TRANSDISCIPLINARY RESEARCH

EXPLORATORY TRAINING WORKSHOP

FOR POSTGRADUATE SCHOLARS | 10-11 MAY 2016

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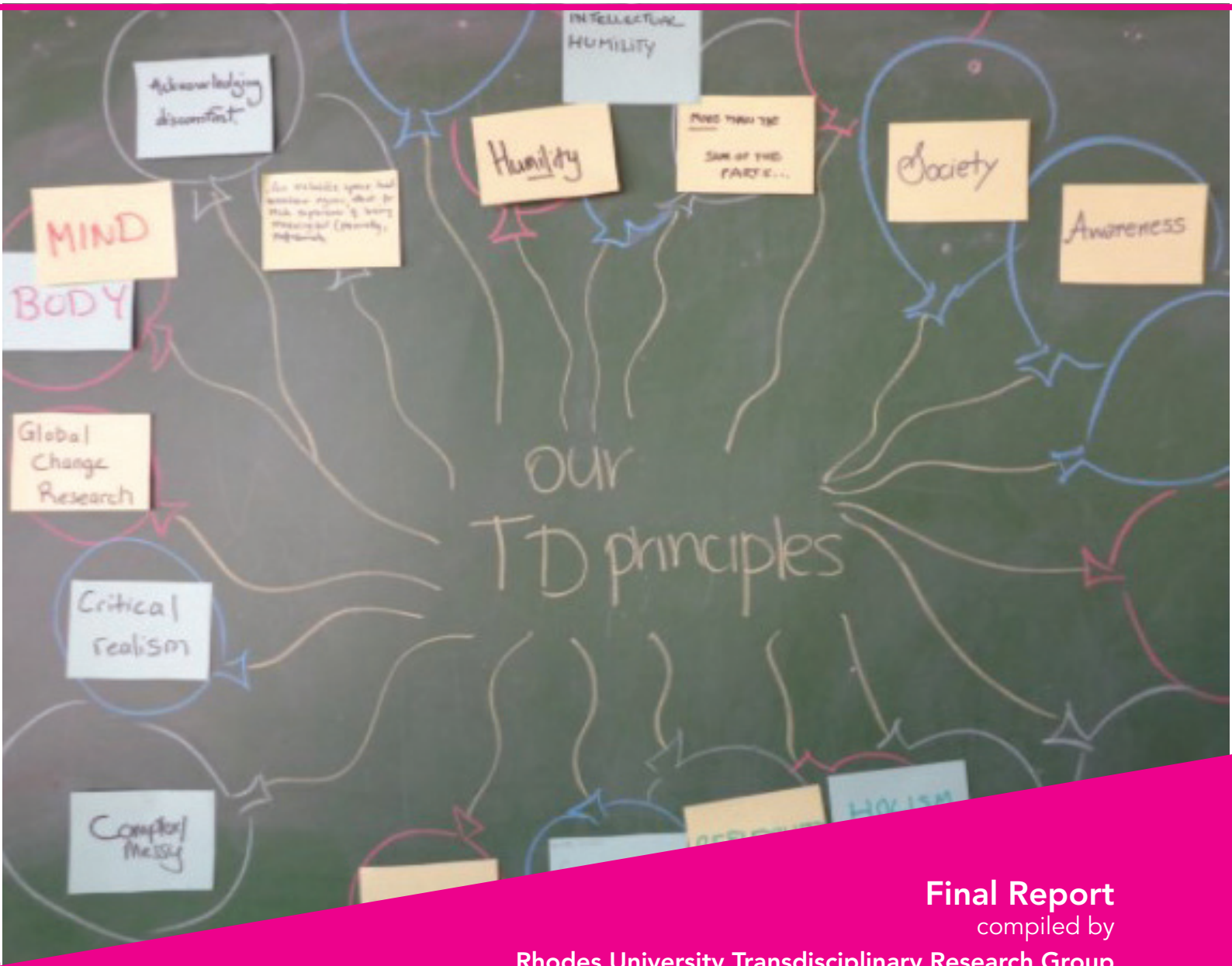

Final Report
compiled by
Rhodes University Transdisciplinary Research Group
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EXECUTIVE SUMMARY

The aim of this report is to give an account of what ensued in the two-day workshop that was organised and hosted by the RU TD group on the 10 – 11 May 2016. The main aim of the workshop, as the title suggests, was to introduce the concept of transdisciplinarity (TD) to Rhodes University Postgraduate students. The RU TD group has identified that at present, there is limited course-based exposure to transdisciplinary research practice at Rhodes University, particularly at the Postgraduate level. Therefore, when an opportunity to apply for a grant to run a workshop on TD from the Centre for Postgraduate Studies was presented, the group did not hesitate to apply. It was envisaged that through the workshop, TD practice may develop as a common thread across innovative Postgraduate research practice at Rhodes University. The establishment of the RU TD group in 2011 was motivated by the growing need to conduct research that addresses the global challenges that humanity is facing and the recognition that these cannot be addressed by monodisciplinary approaches.

Transdisciplinarity embraces complexity and is considered to be a possible way of making science and other research areas more relevant to the 'life world'. Transdisciplinary research is described as research that addresses the knowledge demand for societal concerns. However, the path towards TD research is not necessarily smooth and finding an institution and a group of researchers to share this experience with, is key for the development of a sound TD approach. Hence running a workshop of this nature was deemed important in order for participants to gain an understanding of 'what', 'why', 'how' and 'when' to use a TD research approach. Students from the science faculty were actively invited, as the initial focus on complexity theory was deemed to be more accessible to science students. In addition, a poster advertising the workshop was pasted around Rhodes University. The selection was on a first come, first serve basis and 56 people responded to the invitation; however, only 35 participants could be accommodated. The workshop participants came from diverse disciplinary backgrounds including: Chemistry, Fine Arts, Botany, Biotechnology, Geography, Environmental Science, Music, Journalism and SAIAB (South African Institute for Aquatic Biodiversity).

As per the terms of the grant, Prof Mathieu Rouget was invited as an external reviewer to evaluate the workshop process. The workshop was designed to be interactive and engaging and had a balance of lectures, group interactions, role play, theatre play, discussions, reflection time and embodied exercises. It was divided into sessions which were facilitated by the RU TD group members. The sessions were as follows: (1) Why TD?; (2) Methodologies and Methods in TD research; (3A) Ethical issues in TD research; (3B) Using case studies in TD research; (4) Working in teams – Practically navigating TD spaces. Each day of the workshop was closed with a reflection session and on day two this was given more time as it included embodied exercise, feedback from the invited external reviewer and evaluation surveys. Feedback provided by Prof Mathieu Rouget, coupled with the written reflections from the participant was invaluable to the RU TD group. In light of what the workshop set out to do it can be concluded that it was a great initiative and has managed to introduce and spark interest in TD and what it stands for, although there is room for improvement. Participants, as well as the invited external reviewer, have given the repetition of the workshop their vote of confidence and gave valuable suggestions of how some areas of the workshop could be improved or done differently.

1. Introduction

The challenges of the world today, from freshwater to terrorism, are complex and therefore go beyond disciplinary boundaries. To address them through a single disciplinary lens is to simplify their essence, reaching limited understandings with limited solutions. This then denotes that an approach such as transdisciplinarity, which crosses disciplines and allows engagement with stakeholders from society, is necessary. Transdisciplinarity (TD) has been receiving increased attention over the past two decades due to the fact that it embraces complexity and opens the door for intricate analysis. Hirsch Hadorn *et al*. (2006) describe transdisciplinary research as research that 'addresses the knowledge demands for societal concerns.' Some researchers have suggested that research for sustainable development often calls for a transdisciplinary approach (Gallati and Wiesmann, 2011; Scholze *et al*., 2006). Hirsch Hadorn *et al*. (2007) further state that inter-disciplinary and transdisciplinary research and practice are seen as a possible way to make science more relevant to the 'life world'. TD has two main aspects which include (i) interaction between science and society and (ii) interdisciplinarity which is the interaction between disciplines in most natural and social sciences. These two aspects need to be interlinked in order for TD to occur (Brutschin and Wiesmann, 2002).

TD has two main aspects which include: (i) interaction between science and society and (ii) interdisciplinarity which is the interaction between disciplines in most natural and social sciences. These two aspects need to be interlinked in order for TD to occur (Brutschin and Wiesmann, 2002).

The path towards TD research is not necessarily smooth and finding an institution and a group of researchers to share this experience with is key for the development of a sound TD approach. The Rhodes University Transdisciplinary Group is a good illustrative example of such an environment.

1.2 RU TD Group

The Rhodes University Transdisciplinary Research (RU TD) group started in 2011, but its roots go back to the 1990s and the challenges of the new Democratic South Africa. The review of all national water legislation triggered a transdisciplinary process that culminated in the National Water Act (1998). From then on, an international and diverse journey has brought back to Rhodes one of the leaders of the group, Prof Tally Palmer, who established the RU TD group in 2011.

To date, the group has focussed on problems related to the interface between society and the natural bio-physical environment, within the conceptual framing of complex social-ecological systems. The research methodology adopted takes an explicitly transdisciplinary orientation (Max-Neef, 2005), where the widest range of conceptual framings, knowledge sources, and methodologies have a place. The group draws on the laminated, hierarchical view of transdisciplinarity as theorised by Max-Neef (2005), on critical realism (Bhaskar, 2010) and on integral theory (Wilber, 2000) .

Since the inception of the RU TD group, two doctoral and six masters students have graduated, two masters' theses have been submitted, and there are currently two doctoral and three masters students enrolled. Some of the departments within Rhodes University that have been involved in the RU TD group include the Institute of Water Research (IWR), the Environmental Learning Research Centre (ELRC), and the Department of Environmental Science. One external examiner was appreciative of the "exemplary transdisciplinary scholarship". It is from the experiences of these academics and students that we base our research and teaching contribution.

The RU TD group has been meeting for two hours per month since 2011. The aim has been to support Postgraduate students undertaking their thesis research in the context of explicitly transdisciplinary research programmes that aim to address the evident and complex challenges of contemporary times. The meetings provide a space for discussion with the end goal of strengthening TD practice and the TD network at Rhodes University. Part of each meeting is chaired by a specific researcher (both staff

and student researchers), who either presents a project or facilitates a discussion on a particular theme.

The goals of the meetings are, amongst others:

- To facilitate a network between researchers working on social-ecological systems (predominantly relating to water);
- To introduce new research members to the group;
- To manage current projects.

The meetings bring together people from different backgrounds who are not necessarily used to TD research. Interactions with people from other disciplines and the nature of TD research can be challenging, and sometimes uncomfortable. To facilitate the interaction, the group adopted guidelines for engagement, brought to the group by Tally Palmer from her experience in Australia (Box 1).

