps entailed in deeper de-identification and the preparation processes required for data publishing. Researchers availed themselves to respond to queries related to the formulation and structuring of datasets, and contributed to the process of generating accompanying documentation and metadata. Within this context, they operated as participant-observers in the data publishing process, which was demystified and made more accessible.

In some cases, it appeared as though researchers had adopted a “quick and dirty” approach to how they had coded and worked with their data because this was adequate for their immediate analytical needs. The process of preparing data for interpretation and use by a third party required that authors engage more deeply with their data, even if the bulk of this work was undertaken by a support structure such as the curation and dissemination team. In this sense, it was obvious to the UCT Network Hub that engaging researchers in open data publishing activity promoted greater rigour in the research process.

There were instances where researchers wished to participate in the open data initiative, but could not do so due to the fact that they did not have the requisite permissions or ethics requirements in place. In one case, the curation and dissemination team could work with the researcher to remedy the situation retrospectively, but in other cases data publication was stymied by wording in consent forms or other legacy factors reflecting a lack of planning for openness from the outset of the research process. While this was frustrating to the researchers involved, these disappointments constituted important moments of realisation and research capacity development, prompting researchers to express that they “would not make the same mistake next time”.

The ROER4D open research approach was generally treated as a learning process – on the part of researchers as well as the UCT Network Hub. The value came from participation in a learning process where the point was to test the limits of openness in a reflexive manner, seeking to negotiate it as a concept, an ethic and a practice. It is the UCT Network Hub’s opinion that this process increased the quality of the research produced within the project, alerting researchers to both the complexities and the simple steps which can be undertaken in order to increase self-confidence in one’s work and attain greater traction from findings.

## Conclusion

The ROER4D project recognised from the outset that it would benefit from a research capacity development initiative, not only to strengthen participants’ research capacity, but also to ensure that researchers from diverse linguistic and research backgrounds would be able to contribute to the goal of creating publishable work of an international standard, which is germane to the development agenda and reaching key intended audiences. Since many sub-project researchers were operating in the development context, and therefore based in non-governmental or community-based organisations, they often had differing objectives than their academic counterparts in terms of research outcomes and differing conventions around how research is conducted and presented.

Most ROER4D researchers were, however, willing to invest additional time when they saw the results in terms of boosting their research rigour and upskilling themselves. They enjoyed strengthening their connections to other members of the project through the collective research capacity development activities. They also appreciated the opportunity to experiment with conducting research “in the open”, endeavouring to walk the talk of openness when it came to their own research practices.

For research leaders involved in large-scale research projects, a formal research capacity development process can be valuable in terms of enhancing the quality of outputs produced, engendering a greater sense of community amongst researchers, improving conceptual consistency across the project and, especially in the medium-to-long-term, increasing the research skills and capacity of the project participants. This is a significant and worthy series of outcomes. It does, however, come at a cost in terms of time and resourcing. The UCT Network Hub recognised this cost as a valuable investment, the benefits of which could be felt in the current project as well as in researchers’ participation in future research initiatives.

ROER4D recommends that there be a more explicit acknowledgement of the relationship that preparing publishable expressions of a research process has with research capacity development. This is crucial in a context where research outputs are expected to reflect

and make more prominent a “Southern voice” which can match, compete with or dispute a Northern perspective, and would therefore have certain implicit requirements around conforming to mainstream (Western, English-language speaking) norms and conventions of how research is packaged and presented.

Based on the lessons learned in conducting research capacity development activities amongst participating researchers, the UCT Network Hub recommends a research capacity development model which has a cohesive trajectory from conceptualisation to conducting research and, ultimately, publishing and profiling the findings of that work.

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