Box 1

RU TD Group Adopted Shared Guidelines for Engagement:

- *Tolerate discomfort and unresolved tensions as they are often a gateway to a new level of knowledge, understanding, and trust.*
- *Be sensitive to "aha" moments (insights): they emerge out of irritation as often as from consonance.*
- *Engage with balanced generosity: enquiring, listening and sharing. Managing contribution and constraint is closely linked to listening.*
- *Practice tolerance and trust – exploring the nature of conflict before making judgements.*
- *Be sensitive to "arrivals" physical and meta-physical - ideas, opportunities and people "arrive".*
- *Create and use reflective opportunities.*
- *Manage discontinuities (e.g. time intervals, purpose, discipline focus, team composition).*
- *Sustain enquiry – engage in the concrete question, sustain reading, discourse and attention.*
- *Remember everyone involved in the research is a multi-faceted person, with the potential to engage with their whole self and many ways of knowing."*

(Palmer *et al.*, 2015)

2. WORKSHOP

2.1 Workshop Rationale

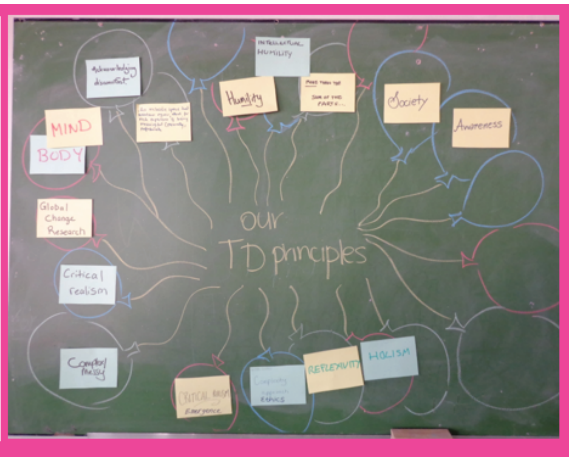
The global challenges currently facing humanity cannot be addressed with conventional monodisciplinary approaches alone. We urgently need imaginative and courageous efforts to transform the academic enterprise so as to equip students to be at the forefront of addressing intractable problems.

At present there is limited course-based exposure to transdisciplinary research practice at Rhodes University, particularly at post-grad level. This is the first time that the RU TD group has organised a workshop and this was a great opportunity for Postgraduate students and supervisors at Rhodes University to immerse themselves in TD. The workshop offered clear guidance in, and shared experiences of, transdisciplinary research and practice, presented in the context of complex systems.

The global challenges currently facing humanity cannot be addressed with conventional monodisciplinary approaches alone. We urgently need imaginative and courageous efforts to transform the academic enterprise so as to equip students to be at the forefront of addressing intractable problems.

The TD Workshop embodied 'TD principles in practice'

The intention was to "Walk the Talk" of TD in the way in which the workshop was designed and presented. For example, the role play helped students to understand the real-life TD situations one might get into; the group discussions are useful tools you could use in a stakeholder meeting; the embodied techniques recognise different ways of knowing and being; giving everyone a voice by expressing their reflections individually allowed for diverse perspectives to be shared; and using cards and visual tools to share ideas was a more interactive way of engaging in the group. These are all tools which were used in the TD workshop which facilitators and participants could themselves use in their own TD work.



One of the objectives of the workshop was to explore the current barriers to, and difficulties with, TD research – especially at the Postgraduate level – exploring language and conceptual barriers between disciplines, institutional barriers, and the questions of scope and risk in undertaking TD research. The workshop was open to Postgraduate students, and supervisors, across all faculties. We actively invited students from the science faculty, as the initial focus on Complexity Theory was deemed to be more accessible to science students. In addition, a poster advertising the workshop was posted around Rhodes University. In this way we hope that TD practice may develop as a common thread across innovative Postgraduate research practice at Rhodes University. The selection was on a first come first serve basis and 56 people responded to the invitation. However, only 35 participants could be accepted to attend the workshop. The workshop participants came from diverse disciplinary backgrounds including: Chemistry, Fine Arts, Botany, Biotechnology, Geography, Environmental Science, Music, Journalism and SAIAB (South African Institute for Aquatic Biodiversity), as well as outside Rhodes University.

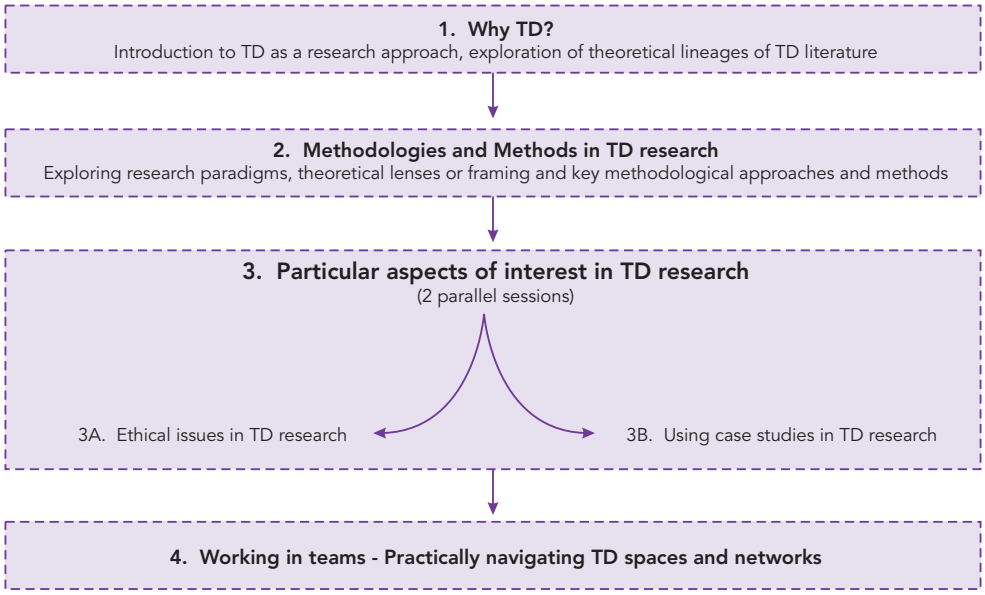
2.2 Workshop Structure

The workshop consisted of a range of approaches which were intended to make it interactive and engaging. The approaches included lectures or presentations, group interactions, role play, theatre play, discussions, reflection time and embodied exercises. There were four sessions which were facilitated by the different members of the RU TD group.

Day 1: the morning session was 'Why TD?' which comprised embodied exercises, writing expectations on a tree, theatre play and group discussions. This was followed after lunch by the 'Methodologies and Methods in TD research' session which was run through Power Point presentations and group discussions.

Day 2: a few minutes were spent doing a follow up on the expectations people wrote on the tree. This was followed by a parallel session on particular aspects of TD research: A. 'Ethical issues in TD research' which was presented using Power Point and interactive and group discussions; B. Using case studies in TD research which had a short lecture, resource tables and group discussions. After lunch the 'Working in teams – Practically navigating TD spaces' followed and this employed role play. Each day of the workshop was closed with a reflection session and on day 2 this was given more time as it included embodied exercise, feedback from the invited external reviewer and evaluation surveys.

2.3 Outline of the Sessions



The next section describes the detailed outline and content of each of the sessions individually, and provides reflections from the facilitators' perspectives on how the session was run i.e. 'What worked?' and 'What didn't work?' and what they learnt from the experience.

SESSION 1: WHY TD?

Athina Copteros, Jess Cockburn, Helen Fox and Jane Burt

Motivation

This first session was an introduction to the underlying principles of TD as an approach to research. The session was structured in an experimental way to allow the participants and the facilitators to grapple with the questions around the role played by researchers in society and the role of science in society. One of the objectives of this session was the exploration of how knowledge is produced, by whom and for what purpose. The aim was to introduce the workshop in such a way that it would become a platform for dialogue around these important issues and as a way of participants exploring their own motivations for choosing TD as a research approach. It was expected that by the end of the session the workshop participants would have learnt the following as outlined below.

Proposed learning outcomes

1. Overview of the landscape and lineages of TD theory, explore diverse approaches to TD and develop a set of principles that fit the context of each study.
2. Critical reflection of own research landscape and relevance of TD therein.
3. Development and alignment of own TD principles and theoretical position with theoretical TD landscape.
4. To learn in a fun and light hearted manner and connect with others.

A further outcome was to build competency within the RU TD group and broader network.

Approach and Outcomes

This session was planned mostly around the development of the document of TD lineages (namely: Complexity Theory, Critical Realism and Global Change discourse) that maps out the TD landscape. Since this was the first session there was an awareness and need to welcome people into the space;

so setting the tone of the whole workshop was vital in terms of ways of working, creating connections amongst group members and setting up questions and principles that could be referred to throughout.

Theme 1: Exploration of the embodied experiential practice as a tool to welcome people in the TD space

> Three TD Lineages (namely: Complexity Theory, Critical Realism and Global Change discourse) map out the TD landscape.

The session was started off with a circle outdoors, where each participant shared a movement and a word representing how they felt in that moment and that was then copied by everyone in the group. Everyone who was willing to participate got a chance to share as this went around the circle. The participants came from diverse spaces in the university and represented a range of disciplines. This then motivated the second round where each participant was asked to say what their discipline is and the person next to them was required to embody something about the discipline that was then also copied by the whole group. This part of the first session gave the facilitators a good sense in a fun way of who was in the 'room' and where they were coming from. It also created the starting point for the group experience that was then ended in the same way at the conclusion of the second day of the workshop.

As people walked back into the room, they were asked to write on a card one thing they wanted to learn about TD during the workshop. Each person then stood up and spoke out their question or what they wanted to learn and then pasted it on the tree that had been drawn on the black board. This was a good way for each participant's voice to again be heard in the session as they stated essentially their reason for being there. These statements were referred to at the start of the second day when people were asked to reflect on the day before, paste their reflection next to their initial card and say whether their need had been met (Figure 1).

Figure 1: The tree showing what people wanted to learn from the TD workshop

Theme 2: Exploring the three different TD lineages (Complex Theory, Global Change discourse and Critical Realism)

The second part of this session was a theatre piece about the different TD lineages. This involved music, props, costumes, cards and a script that had three scenes:

Scene 1

The first scene opened with two scientists from contrasting backgrounds (one was a social and the other a natural scientist). The scene emphasised their opposing philosophical views about reality and how knowledge is generated and ended in conflict regarding their seemingly irreconcilable differences.

Scene 2

The second scene was a humorous and light hearted advert that introduced the concept of TD and how this was the answer to solving the previous scientists' differences. The three different lineages of Complexity Theory, Global Change discourse and Critical Realism were mentioned and that a tour was on offer to learn more about each of these.

Scene 3

The third scene focused on this tour. It involved a question and answer session between a student and an expert to help unpack the key characteristics of each lineage. The audience (including participants and facilitators) were also invited to ask questions.

Through the question and answer session, which was infused in the theatre piece about the different TD lineages, interesting areas such as the recent protests were opened up. This was then followed up in different ways throughout the workshop and opened up the relevance of a TD approach in terms of engagement, sharing of power and empathic listening.

Theme 3: What does it mean to do science for society?

After tea participants were asked, in their groups, to consider what it means to do science for society, which lineage do they most resonate with, and what would they draw on for their own research. Based on their discussion each group had to present two principles of TD that they related to. Some notes on what people shared about the TD principles and what these meant for them are listed in Box 2.

Facilitators' Session Reflections

What worked?

Team work: For the 'Why TD?' session, the facilitators felt that their team worked well together. Despite stresses and pressures they could still commit to making the session work. Also, the team managed to establish a common ground from the beginning which set the tone for how they engaged and connected.

> *"…in our smaller group for the first session, we found common ground…. I found that we accommodated each other; found time to connect beyond the work"*
>
> *"I thoroughly enjoyed being part of this session (Why TD), particularly because of the energy, creativity and motivation of members of our small team."*
>
> *"I really enjoyed working in the smaller 'Why TD group' – it seemed like a safe space to innovate and be brave, and we pushed but also supported each other."*
>
> *"I enjoyed working with the group and learning from them."*

Box 2

TD Principles shared by the participants:

- *Critical realism is useful to guide TD as it makes us realize that reality is layered*
- *Global change science is a practical approach to TD and helps you start where you are at*
- *Body as a principle to guide TD: The different organs are working together, the whole is greater than the sum of the parts*
- *Mind is part of the body but helps to co-ordinate the functions of the body*
- *More inclusive space and listening rigorously*
- *Doing research WITH society*
- *Acknowledging discomfort e.g. complex problems make you feel overwhelmed, can lead to a sense of failure to make a bigger impact. But you need to be patient – things don't always happen overnight. Working with people is an on-going process - we need support to cope with the discomfort. In academia we are not rewarded for touching lives and changing things on the ground – incentives are not aligned with this; however, doing research that is meaningful is rewarding nonetheless*
- *Personal conflict: what does it mean, personally, to do good science – need to let go of control. We need humility – letting go of the ego*
- *Complexity: acknowledging how much you don't know and embracing uncertainty – links to humility*
- *Intellectual humility: already working with TD – recognising the limitations of your disciplines – can't contain the truth or world in one space. We can't just constantly create new paradigms and then fit ourselves into them*
- *Holism: the whole is more than the sum of its parts – we need to work together to build something new. But the system [academia] doesn't reward this. Holism brings about some richness – enjoy it. There is something hard about efficiency – it's constraining*
- *Emergence: non-linear, unpredictable interactions between parts of the system and between disciplines. Tensions are difficult to understand. Our knowledge is emergent, at multiple levels, so we experience emergence with intellectual fear and trembling*
- *Ethics: with multiple uncertainties, we don't know what these always are, and this has ethical implications. TD is about engaging in an ethical science*
- *What is a scientist? What is a discipline?: We have assumed a lot of things, need a more open TD approach; need to allow for fluidity and not let disciplines bog us down. Language can be limiting in this sense*
- *TD is not an excuse for an intellectual free for all*
- *TD is an opportunity to be a global change activist - why must we be assessed on research rather than bringing about change?*
- *Idea of balance: Comfort vs. discomfort, specialist vs. generalist: there are many roles, disciplines, knowledge. In your life, this is an opportunity to grow personally, navigating balance, ambiguity. Thinking about who am I? Changing inside and out there*
- *Where has academia and science come from historically? This can help us understand why things are the way they are now*
- *Intersectionality between principles: Society – trying to interrogate our role in society, what knowledge systems – see it as a horizontal place*
- *Awareness: of self, work, society, complexity: being aware, reflexive, interrogating each step of the way*
- *Our unconscious: spaces where we connect without thinking e.g. while we are swimming*
- *Scientists are afraid of failure, we don't question when our methodologies fail, and we worry when our experiments fail. BUT: If you prove your hypothesis wrong, isn't that doing science? Grappling with the issue of needing results…but have we understood the problem sufficiently? We need more openness to accidents e.g. penicillin was discovered by accident. We need to be flexible: no result is still a result*
- *Reflexivity: Reflect on why we are doing things, what we're doing: what is an academic? We only recognize people who are publishing – we need to use TD to incorporate ordinary people, they also have some information and knowledge to share.*

Session: Two of the session facilitators were pleased by how the session unfolded and what emerged from it stating…

> *"I loved the principles that emerged during our session and felt that throughout the sessions, we not only focused on the theoretical base but also on the moral and ethical, which for me is what TD deeply questions."*
>
> *"I was also pleased with how our session unfolded…"*

One of the elements of the session that was a highlight was the embodied practice:

> *"It was good to share some of my embodied practices with fellow colleagues. I hope this changed potential misunderstandings and fear of change when someone does things a bit differently."*
>
> *"I enjoyed the willingness to engage in out of the box thinking and how the essential embodied experience of knowing was a key focus."*
>
> *"I really enjoyed the embodying activities we did and feel that we, as TD practitioners, need to lead the way in new ways of learning and knowing."*

What didn't work well and how would you do it differently?

Session: Most of what the session facilitators felt did not work well was the sketch (theatre piece) on the different TD lineages which was intended as a tool to share knowledge in a more fun way. There was a feeling that the content was dense and needed to be more simplified in the future considering the time allocated to the session…

> *"I think the content in the "TD Lineages tour" skit/play was a bit dense….?"*
>
> *"Although entertaining, the knowledge contained in the theatre piece wasn't fully accessible to people."*

If the session were to be run again in future, time and provision of material about the TD lineages in advance should be considered to allow the knowledge being shared to sink in:

> *"…we needed more time for the heavy material of the TD lineages to sink in and for people to think about how it relates to their project – e.g. if they had read the paper beforehand, then maybe they would have been better prepared."*
>
> *"It could be useful to complement such a skit with a more conventional space of transferring knowledge about the different TD lineages. This doesn't necessarily have to be long, but could provide a simple description of the key characteristics of each lineage as well as clear pointers for further learning…"*

In addition, the session could have done with a short introduction of 'What is TD?'…

> *"A description of 'What is TD?' should immediately precede or follow our session."*
>
> *"I think we should have had a few nuggets of 'What is TD?' for the participants to hold on to"*

Overall Learning

During the preparation and facilitation of the 'Why TD?' session, the session facilitators learnt more about the different TD lineages and were inspired by the embodied practices which challenged them to be more aware of the linkages between mind, body and heart. Another area that provided great learning for the facilitators was linked to the principles that emerged from the feedback given by the workshop participants in Theme 3 (Box 2).

Many participants showed appreciation for the diversity of the workshop programme

The workshop was designed to be interactive and engaging and had a balance of lectures, group interactions, role play, theatre play, discussions, reflection time and embodied exercises. Many of the facilitators and participants commented on this aspect of the workshop:

"I appreciated and enjoyed the different styles of the facilitated sessions (theatre, role playing, group discussions, lectures and body) and felt that my facilitation competence developed."

What did you enjoy about the workshop? The diversity of experiences"

"We had a good balance of fun stuff and the more serious academic stuff."

SESSION 2: METHODOLOGIES AND METHODS IN TD RESEARCH

Sheona Shackeleton, Alta de Vos, Nelson Odume

Motivation

The nature of TD research implies that it is impossible to find the 'ideal' methods, or suites of methods. Therefore, careful selection of methods, their justification as well as the framing of the research become important aspects of TD research. The aim of this session was to explore different research paradigms, theoretical lenses or framing, and key methodological approaches and methods for TD research (Figure 2) with a specific focus on Theme 3: methodological approach, key methods & tools - given that Theme 1 and 2 were covered to some extent in Session 1.

The session employed a range of different approaches, including group discussions, case study exploration, and a series of lectures. These are described together with objectives and outcomes for each theme below.

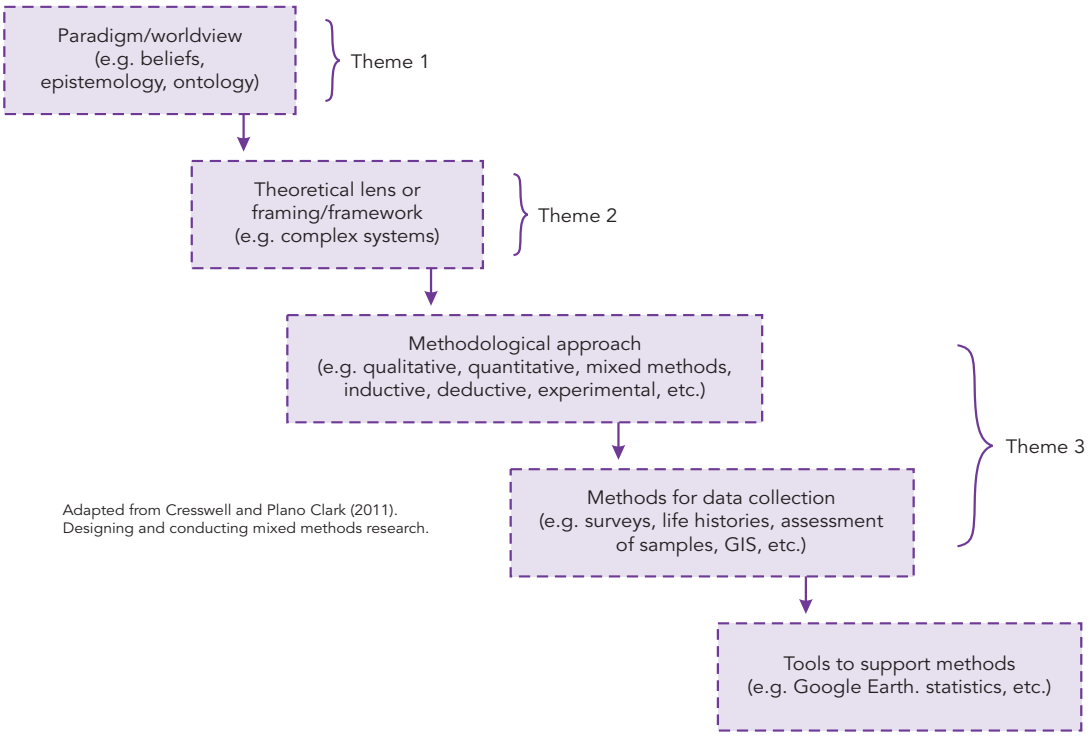


Figure 2: Structure of Session 2 is based on the diagram above, adapted from Cresswell and Plano Clark (2011)

Objectives

The objectives of the session were to provide some basic foundational training in the underlying conceptual thinking for the production of knowledge that is necessary for addressing complex, coupled human-environmental problems. The aim was to develop an understanding of the underlying assumptions of knowledge production, and provide the basis for answering the questions of 'how can I know the world?' and 'what is the world (reality) I can know?' as well as 'what methods can I use to know this world?' This can help researchers position themselves and those they work with within a range of paradigms. The focus was on the assumptions of each approach which are often left implicit. This was deemed a pre-requisite for any attempt to work in an interdisciplinary or transdisciplinary manner and where there are policy and practical implications of the research.

Proposed learning outcomes

To appreciate new ways of thinking and doing and be able to argue that a range of ways of knowledge production is required to address the complex coupled human-environmental problems and to plot sustainable pathways into the future.

1. To be able to position one's self in relation to those with whom they work in research and practice in order to deepen transdisciplinary collaboration, and respect and value alternative positions (forms of knowledge development, approaches, framings and values).
2. To learn the theory and application of mixed methods research.
3. To gain an understanding of the levels where integration of methods is most readily achieved.
4. To gain an understanding of how mixed methods relate to the researcher's own research and the implications of this for their studies.

Approach

This session began with a clarification of the different terminologies including the basic differences between tools, techniques, methods, methodologies, frameworks and conceptual framing, as well as paradigms. These clarifications were important as they enable clear thinking about the task at hand. Participants asked questions regarding the difference between paradigms and conceptual framing.

A case study paper (Sharpe et al., 2011) was emailed to the participants before the workshop to allow for pre-reading; time was also allocated to the participants to read the case study paper before discussion in small groups. The case study paper explored how different paradigms and their related methods can contribute constructively towards understanding and solving some of our complex problems. The two paradigms were positivism and post-positivism. The most important outcome from the reading of the paper was that it enabled participants to think more carefully about how distinct paradigms view the same problem and how they set out to investigate it and offer solutions, which could be deemed complementary. In a typical TD setting, researchers come from different disciplinary backgrounds, worldviews and paradigms; it is important to see each contribution as enriching of our understanding towards solving/resolving some of our modern and complex problems.

In a typical TD setting, researchers come from different disciplinary backgrounds, worldviews and paradigms. The case study paper explored how different paradigms and their related methods can contribute constructively towards understanding and solving complex problems.

Researchers doing TD research will invariably use many different theoretical frameworks and methods from various different disciplines and epistemic cultures in their work, but integrating and understanding how they fit together can be a very frustrating and overwhelming exercise. Thus, the importance of approaches for integrating methods for TD research/practice was a key purpose of the session.

The importance of logically combining methods was addressed through a short lecture on mixed methods which set out to highlight some of the different methods and ways of enquiry. At some level, the objective of the researcher, and the kind of problem being addressed, are key determinants of the choice of method. For example, transformative inquiry as a methodology is often appealing to researchers interested in social justice. The lecture also set out to indicate different kinds of problems that might require mixed method methodology. After the short lecture, participants were asked to divide themselves into groups and consider the types of methods they might apply in their research. This was followed by a brief feedback session (2-3 minutes per group). The critical outcome here was the clarification of the different ways methods can be combined and used in a TD research project.

Having explored some of the difficulties of mixing methods and epistemic cultures, the group next focused on practical ways to combine methods and methodologies. We covered two general areas during the course of the afternoon: conceptual clarification (methods vs. methodology, styles of enquiry, epistemic culture), followed by an exploration of empirical methods and tools commonly used in TD research, and how they fit within these concepts. Students focused on the methods they used in their research, but also were exposed to other common methods as shared by facilitators and other students.

Mixed methods methodology argues that it is possible to combine qualitative and quantitative methods to help unpack real world complexity. This approach is used when qualitative or quantitative research on its own is insufficient to fully understand the problem.

Following this, a third lecture focused on methods combination and selection. Often, in a research project, methods combination takes place mostly at the method, tools and technique levels. Though different paradigms can be used by different researchers to contribute towards understanding a single problem with a research project, these paradigms still retain their identities and denoting that effective combination does not take place at the paradigm level. Therefore, this lecture clarified the 'where', 'what', and 'how' of method combination and how methods should be selected. An

important discussion that ensued during the lecture was whether it is the 'problem' or 'paradigm' – or both - that influences the choice of methods.

Facilitator's Session Reflections

What worked well?

Team Work: The team felt that they worked well as a team and enjoyed the fact that they were able to trust each other with "sections" with the task at hand.

Session: One of the elements of the session that the facilitators felt worked well, based on the feedback from the workshop participants, was the case study paper, both because of its relevance to the workshop and also because people appreciated the time they were given to quietly read it.

> *"Many participants remarked that they enjoyed an opportunity to quietly read a paper after an active morning. We also thought that the particular case study chosen was pedagogically appropriate for the workshop…"*

The Power Point lecture was another element that was considered to have worked reasonably well, as well as opting for the more open discussion, rather than the structured discussions, that were planned originally for the session.

> *"This discussion offered a much-needed opportunity for participants to think about their own work and seemed to offer an important bridge between the first and second days' activities."*

What didn't work well and how would you do it differently?

Team work: They found it challenging to find times to meet in person to work collaboratively on different sections, resulting in a certain amount of overlap and lack of consistency between sessions. In future workshops the team would like to spend time to prepare this lecture together.

Session: The session facilitators felt there was a struggle to achieve purpose-within-context, with participants seemingly grappling with terminology and clarity on the relevance of some parts of the session. This could be attributed to the fact that the 'What is TD?' session was missing from the workshop which could have helped participants to easily understand the ideas around combining of methods. The session was presentation heavy and time to discuss real methodological challenges in TD research and to relate these challenges to participants' own work was not enough. There was a need for this session (as well as others) to strongly emphasise the different situations a student researcher might find themselves doing TD research in, either as part of a larger research team or as an individual researcher collaborating with knowledge-holders outside of academia, or as the person tasked formally or informally with integrating and brokering among and between stakeholders. In future, there is a need to standardise terminology between facilitators and offer a glossary to participants if appropriate. Moreover, the three technical presentations in the session could be collapsed into a single offering, focusing more of the time on the selection and combination of methods. Although the session facilitators adapted parts of their session to include more discussion on participants' own research, they feel this could be an even stronger focus in future offerings of the workshop. Participants should have more time to think about the way that they combine methods in their work and research, and be allowed more time to think about their personal conceptual and practical challenges in combining methods – tethered to a conceptual mooring, but free to explore their context. To further stimulate discussions, participants could be asked ahead of the workshop to give thought to sharing their active projects for discussion. This could elicit more active engagement, participation and interest.

Overall Learning

The key overall learning in the preparation phase was that collaborative preparation time was critical to achieve coherence between sections. The major learning from facilitation was that the bulk of the session needed to be dedicated to participants grappling with the ways in which they can combine different research methods and methodologies in their own work.

SESSION 3A: ETHICAL ISSUES IN TD RESEARCH

Chris de Wet, Jessica Cockburn, Nelson Odume, Joana Bezerra

Motivation

Transdisciplinary research differs from conventional research approaches in a number of ways, and this has implications for ethical research practice in TD. This session was aimed at providing a brief overview of what ethics is, why it needs to be paid particular attention to in TD research, and what practical implications this may have for the practice of TD research.

Transdisciplinary research differs from conventional research approaches in a number of ways, and this has implications for ethical research practice in TD.

The session was structured around three themes:

1. Clarification of what 'Ethics' is
2. Complex systems and its implications for the ethics of transdisciplinarity in practice
3. The ethical implications of transdisciplinary research.

Below are the proposed learning outcomes that the session facilitators were hoping the participants will take with them going forward from the workshop.

Proposed learning outcomes

Participants will:

1. Think about why it is important to think about ethics in research in the first place, and how this takes on particular importance/texture in the context of TD research. Why? a) because ethics is a meta level activity, working with, rather than simply propagating, values; b) because TD is concerned with the ethics of complexity (inasmuch as it is involved with complex systems)
2. Reflect upon their own ethical positions.
3. Co-develop a set of principles to guide ethical transdisciplinary research, along with considering the practical implications of such principles.

The objectives, the approach and outcomes are described for each theme below.

Theme 1: Clarification of what 'Ethics' is, and some opening questions.

Objectives

Under this theme it was useful to clarify and make the distinction between ethics and morals. Ethics, understood as: a systematic concern with principles by which we seek to

Ethics: a systematic concern with principles by which we seek to distinguish between right and wrong, to negotiate values, in our behaviour towards people and towards nature. ***Morals/Values:*** what specific individuals or groups believe to be good or bad.

distinguish between right and wrong, to negotiate values, in our behaviour towards people and towards nature. Morals/Values, understood as: what specific individuals or groups believe to be good or bad, e.g. vegetarianism. This basic distinction between 'ethics' and 'morals/values' was foundational to the entire session. However, in its very nature, as a distinction about issues of value, it requires both a level of abstract thinking and a conscious moving away from one's own values.

Approach and Outcomes

This session was started off with the introduction of what constitutes ethics and how this differs from morals/values. This session was interactive from the onset and the following questions drawing on participants' own research experiences were posed: What is an ethic? In contrast to ethics, what are morals and values? What is your own ethical position? Consider these questions in your research but also in your personal life. Participants actively engaged the subject through meaningful examples ranging from domestic home scenarios to research-based, social-ecological examples. At the beginning, participants conflated both ethics and morals/values, using both terms interchangeably. Progressively, the difference between the two terms became clear to most participants as more examples were discussed. On the other hand, responses suggested that some participants struggled to see any evaluative dimension beyond that of their own moral judgements.

Theme 2: Complex systems and implications for the ethics of transdisciplinarity in practice.

Objectives

Transdisciplinarity brings up questions of system and of context in various ways – which have implications for ethics: a) Increasingly, we are accepting that we all find ourselves in complex situations, that we are part of what we call complex systems, of which both agency and non-agentive feedback are part, i.e. systems in which old-style linear-predictive, and action-outcome logic, are not applicable. However, this has significant implications for how we understand issues of agency, autonomy and responsibility within complex systems, and therefore, for the way in we approach ethics. b) Increasingly, we tend to see the complex systems of which we are part, as multiple, as compound, in composition and nature - we specifically talk of complex social-ecological systems (SES), in which the two major components (human and non-human) are in on-going complementary and co-supportive interaction, with the implication that analytical or policy weighting should not be granted to either.

This has ethical implications, because, if we see the social-ecological system (SES) as an integrated unit, then we need to see that integrated system as the central good or value to be pursued in seeking to interpret, evaluate or manage the SES. This means that all components of the SES – human and non-human - must be treated ethically equitably. This requires a decentring of the human component of the SES. This needs to be a conscious management strategy in, for example, water resource management, which is inherently transdisciplinary in nature. It can be seen that taking the idea of complex systems seriously, has far-reaching ethical implications for TD thinking and practice.

Approach and outcomes

This theme was addressed through a short presentation titled: "Complex systems, TD and environmental ethics – the case of SES". The social-ecological system (SES) was used as an example of a complex system, where TD research is currently being undertaken at Rhodes. Its implications were also discussed throughout the presentation and the following questions were posed:

1. Consider each component as having both intrinsic (inherent) value and instrumental (use) value.
2. What does each component contribute towards the overall health/welfare of the SES? What does each component derive from the SES as a whole?
3. If each component is seen as being a stakeholder, as having a voice, what needs to be said on its behalf?

4. If the SES as a whole is seen as a stakeholder, what needs to be said on its behalf?

Working within complex systems, we need to recognise that we, as humans, cannot fully understand and grasp the complexity of the SES, and this implies that we approach our research and practice, in the context of SES, with humility and respect. The perspective of systemic-relationality (SR) as an ethical framework for dealing with SES was also discussed. Participants were asked to reflect whether the SR way of dealing with complex systems could also apply in their own systems.

Working within complex systems, we need to recognise that we, as humans, cannot fully understand and grasp the complexity of the SES, and this implies that we approach our research and practice with humility and respect.

Theme 3: Characteristics of TD research that lead to unique ethical implications

Objectives

After the discussion about what ethics is, and the illustration through Complex Systems theory about why this may lead to important ethical implications for TD research, the third theme set out to further explore the characteristics of TD, which have consequences for ethical research practice.

Approach and outcomes

Through a facilitated discussion the following questions were addressed:

- Are the ethical issues in TD research in any way significantly different to those that a conventional research ethics committee considers?
- What are the issues which a conventional research ethics committee considers?
- What are the characteristics of TD research which might have implications for research ethics? (Note: this led to a discussion on 'What is TD?' and it became apparent that participants were not yet comfortable with the concept of TD research).

Some of the feedback that emerged from the discussions included the ethical challenges in TD research (Figure 3) and the Characteristics of TD which have particular ethical implications:

Ethical challenges in TD research

Figure 3: Some ethical challenges in TD research (based on group discussions described in the text below).

- We need to be careful about considering people 'research subjects' and rather consider them

'research participants'.
- If science is being done with and for society, rather than 'on' society (e.g. as research subjects), then how does that change the way we give feedback (in terms of informing participants about the outcomes) about research?
- Building relationships and trust with the TD research team and participants in the research is even more important in TD than in conventional research.
- Drawing the system boundary is important in TD research based on a complex systems approach: otherwise one can get overwhelmed by the complexity and sheer size of a problem. This includes being clear about the aim of the research, and helps one to think about the possible implications of one's research within the bounded system.
- Clashes and trade-offs between different values (e.g. consent for accessing public information versus top-down ways of accessing that info which are ethical but may upset people who don't want to give you that information).

Characteristics of TD which have particular ethical implications

- Thinking about who the research participants are. Are they research subjects? Are they co-researchers in the TD team?
- Integrating a range of methods (from different paradigms) may have some ethical implications. However, we also discussed and agreed that TD is more than just integrating a range of methods.

> TD is not just an individual endeavour but a process of co-producing knowledge. It's a collaborative journey which is co-initiated and flexible. The team defines the problem together, they find new ways of looking at problems, and they do this consciously.

- So, what is TD?
- TD is not just an individual endeavour: it includes an array of disciplines and people/participants. It is a process of co-producing knowledge.
- It is a collaborative journey which is co-initiated, but open to changing the team, flexibility is an inherent principle. The team defines the problem together, they find new ways of looking at problems, and they do this consciously.
- Ethical implications of "the politics of teams": this refers to the fact that transdisciplinary research is by nature a 'team endeavour' and thus brings with it challenges of team work such as, for example, power dynamics and the need to manage inter-personal relationships in a professional research context. Such challenges raise ethical questions arising from the working relationships within such teams, which are often not experienced in conventional, monodisciplinary research carried out by individual researchers.

Theme 4: Co-developing principles and practical implications to guide ethical transdisciplinary research

Objectives

The fourth theme set out to work with the participants to develop possible principles of ethical TD research building upon the main issues and ideas that emerged from Themes 1-3. Additionally, it was deemed important to find out from the participants if the session helped the way people think about ethics in their research.

Approach and outcomes

Based on the conventional ethical research guidelines and characteristics of TD that had emerged from previous discussions, the participants were asked to form small groups and discuss or share some of the ethical principles that they thought were important for an ethical TD research. One person from each group gave feedback to the whole group about what they came up with. This

question was posed to get the discussion started:

- If TD research is significantly different from conventional research, and conventional research ethics guidelines are therefore insufficient to guide TD research - what are the implications? This led to the development of principles to guide ethical TD research.

Some principles and questions/issues that emerged from the discussion which may be useful to guiding ethical TD research are shared in Box 3.

Box 3

Principles and guiding questions which may be useful for guiding and thinking critically about the ethical issues in TD research

- *If, as in many TD processes, research participants become co-researchers in the TD team, then who is giving consent for the research in the conventional sense of research ethics procedures? Should there be some co-consent or team consent?*
- *Consent from individuals/communities about information given: does the whole team have access to the information? How do you decide?*
- *Be open to surprise and willing to take personal responsibility e.g. when unexpected ethical implications arise – TD and complex systems research is full of surprises.*
- *It is important to negotiate rules of engagement in TD teams.*
- *One needs to be aware of unpredictability and shifting boundaries.*
- *Feedback in complex systems (in the 'systems' meaning of feedback), and between components of TD teams, limits/modifies human choice – this has ethical implications.*
- *Data ownership within TD teams and between TD teams and research participants/communities needs to be negotiated carefully.*
- *Co-authorship within TD teams also needs to be negotiated carefully.*
- *Consent and allowing people to leave or to not participate: it is more important HOW one asks for consent and creates a space for people to leave or not consent - this is important both within TD teams and with research participants.*
- *Uncertainty as a central component of TD – this has ethical implications.*

Each person was then asked to share what their take home message from the session will be and if the session changed their thinking about ethics in their research? The responses from the participants included:

- Balanced generosity for diverse sources of knowledge
- Humility
- Reflexivity
- Flexibility in working with people, openness and respect for diverse perspectives, knowledges etc.
- Cultural/political/economic/social relations in a community and how to frame your approach whilst being cognisant of these.

Facilitators' Session Reflections

What worked well?

Team Work: The team felt that they worked well under the limited time they had, however more team effort is required in future and time to prepare together rather than individually, to ensure the integration of the overall presentation.

Session: One of the session facilitators thought the diversity of the presentations for this session was fresh and interesting while others thought they were too dense. Another aspect of the session that worked well was participants' engagement.

> *"What worked was when participants could link what we were talking about to their own experiences and concerns…"*
>
> *"The participants' insights and level of engagement was also encouraging."*

What didn't work well and how would you do it differently?

Team Work: The team felt that they needed to have had more time to prepare together as a team to ensure better overall coherence between the themes, and also to practice the principles of team work as espoused in TD research and practice.

Session: What was viewed as one of the things that did not work well for this session was the time allocated to cover the content for the session. As a result, there was no chance for participants to internalise new concepts and ways of thinking. In addition, the session facilitators stated…

> *"I believe it would have helped to … have had more time…"*
>
> *"…the time for working with/through examples, in the kind of detail and participatory way necessary to internalise something new, just was not there."*

Another area of the session that the session facilitators thought did not work well was the fact that the session was too dense and in future it needs to be more interactive and accessible…

> *"Ethics is dense but if we don't make it accessible and really talk about it in real situations, we can very easily loose people…"*
>
> *"…I think we could have made the session a lot more interactive and really drawing on participants' ethical considerations and bringing in TD."*
>
> *"I think our session was quite 'Power Point and content heavy' but that it helped to balance the overall diversity of presentation styles in the workshop. I think we could have worked a bit harder to make the session a bit more interactive and accessible."*

Furthermore, they felt there was a need to prepare additional reference reading for the participants and examples or case studies of TD research and the kind of ethical challenges they face.

Overall Learning

One of the session facilitators stated that there is a need to consider very carefully what we think it is that we are doing in TD –intellectually, politically, ethically, and praxis-wise. TD is not simply about different kinds of people getting together and adding perspective A to perspective B to perspective C, then stir and boil the pot until TD stew magically emerges. Similarly, ethics is not simply about accommodating multiple moral viewpoints. Arriving at the ethical principles to guide TD research is very difficult. Both participants and facilitators struggled at this level – both in the conceptual and the research themes.

SESSION 3B: CASE STUDIES FOR TD RESEARCH

Tally Palmer, Mathew Weaver, Margaret Wolff, Nick Hamer

Motivation

The large TD project that has provided the canvas for much of the RU TD work is a Water Research

Commission Project entitled Water Resources Management in South Africa: Towards Practising a New Paradigm (TPNP). The project started in April 2013, and is summarised in Figure 4. The lessons learnt from this project about working with case studies in TD research formed the basis of this session.

While theory is changing, there is less evidence of a "paradigm shift" in practice following new insights and ideas.

The Towards Practising a New Paradigm (TPNP) project is based on the recognition that while the concepts listed to the right of Figure 4 have featured prominently in recent literature concerning the connections with the social-natural world, there is less evidence of a "paradigm shift" in practice following new insights and ideas. The project uses case studies and different scales to explore whether research practice using these concepts can be a transformative process, and then encourages movement towards social and ecological justice. In this session the aim was to use this project to probe the value of TD case study work.

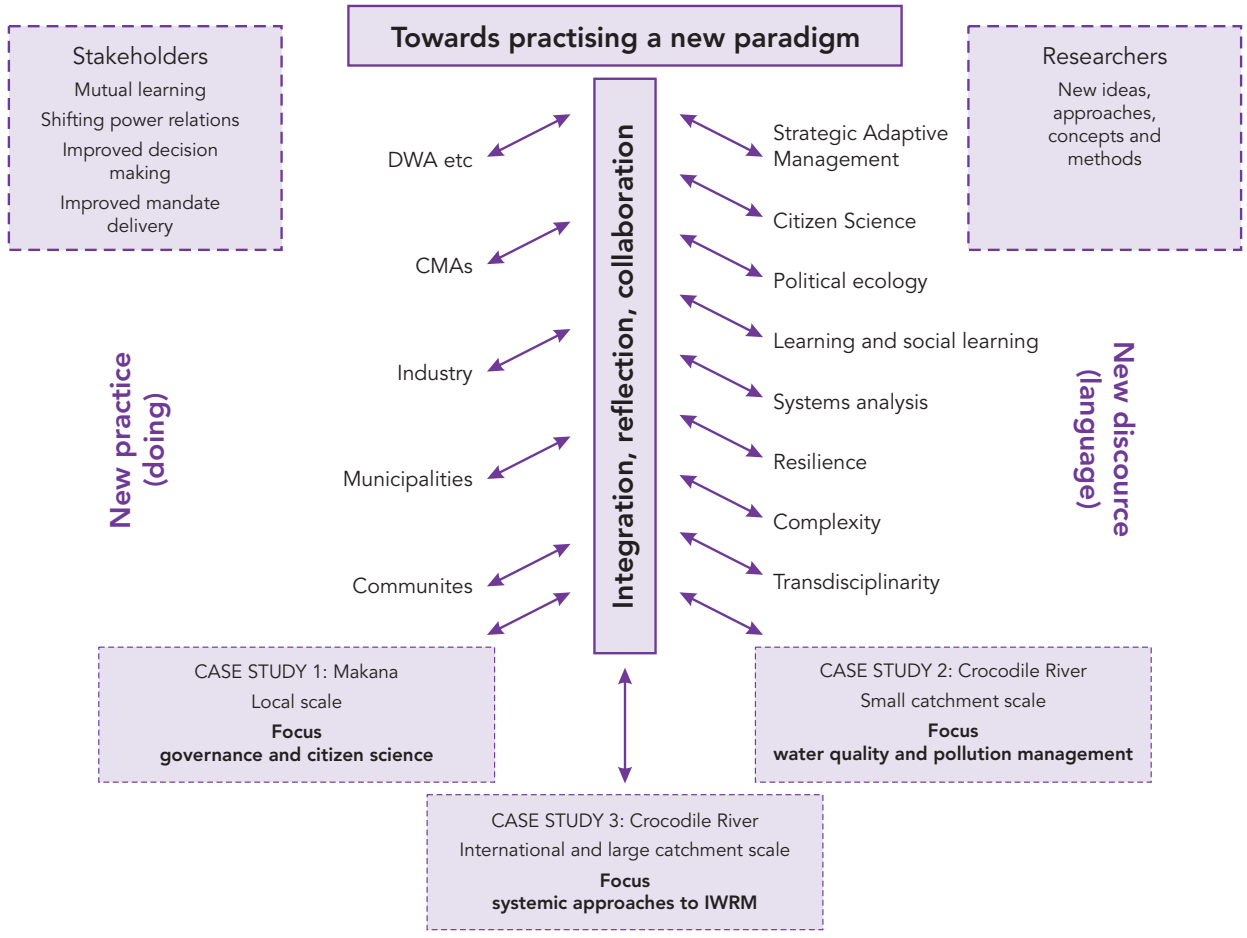


Figure 4: Summary of the TPNP project

In this 4-year project, the vision is that engaged action research is undertaken with an understanding that people in catchments comprise complex social-ecological systems, and that using appropriate complexity and systems-based approaches and methods could result in a deeper embedding of equitable, sustainable and adaptive Integrated Water Resource Management (IWRM) in South Africa. The overall research approach is transdisciplinary.

The terms of reference for the TPNP project required the research to address three 'wicked problem' areas through which the practice of new paradigm thinking might be shifted towards social and ecological justice, or well-being. These are a) water resource protection, b) eutrophication and

c) microbial pollution in relation to human health. These themes are being explored in terms of complex social-ecological system theory and TPNP practice through three case studies, each at a specific social-institutional and bio-physical scale, and through a central process on reflective learning and practitioner engagement.

- Case Study 1: Makana and Sundays River Valley Municipalities: At the local government, sub-catchment scale, in the Eastern Cape. The focus is on local government governance linked strongly to community and citizen science.
- Case Study 2: Crocodile River in the Inkomati River catchment: At the Catchment Management Agency (CMA)-catchment scale. The focus is on water quality and approaches and mechanisms to reduce pollution.
- Case Study 3: Olifants River Catchment: At the broadest biophysical scale, within an international catchment with regional institutional co-operation, the Association of Water and Rural Development (AWARD) is running a large USAID-funded project, that serves as a TPNP case study. The focus of the RESILIM-TPNP connection focusses on co-learning about systemic approaches to IWRM.

Concurrently with the case study research work, the TPNP project team has worked actively with IWRM practitioners, especially within government, so that new practices emerge rather than being presented at the end of the project. Importantly, the stakeholder engaged process is i) actively recording mutual learning, shifting power relations, improving decision-making and improving mandate delivery among participants in new practice; and ii) ensuring that new thinking, experience and practice is contextualised, integrated and embedded through a new discourse (Figure 4).

Approach and outcomes

Participants first listened to a presentation which outlined the relevance and use of case study research in TD research. The presentation drew on two main papers namely: 'Flyvbjerg (2006): Five Misunderstandings about Case-study Research' and Max-Neef (2005) on 'Transdisciplinarity'. Participants were provided with enough information concerning the importance and use of case study research from the presentation to then engage in a group activity that saw them design their own case studies. The aim was to:

1. Draw from what they learnt the previous day in the methods section.
2. Use information from the presentation to search each of five resource tables in order to interact with facilitators at each resource table, whose various kinds of knowledge had been explained, and then to collectively design a case study to address water supply options to Grahamstown residents facing unreliable water supply.

The facilitators each manned the five resource tables.

Resource Table 1- An expert on the Grahamstown reticulation system, its history and development:
Resources included: Maps of Grahamstown; schematic diagrams showing elements of the reticulations system; a narrative of historical development of Grahamstown's water supply and personal knowledge of the water supply in Grahamstown.

Resource Table 2- Members from the civil society group Water for Dignity:
Resources included: Detailed township map; results from the Water for Dignity water service delivery research and the members themselves as local knowledge bearers.

Resource Table 3- A senior researcher experienced in challenged Municipalities and case study research:
Resources included: Systemic diagrams of ways in which local government has failed in water supply (Clifford–Holmes *et al.*, 2016).

Resource Table 4- A senior researcher with data from the Makana case study:
Resources included: Detailed information pertaining to the reticulation system drawn from a

report compiled by the company 'Resolve' who were hired to survey and replace water meters in Grahamstown; results from the Citizen Report Card Initiative (a survey which investigated household water service delivery experiences in Grahamstown East residents); the senior researcher's expert knowledge on water service delivery issues in the municipality.

Resource Table 5- A long-time resident in Grahamstown:
Resources included: Popular articles relating water to issues in the municipality; the resident's own experience as a long-time resident in Grahamstown West.

Participants were given one and a half hours to design their own case study after which they presented their case study to the facilitators and other participants.

The two groups adopted different approaches.

Group 1:
This group discussed the case study and problem as a group and then split up and each group member visited a resource table. They then convened with gleaned information. This meant their approach was a combination of multi and transdisciplinary approaches. Since some of the facilitators moved to different spaces (so a resource table had facilitators at more than one physical table), group members missed visiting two of the resource tables which they did not notice as they still had five reports. They felt this was an efficient approach, but reviewed this opinion when they realised they missed knowledge gathering opportunities. Their approach also meant that each group member spent more time at one resource table asking for specific information and engaging with the issue in more depth.

Group 2:
The second group discussed the case study and issues that needed to be addressed as a group and then together queried a few of the resource table experts. This group really engaged with the complexity of the issues at hand and appeared to build a more comprehensive picture of the issues faced in Makana. They also did not get to all the tables, because of the time limitation and so also did not gather the full possible range of knowledge. The approach undertaken by this group was purely a transdisciplinary approach with the whole group concurrently developing understanding together.

Facilitators' Session Reflections

What worked well?

The use of real examples for the case study was welcomed and discussion through the group was animated.

What didn't work well and how would you do it differently?

Some participants reflected that throughout the entire session, they were still unclear what a case study was. This prompted a discussion about case study definitions. This then denotes that in future there is a need to define case studies early in the session.

Overall learning

The different group participant approach raised questions about what constitutes TD research. When should one work as a group or use a more individually and possibly uni-disciplinary focus before re-grouping?

SESSION 4: NAVIGATING TD SPACE/WORKING IN DIVERSE TEAMS

Nelson Odume, Mathew Weaver, Margaret Wolff, Andiswa Finca

Motivation

This was the final session of the workshop and brought participants together again after the parallel sessions. This session was motivated by the fact that in 'TD spaces' (i.e. social situations in which researchers engage with societal actors through TD research processes), diverse people from different disciplines, with different personalities and perspectives, converge around a shared research problem. Even though these different people are usually working towards the same goal, there is a need to find ways of effectively navigating the TD space in a collaborative manner (Sitas *et al.*, 2016). It also requires researchers to build relationships or networks based on trust with practitioners and societal actors beyond academia, to develop what has been called a "transdisciplinary epistemic community" (Van Breda *et al.*, 2015). Addressing these challenges means developing social skills often not required in monodisciplinary research. Initially the session was meant to address two key challenges: 1: Working in diverse teams; and 2: Building networks. However, after some discussion between the session facilitators it was decided that the time allocated to the session was not enough to address both and so the building networks theme was dropped.

TD spaces' (i.e. social situations in which researchers engage with societal actors through TD research processes), diverse people from different disciplines, with different personalities and perspectives, converge around a shared research problem.

Approach and outcomes

The role play session was designed as a Grahamstown meeting with different stakeholders as listed in Table 1, meeting for the first time with hopes of finding a solution together on the Grahamstown Water Service Delivery 'wicked problem'. Two aspects of the Grahamstown Water Service Delivery 'wicked problem', namely failing infrastructure and water quality, were chosen as issues to be addressed by this group of stakeholders. During the first day of the workshop the session facilitators watched the group dynamics and identified people who could fit the roles for the role play session. Short notes with the problem statement written were given to all the workshop participants on the first day so that during the role playing session they have an understanding of at least the issue being discussed. Character scripts (Table 1) were prepared to try and bring out some of the tensions that may emerge in a TD meeting and were given to each of the identified characters. This was to allow them enough time to prepare for their characters and do additional research on the characters if they needed to because the scripts were more of a guideline. Each of the characters was asked not to share their characters with anyone especially the other people who were participating in the role play.

On the second day participants took to their allocated roles with enthusiasm and the role play continued for 30 minutes. The ensuing discussion was so fiery that the participants were unable to constructively come to potential solutions to the problem set by the task. The rest of the workshop participants acted as observers of the process as it unfolded before them, and gave feedback of what they thought about the process, how they would do things differently and what they thought could be improved. This was deemed important because it allowed the session facilitators to gather insights on how a person looking in from outside thinks about how the process is going. This stimulated a rich discussion from both the role players and the rest of the workshop participants; below are some of the principles distilled from the discussion.

Table 1: List of role play characters and the description of their roles.

Characters	Description
1 x Water Quality / Social science expert	Young, energetic, science background, but interested in transdisciplinary research for engaged research into solving wicked, knotty problems.
1 x Urban infrastructure engineer / Science expert	Outspoken and speaks over others. Believes the entire solution lies in linear engineering solutions, and undermines other suggested solutions.
1 x Municipal representative – Municipal manager	Arrives late to the meeting due to other municipal commitments. Is a very busy person with huge responsibilities on her shoulders.
1 x Grahamstown East community member	Shy in big groups but has the ability to engage meaningfully if given the opportunity.
1 x Grahamstown West community member	Does not say much during the discussion and when they speak they make demands.
1 x WWTW process controller	The Engineer is your boss, and whenever he/she is in a group meeting with you, you rarely contribute but when you do, you make valuable contributions.
1 x NGO representative	Feisty, outspoken, occasionally interrupts others.
1 x Student	Empathetically listens and does not say much but makes valuable contributions.

Facilitators' Session Reflections

What worked well?

Team Work: The facilitators for this session expressed that preparation of the session by the team was effective and there was a flow from the onset, which made things fall into place easily. They stated:

> *"I enjoyed working with my team, there was a flow from the first meeting and we knew the direction that we wanted to take and that laid a foundation upon which we could build and modify."*

> *"Preparation for the sessions that I was involved with was made effective through a series of collaborative planning meetings where we co-conceptualised the plan for the sessions…"*

Session: The role play session was designed to highlight the potential difficulties with working in a TD space. The scripts were not particularly designed to highlight TD research space, but TD space, where the broader society and interest groups are engaged within the context of a prolonged and knotty topic. Often, at the beginning of TD research, the researcher is bound to experience such situations, especially when s/he tries to understand the problem from different stakeholders seated around the same table. The highlight of the role play was therefore to create an awareness of these issues in the mind of the novice TD researchers, and to learn how to deal with them. From the feedback from the

Often, at the beginning of TD research, the researcher is bound to experience uncomfortable and challenging situations, especially when s/he tries to understand the problem from different stakeholders seated around the same table.

Box 4

Principles of effectively navigating a TD space

- ***Manage and tolerate discomfort and power dynamics:*** *The role play highlighted the issues of discomforts, which included the late arrival of some of the participants, and intellectual domination of the discussion by a few participants. In dealing with these discomforts in a TD research team, it is therefore important that power is actively and constructively balanced and negotiated in the team, for constructive engagements and outcomes.*
- ***Be sensitive to unexpected knowledge, solutions and 'ah-ha' moments:*** *in the role play, the post-graduate student offered a few potential solutions which were ignored by the more dominant people in the group. The importance of unexpected knowledge sources cannot be over emphasised. In a TD situation, everyone in the team must be seen as a potential source of knowledge, insight and critical direction. Meaning, as TD practitioners, we must consciously and deliberately develop empathetic listening as a trait.*
- ***Be sensitive to new or late arrivals:*** *the municipal manager and the engineer arrived late due to other commitments and this was met by consternation and accusations from the rest of the participants resulting in the two late comers assuming a defensive disposition.*
- ***Awareness of relationship to self, others and the wider ecology:*** *During the role play, it became evident that each TD practitioner within a TD team is an embodiment of emotion, mind, spirit and body. The awareness of self, in relation to oneself, as well as other team members becomes a very important principle in navigating the TD team in the context of research. Moreover, self-care needs to be encouraged because different people have different needs.*
- ***Create a safe environment to engage with integrity:*** *this will encourage the building of trust and relationships which in turn helps to diffuse discomfort. The creation of a safe environment also involves an awareness of preferences of the individuals involved in the group. For example, some group members may not be very comfortable contributing actively in open discussion, but are comfortable in contributing in one-on-one situations. It is therefore important to recognise and understand diversity in the group in order to create an environment/atmosphere that encourages open discussion. Additionally, you need to be the representation of what you expect from people.*
- ***Sustain engagement and inquiry over time:*** *relationship and trust building takes time. In the case of the role play, though the municipal manager was constantly under attack for not providing adequate water services, she still manages to stress the importance of engaging in a future date. In a TD team, it is possible to experience setbacks both in the forms of ideas and in actual engagements. In such moments, every effort should be made to sustain the enquiry and engagement.*
- ***Sustain engagement outside TD spaces:*** *maintain networks and people that you can reach out to.*
- ***Encourage soft skills development:*** *e.g. skills to facilitate TD processes and leadership skills.*
- ***Humility:*** *TD teams often involve participants coming from diverse epistemic backgrounds, as well as having different training. Intellectual humility is therefore necessary to facilitate listening and respect for the different ways of knowing and of integrating diverse knowledge sources to form a coherent, novel knowledge. To be constructive, empathetic listening becomes a critical principle for TD engagement.*
- ***Open communication****: This is important for trust building and for collegiality and network building.*

role players and the workshop participants, who acted as observers in this session, the facilitators thought the session served its purpose.

What didn't work well and how would you do it differently?

Team Work: The session facilitators worked well together and could share responsibilities such as who will introduce the session and its purpose, writing of different roles for the role play etc. However, the leadership role was not allocated and this had an impact on the number of times the group met.

Session: The participants were not provided with an agenda or facilitator for their meeting and were confused as to who the meeting was called by. This created confusion and discomfort right from the start. In future, it may be more productive to provide a basic framing agenda and designate a chairperson for the discussion. The scripts for each of the role players could be better written so that there are key pointers as to what the character needs to achieve in the session. One of the role players could be instructed to draw up an agenda so that the meeting can continue and someone else could volunteer to take minutes of the meeting and report back. One participant, the social science expert, was scripted to encourage the participation of other less vocal group members, and yet was very vocal in the discussion at the expense of the quieter voices. The role of the empathic encouraging member should be better defined in future. Additionally, some of the roles like the NGO, Social Science Expert and the Grahamstown East community member could be teamed up and allowed to share scripts or meet prior to the role play session, so that they have a common understanding of what direction they would drive the conversation. Other characters that could be teamed up are the Urban Infrastructure Engineer and WWTW process controller.

Overall Learning

The overall learning for this session is linked to some of the principles that emerged from the feedback from participants and facilitators. One of those principles was that one should not always listen with the intent to answer but listen empathically. Additionally, the session facilitators really identified with quote from one of the participant: "The quality of the intervention depends on the interior state of the intervenor" (This quotes is from Bill O'Brien, previous CEO of Hanover Insurance group, as quoted by Otto Scharmer in his book 'Theory U').

3. OVERALL REFLECTIONS

3.1 Wrap-up session

Approach and outcomes

To wrap up the workshop the organizers deemed it important to have a reflection session where both the workshop participants and the facilitators shared their thoughts and what they learnt from the two day workshop. More than one approach was explored to ensure that everyone participated in this process, namely, the embodied exercise, the external reviewer's feedback and the evaluation surveys. Below is the summarized account of each of these approaches including the written reflection extracts from the external reviewer and the written reflection from the facilitators/organizers.

Embodied Exercise

The workshop was started off with a circle outdoors for all participants, where each participant shared a movement and a word representing how they felt in that moment which was then copied by everyone in the group. This was meant to welcome people into the workshop and therefore to wrap up the workshop, the same approach was employed. This time people were asked to share in word and movement how they felt after participating in the workshop for the past two days and this

The workshop was a learning experience for the RU TD Group... not only for participants

There was a lot to learn both from each other as the facilitators and from the participants. There were areas of the workshop that were new to some facilitators and being part of those sessions opened doors to learn more: both about being part of a TD group, and about conducting a TD research.

"I learned a lot in the workshop, not just about TD, but about us as a group."

was copied by everyone in the group. These are some of the highlights from what people shared: 'tired', 'inspired'.

Feedback from Prof Mathieu Rouget

As per the terms and conditions of the call for the Postgraduate small grant application, an external reviewer/evaluator was invited. This was Prof Mathieu Rouget from the University of KwaZulu Natal who was asked to observe and share his expert views on what he thought about the workshop and what he thought needed to be improved upon for future workshops. He also submitted a written reflection which is summarised below.

His overall impression of the workshop was that the workshop provided a great introduction to TD research and the organisers managed to keep the momentum and transferred appropriate knowledge content on the topic. On the organisation of the workshop, he noted that the rich program that the organisers put together, which included a range of interactions like lectures, group interactions, role play, theatre play, discussions, reflection time and even body art, enabled participants' engagement and minimized workshop fatigue. He commended the organisers for the time spent in compiling the materials for the workshop since most of it is not available off the shelf and suggested that additional resources should be provided to further develop the material. However, he thought the workshop needed a main facilitator to guide participants between sessions especially given the big number of the session facilitators. Although the content was very rich, he stated that there was a need to start the workshop with a short introduction of 'What is TD?'; this would have been useful especially for people who were encountering TD for the first time.

The rich program the organisers put together, which included a range of interactions like lectures, group interactions, role play, theatre play, discussions, reflection time and even body art, enabled participants' engagement and minimized workshop fatigue.

> *"As a first-time encounter of TD research, you almost had a walk through the meaning of TD research throughout the day. While this enables a deeper understanding of this research mode, it also created some confusion at the beginning of the workshop."*

Prof Mathieu Rouget thought the workshop was very interactive and even though participants came from a very diverse background, everyone could find their own space and the organisers were very mindful of acknowledging everyone's perspective and giving space to the different views. He added that the diversity of participants' backgrounds was a key factor contributing to the success of the workshop. The feedback obtained from the participants, although informal, suggests that the workshop was successful in unpacking what TD research is and how it can be done.

Evaluation Surveys

Both the facilitators/organizers of the workshop and the participants were requested to complete an end of the workshop final written reflection and evaluation in the form of a survey. The facilitators were requested to indicate on their forms so that their reflections could be differentiated from that of the participants. Below are the questions that were used to guide the participants when writing their final reflection on the workshop and some of the answers extracted from the surveys.

1. What did you enjoy about the Workshop?

One of the key words that stood out when people were expressing what they enjoyed about the workshop was the **'diversity'** which was used interchangeably with 'different'. Some participants stated that they enjoyed interacting and connecting with participants from the diverse backgrounds, working and learning together, while others enjoyed the diversity of the discussions.

> *"The diversity of experiences."*
>
> *"Different group of people working / learning together."*
>
> *"The diversity of…… discussions."*

This leads to the second key word that stood out which was **'discussion'**. Most participants felt that the discussion during the workshop was stimulating, engaging, rich and open.

> *"I enjoyed the rich engaged discussions that emerged from the sessions."*

Other highlights under this question included: understanding of the TD research; role playing; case studies; creativity and daring of facilitation; honesty and openness about the uncomfortable nature of working in a TD group and the guest academic's reflections.

2. What did you find challenging?

Challenges that people experienced from the workshop were mostly linked to **'terminology'**, with most people expressing how they struggled to understand some of the terms that were used in the different sessions.

> *"When some people became too technical when speaking as most of the stuff was new to my ears."*
>
> *"Some of the concepts still remain unclear…"*
>
> *"The concepts / language used – more specifically not sure if the words used, have / hold the same meanings in the 'discipline' I come from."*

Another key challenge for both the workshop participants and facilitators was **'time'**. Participants felt that time to commit to the two days of the workshop was a challenge, while facilitators felt the time it took to put the work together put them under pressure.

> *"Time to commit…"*
>
> *"The days of being away from work…"*
>
> *"Time to put work together and think about the process – feeling a bit of pressure to produce a workshop that is useful, helpful and helps shift TD at RU."*

Some participants experienced difficulties in understanding some of the sessions and one mentioned a particular challenge of letting go of their pure science paradigm.

3. What have you learnt? What aspects have been the most relevant to your own research?

Learning and relevance of the workshop to people's own research varied for both participants and facilitators; below are some of the highlights.

> *"Reaffirming various aspects of TD – ideas to use with students, etc. Broaden my knowledge"*
>
> *"The fact TD trains not only to be an academic but also a practitioner."*
>
> *"TD is a complex issue by itself. In order for it to be effective, the team needs to remain humble to enable effective participation and idea sharing."*
>
> *"The main thing I've learnt is that you can organize and run a complex process and be yourself. You don't have to play a part. There's room for everyone."*
>
> *"The lineages TD stems from. What challenges are faced in TD research. What are characteristics of TD. What ethics should be incorporated in TD that differs from conventional research."*
>
> *"Most importantly for me, what is TD research; what is meant by it; what constitutes / makes / qualifies research as TD research and what it is not. Most relevant to me – when it would be useful to consider it in my work and what value it may add to my understanding of the challenges I face in the research."*

4. What support do you need to take what you learnt forward?

Some people stated that '**continuation with this kind of engagement**' is what they needed in order to take what they learnt forward, while others felt the '**resources**' such as the materials used for the workshop and other TD books were important. '**Collaboration**' was also mentioned, with one participant suggesting co-authorship with someone with TD research experience.

> *"Continue working with TD team."*
>
> *"Continuation of this community of practice."*
>
> *"Resources – TD books, authors, references, journals?"*
>
> *"Opportunities for collaboration…"*
>
> *"Access to the material used in the workshop…"*

5. Comment on the workshop process / format e.g. mix of approaches (body work, play, group discussions, presentations, role play etc)

While some of the participants enjoyed the **'mix of approaches'** because they kept the workshop interesting and felt there was a good balance, others felt the **'diversity of approaches was not integrated'**. Others expressed that they would have liked to do more outdoor activities, more body work and receive material prior to the workshop.

6. What do you feel could have been included that wasn't?

The participants gave different responses about this question. While some felt there was nothing additional they could suggest including in the workshop, others thought **'a session on supervision'** could have been useful and this was echoing what had emerged from the discussions during the workshop. Another important fact that participants felt could have been included in the workshop was **'space to discuss or reflect on participant's individual research'**. Inclusion of examples of **'South African TD research'** that have been successful or unsuccessful was another suggestion from one of the participants.

7. Would you recommend this workshop to others? If not, please say why not.

Everyone who completed the form, except for one who did not answer, said they would recommend the workshop to others. Although most responses were just 'yeses' there were few people who elaborated and even made some suggestions. For instance, there were participants who felt 'the workshop would be more suitable to people already doing TD research'.

> *"Yes, but maybe not to newbies – I think it might have been overwhelming."*
>
> *"Yes, if they are involved in TD research."*
>
> *"Yes, however it needs someone who has not yet begun research (Thesis)…"*

Other participants stated that they would recommend the workshop because it might be an '**important tool for understanding TD**', to make an impact on the ground or simply for others to be aware of TD research. Overall, the answers provided here suggest that the workshop was a success and participants enjoyed and learnt from the workshop.

Facilitators' overall reflection on the workshop process

This section deals with the reflection upon all the aspects of the workshop, including planning and actual workshop process. The reflections from each facilitator were obtained and these are summarized below.

Firstly, what stood out from the reflections was the '**lack of defined roles and responsibilities**', especially the leadership role. Most facilitators or organizers of the workshop felt there was a need for a go-to person to minimize confusion and overload of responsibilities to just a few individuals. One stated…

> *"Need to clarify roles and responsibilities more carefully, especially admin, logistics, leadership and decision-making. I felt very frustrated by the chaos and dis-organized nature of things."*

Secondly, due to the large number of facilitators and the fact that there were parallel sessions, having a '**main facilitator**' was necessary and this was overlooked.

> *"I think we needed one facilitator as a central point and a go-to person for the workshop, which would have held things together better."*

Thirdly, the workshop participants came from diverse backgrounds and most of them were learning about TD research for the first time and therefore '**a short introduction of 'What is TD?**' would have benefited them and provided them with a good base for following other sessions more easily. In the ethics session it became clear to the facilitators that the participants were still grappling with what TD is and how one can conduct TD research. Also, the methods and methodology facilitators mentioned that a section on 'What is TD?' would have benefited them.

> *"We would also like to suggest that there is an explicit session on dominant paradigms and a 'What is TD?'" session. Such sessions would allow us to link the methods section much more pertinently to the 'Why TD?' session."*

Fourthly, '**time allocated for the sessions**' was not enough to allow for all the covered content to sink in or for people to reflect on it and relate it to their own research. Both the facilitators and participants alluded to this fact, although some had also mentioned that time to commit to the two-day workshop was a challenge.

> *"They should also be allowed more time to think about their personal conceptual and practical challenges in combining methods – tethered to a conceptual mooring, but free to explore their context."*

The points stated above were noted as areas that could be improved upon for future workshops; it

is however, also important to note some of the positive reflections. There was **'a lot to learn both from each other as the facilitators and from the participants'**. There were areas of the workshop that were new to some facilitators and being part of those sessions opened doors to learn more, both about being part of a TD group, and about conducting TD research.

> *"For myself I did realise that I do not really enjoy facilitating sessions as I am not very confident in doing them so it was nice to know that there were other TD organising team members/facilitators available should the questions get too complicated for me to answer."*
>
> *"I learned a lot in the workshop, not just about TD, but about us as a group."*
>
> ***'Diversity in the workshop program'** is another highlight that some facilitators enjoyed and found interesting.*
>
> *"It was particularly encouraging to learn through different ways of learning and engaging."*
>
> *"I appreciated and enjoyed the different styles of the facilitated sessions (theatre, role playing, group discussions, lectures and body) and felt that my facilitation competence developed."*
>
> *"We had very different sessions with a variety of methodologies, which was really interesting and it really opened my eyes about different ways of learning and teaching."*

Furthermore, most facilitators enjoyed **'working in the small groups while preparing'** the different sessions. Most important was **'participant engagement from which rich principles emerged'** for the different sessions (refer to boxes 2, 3, 4 and figures 2, 4).

> *"I loved the principles that emerged during our session and felt that throughout the sessions, we not only focused on the theoretical base but also on the moral and ethical, which for me is what TD deeply questions."*

Overall most facilitators felt the workshop was a success even though there is room for improvement in most areas. Additionally, as stated by one of the facilitators, doing the workshop also paved a way for decisions to be made about the way forward and to think about what the RU TD Group would like to do differently.

4. CONCLUDING REMARKS AND RECOMMENDATIONS

The whole motivation behind the organization of the workshop was the growing need to conduct research that addresses the global challenges that humanity is facing and the recognition that monodisciplinary approaches are no longer effective on their own. Hence, there has been growing attention given to transdisciplinary approaches which cross disciplinary boundaries and allows engagement with society. Therefore, the RU TD Group set out to organize an 'Introduction to TD Workshop' with the hope that TD practice may develop as a common thread across innovative Postgraduate research practice at Rhodes University. In light of what the workshop set out to do, and from the rich feedback that was obtained both from the group and informal discussions as well as from the written reflections, it can be concluded that to some extent the workshop served its purpose. It was a great initiative and has

There is a growing need to conduct research that addresses the global challenges that humanity is facing and the recognition that monodisciplinary approaches are no longer effective on their own. Hence there has been a growing attention given to transdisciplinarity approaches which crosses disciplinary boundaries and allow engagement with society.

managed to introduce and spark interest about TD and what it stands for in a more fun, interactive and flexible space. Participants, as well the invited external reviewer, have given the repetition of the workshop their vote of confidence and have given valuable suggestions of how some parts of the workshop could be done differently.

Although there is recognition of the areas that need to be improved or that could have been done differently, it is beneficial to also take note that these show just how much the workshop planning and facilitation challenged the group both intellectually and emotionally, bringing growth, trust and strengthened connections. The workshop also provided ways in which a platform to be open and honest about un-comfortability opened up a discussion amongst the group as to how to move forward, and to subtly introduce the concept of TD research to the community of Rhodes University more effectively.

There were a lot of recommendations and suggestions for future work from the invited external reviewer, workshop organizers and participants. Below is the summary of these recommendations, most of which echo what has been said in the reflections.

- Definition of the leadership roles and how we work with it in future workshops.
- A short introduction session on 'What is TD?' could be useful for participants new to the topic.
- All the workshop material should be packaged into a resource pack and made available to participants.
- Pay attention to participants' backgrounds and perspectives. A diverse view should be represented to enrich the workshop.
- Consolidate the role of facilitators and consider having a main facilitator to provide consistency and leadership.
- Avoid parallel sessions and perhaps extend the workshop by ½ day for participants to engage with their individual research projects. For example, add a session that could include TD and education (how to conduct a TD MSc or PhD, interactions with supervisors) and discussion time around individual research projects (especially for students at an early stage of their research).
- Provide additional resources to expand on workshop material and organization of sessions
- A shorter workshop could be envisaged for academic staff.
- There was also a general agreement there is a need to include supervisors and a session on supervision in future workshops.
- More embodied practices in the running of the monthly TD Research Group meetings as well as time to share where we are all at. Also greater flexibility in allowing the different 'voices';
- Need to have a glossary and to be REALLY careful about using too much jargon in presentations and discussions - especially considering the diverse backgrounds of the participants.

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6. APPENDICES

Appendix 1: Project Team

The project team will comprise RU TD group participants.

Name	Department	Role/s and area/s of expertise
Prof Tally Palmer	IWR	Project co-leader, workshop facilitator, session leader, material preparation. Large TD programmes in catchment-based complex SES. The role pf principles in TD research and practice.
Prof Sheona Shackleton	Environmental Science	Project co-leader, workshop facilitator, session leader, material preparation. Climate change vulnerabilities and livelihood strategies.
Prof Chris de Wet	IWR/Anthropology	Session leader, material preparation. Role of ethics in TD research
Nick Hamer (RO)	IWR	Session leader, material preparation. Social learning and appreciative inquiry, local government.
Dr Nelson Odume (SRO)	IWR	Session leader, material preparation. Connections of ecology and water quality to society in catchment systems.
Dr Alta de Vos (L)	Environmental Science	Session leader, material preparation. The development of TD curricula.
Dr Helen Fox (post doc)	Environmental Science	Session leader, material preparation. Critical realism.
Athina Copteros (PhD)	IWR/Human Geography	Session leader, material preparation. Dance Movement Psychotherapy.
Jessica Cockburn (PhD)	Environmental Science	Session leader, material preparation. TD principles and methodologies, ethics in TD research.
Andiswa Finca (PhD)	Dundalk Institute of Technology	Session leader, material preparation. Rural-urban linkages.
Matthew Weaver (MSc)	IWR	Session leader, material preparation. Appreciative inquiry, social learning, communities of practice
Margaret Wolff (MEd)	ELRC	Session leader, material preparation. Capability development, agency, and institutional capacity
Joana Bezerra (Post doc)	Environmental Science	Session leader, material preparation. Political dimensions of environmental science

Appendix 2: Workshop Programme

Time	Topic
Day 1: Tuesday, 10 May 2016	
8:00	Registration and welcome tea
8:30	Introduction
9:00	Session 1: Why TD?
10:30	Tea break
11:00	Session 1: Why TD? (continued)
12:00	Session 2: Methods and Methodologies for TD Research
12:30	Lunch
13:30	Session 2: Methods and Methodologies for TD Research (continued)
15:00	Tea break
15:30	Session 2: Methods and Methodologies for TD Research (continued)
16:30	Reflections and closing
Day 2: Wednesday, 11 May 2016	
8:30	Session 3: Particular aspects of interest in TD research (parallel sessions) Parallel session 3A: Ethics in TD research Parallel session 3B: Case studies for TD research
10:30	Tea break
11:00	Session 3: Parallel sessions continued
12:30	Lunch
13:30	Session 4: Practically navigating 'TD spaces': Working in diverse teams
15:00	Tea break
15:30	Session 4: Practically navigating 'TD spaces': Working in diverse teams (continued)
16:00	Reflections and closing
17:00	Home time!

Appendix 3: External Reviewer's written feedback

Exploratory training workshop – Transdisciplinary Science 10-11 May

Feedback report

Background

Over the last decades, transdisciplinary science has received increasing attention in academia. It offers a new way to address important social issues or complex problems and potentially to bridge the gap between science and practice. Traditionally, universities are not well-positioned to conduct transdisciplinary research given the strong compartmentalisation of research into separate disciplines. The initiative undertook by Rhodes which explores avenues to conduct transdisciplinary research is commendable. I was invited to join their first training workshop on transdisciplinary (TD) research and to comment on the process and outcomes.

Overall impression

I must congratulate the organisers for a stimulating and enriching workshop. Given the breadth of

topics and the broad spectrum of participants, the organisers managed to keep the momentum and transfer appropriate knowledge content on the topic. I found the workshop to be accessible and it provided a great introduction to TD research.

Organisation

The organisers put together a rich program with a range of interactions and workshop formats. They carefully balanced lectures, group interactions, role play, theatre play, discussions, reflection time and even body art. It enabled participants to engage with the topics in various ways and minimized workshop fatigue. The organization was rather fluid which enabled adjustments to the programme, based on participants' responses. I found that a main facilitator could have helped with guiding participants in between the various sessions. Given the large number of organisers, I got slightly lost in the programme at times.

As most of the material was not available off the shelf, the organisers had to spend a considerable amount of time compiling new material for this workshop. This is appreciated and additional resources should be provided to further develop the material.

Content

The content was very rich. Each session had additional material (reading, summary material, practical examples) which enabled the participants to engage further. Given the broad spectrum of potential topics to cover, it can be difficult to create a 2-day program. All sessions were necessary but a short introduction session on what is TD (15 min) would have been useful for new comers. As a first-time encounter of TD research, you almost had to walk through the meaning of TD research throughout the day. While this enabled a deeper understanding of this research mode, it also created some confusion at the beginning of the workshop. Additional sessions to cover could include TD and education (how to conduct a TD MSc or PhD, interactions with supervisors) and discussion time around individual research projects (especially for students at an early stage of their research).

Interaction with participants

This was a very interactive workshop. Participants came from a very diverse background (from music to water resource management and philosophy) but I think everyone could find their own space. The organisers were very mindful of acknowledging every one's perspective and giving space to the different views. The various opportunities (discussions, group work, role play) for participants to interact enabled the different perspectives to be reflected in the sessions. The diversity of participants' backgrounds was a key factor contributing to the success of the workshop.

Feedback from participants

Throughout the workshop, feedback from participants was obtained. While this information has not been analysed yet, informal discussions with various participants suggest that the workshop was successful in unpacking what TD research is and how it can be done.

Suggestions for future workshops

The organisers have developed a successful workshop program which could be replicated without major adjustments. Below are a few suggestions to consider for future workshops:

- A short introduction session could be useful for participants new to the topic.
- All the workshop material should be packaged into a resource pack and made available to participants (it might already be the case but as an outsider, I could not access the material).
- Pay attention to participants' backgrounds and perspectives. A diverse view should be represented to enrich the workshop (this was the case this time but it might be difficult to achieve such a balance in future).
- Consolidate the role of facilitators (perhaps too many to be sustainable in the future) and consider having a main facilitator to provide consistency and leadership.

- Avoid parallel sessions and perhaps extend the workshop by ½ day for participants to engage with their individual research projects.
- Provide additional resources to expand on workshop material and organization of sessions.
- A shorter workshop could be envisaged for academic staff.

Once again, thanks for the opportunity to be part of this initiative and congratulations for an extremely well-run and enriching learning experience.

Best regards
Prof Mathieu Rouget
DST-NRF Research Chair in Land Use Planning and Management
University of KwaZulu-Natal

Appendix 4: Bibliography for further reading

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